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**Estudos de redes de co-expressão gênica
do córtex frontal e estriado (estudo *post
mortem*) de indivíduos portadores de TOC e
controles**

**Tese apresentada à Faculdade de Medicina da
Universidade de São Paulo para obtenção do
título de Doutor em Ciências**

Programa de Psiquiatria

Orientadora: Profa. Dra. Helena Paula Brentani

Coorientador: Prof. Dr. Marcelo Queiroz Hoexter

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Lista de abreviaturas e siglas

- TOC: Transtorno Obsessivo Compulsivo
- DSM-IV: Manual de Diagnósticos de Transtornos Mentais IV
- CN: núcleo caudado
- PT: putamen
- SPECT: Tomografia Computadorizada com Emissão de Fóton Único (*Single Photon Emission Computed Tomography*)
- PET: Tomografia por Emissão de Pósitrons
- MRf: Ressonância Magnética Funcional
- NAC: *nucleo accumbens*
- CSTC: córtico-estriatal-tálamo-cortical (*cortico-striato-thalamo-cortical*)
- dlPFC: córtex pré-frontal dorsolateral
- OFC: orbitofrontal anterolateral
- ACC: córtex cingulado anterior
- vmPFC: córtex pré-frontal ventromedial
- IOFC: córtex orbitofrontal anterolateral.
- GWAS: *genome wide association studies*
- SNPs: *single nucleotide polymorphism*
- eQTLs: *expression quantitative trait loci*
- PRS: risco poligênico
- CNVs: *copy number variations*
- Kb: kilobases
- WGCNA: *Weighted Gene Co-expression Network Analysis*
- TOM: *Topological Overlap Matrix*

- BEHGEEC: Banco de Encéfalos do Grupo de Estudos de Envelhecimento do Cérebro
- CAPPesq: Comissão de Ética para Análise de Projetos de Pesquisa
- HC-FMUSP: Hospital das Clínicas da Faculdade de Medicina da Universidade de São Paulo
- SOC: sintomas obsessivos compulsivo
- NPI: Neuropsiquiátrico
- SCID: entrevista clínica estruturada
- D-Y-BOCS: escala Dimensional Yale-Brown Obsessive-Compulsive
- CDR: escalas de demência clínica
- Y-BOCS: Yale-Brown scale
- RIN: *RNA integrity number*
- COM: *Counts per Million*
- ORA: *Overrepresentation Enrichment Analysis*
- GO: *gene ontology*
- Mset: *Modular Single-set Enrichment Test*
- ME: *eigengene*
- DEG: Genes Diferencialmente Expressos
- FDR: false discovery rate
- IQCODE: Questionário do informante sobre declínio cognitivo na velhice
- SCIDD: entrevista clínica estruturada para depressão
- SCIDM: entrevista clínica estruturada para mania
- mQTLs: *methylation quantitative trait loci*
- EA: transtornos alimentares

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RESUMO

Lisboa, BCG. Estudos de redes de co-expressão gênica do córtex frontal e estriado (estudo post mortem) de indivíduos portadores de TOC e controles [tese]. São Paulo Faculdade de Medicina, Universidade de São Paulo; 2018.

O transtorno obsessivo compulsivo (TOC) é um transtorno psiquiátrico, caracterizado pela presença de obsessões e / ou compulsões. Estudos de neuroimagem funcional indicam que o TOC é um distúrbio heterogêneo relacionado ao circuito talâmico cortico-estriatal (CSTC) e as áreas que compõem este circuito incluem o *nucleus accumbens* (NAC), putâmen (PT), núcleo caudado (CN), córtex orbitofrontal (OFC) e o giro cingulado subgenua (ACC). As principais características do CSTC são a inervação do córtex frontal em direção ao estriado e cada pequeno circuito possui características específicas: afetiva/límbica, cognitivo e associativo dorsal e cognitivo ventral e motor. O transcriptoma das 3 áreas estriatais analisadas separadamente, CN, NAC e PT de tecido cerebral *post mortem* foram comparados entre 6 casos de TOC e 8 controles. Os resultados mostraram que diferentes processos biológicos, bem como a desregulação da conectividade de rede, são específicos para cada região do estriado e estão de acordo com o modelo tripartido do estriado e contribuem de diferentes formas para a fisiopatologia do TOC. Especificamente, a regulação dos níveis de neurotransmissores, processo pré-sináptico envolvido na transmissão sináptica química foram compartilhados entre NAC e PT. A resposta celular ao estímulo químico, resposta ao estímulo externo, resposta à substância orgânica, regulação da plasticidade sináptica e modulação da transmissão sináptica foram compartilhadas entre CN e PT. A maioria dos

genes que possuem variantes comuns e / ou raras previamente associadas ao TOC que são diferencialmente expressas ou que fazem parte de módulos de co-expressão menos preservados em nosso estudo também sugerem especificidade de cada região estriatal. Os módulos de co-expressão preservados e menos preservados nos circuitos afetivo e cognitivo ventral corroboram com as assinaturas transcricionais de cada área e de cada circuito no TOC e nos controles. Este é o primeiro trabalho com a proposta de avaliar a expressão gênica em áreas estriatais, analisadas individualmente, envolvidas com o TOC, bem como as redes de co-expressão do estriado e dos circuitos individualmente.

ABSTRACT

Lisboa BCG. *Studies of gene co-expression networks of the frontal cortex and striatum (post mortem study) of individuals with OCD and controls* [tese]. São Paulo: “Faculdade de Medicina, Universidade de São Paulo”; 2018.

Obsessive compulsive disorder (OCD) is a psychiatric disorder, characterized by the presence of obsessions and/or compulsions. Functional neuroimaging studies indicate that OCD is a heterogeneous disorder related the cortical-striatal thalamic circuitry (CSTC) and the areas that compose this circuitry include the nucleus accumbens (NAC), putamen (PT), caudate nucleus (CN), orbitofrontal cortex (OFC) and subgenual cingulate gyri (ACC). The main characteristics of CSTC is the innervation of the frontal cortex in direction of the striatum and each small circuitries have specific characteristics in the affective, dorsal cognitive and ventral cognitive motor. The transcriptome of 3 separate striatum areas, CN, NAC and PT from *post mortem* brain tissue were compared between 6 OCD and 8 controls cases. Results showed that different biological process as well as networks connectivity deregulation were specific for each striatum region according to the striatum tripartite model and contribute in different ways to OCD pathophysiology. Specifically, regulation of neurotransmitter levels, presynaptic process involved in chemical synaptic transmission were shared between NAC and PT. Cellular response to chemical stimulus, response to external stimulus, response to organic substance, regulation of synaptic plasticity, and modulation of synaptic transmission were shared between CN and PT. Most genes harboring common and/or rare variants previously associated with OCD that are differentially expressed or part of a least preserved co-expression modules in our

study also suggest striatum sub regions specificity. The co-expression modules preserved and least preserved in affective and ventral cognitive circuitry corroborate with transcriptional signatures of each area and each circuitry in OCD and controls. This is the first work with the proposal to evaluate the gene expression in striatum areas individually, involved with OCD as well evaluate the coexpression networks in striatum and each circuitry.

Descriptors: corpus striatum; obsessive-compulsive disorder; transcriptome; gene expression; gene regulatory networks; autopsy

1. INTRODUÇÃO

1.1. Transtorno Obsessivo Compulsivo (TOC) e neuro circuitos relacionados

O Transtorno Obsessivo Compulsivo (TOC) é um transtorno crônico e com altos níveis de incapacitação que afeta de 1 a 3% da população mundial (Leckman et al. 2010). O TOC é um transtorno heterogêneo, caracterizado por pensamentos intrusivos indesejados, medos ou imagens (obsessões) e/ou comportamentos ritualizados ou atos mentais (compulsões), geralmente realizados para aliviar a ansiedade e/ou sofrimento causado pelas obsessões, podendo ter início na infância ou idade adulta, apresentando características de evolução e padrão de comorbidades extremamente variáveis (Miguel et al. 2005; Milad & Rauch 2012).

No Manual de Diagnósticos de Transtornos Mentais (DSM-IV), o TOC fazia parte do capítulo de transtornos de ansiedade (Leckman et al. 2010) e apresenta diferentes dimensões fenotípicas que se sobrepõem, caracterizando a alta heterogeneidade clínica.

De acordo com estudos de análise fatorial, as dimensões do TOC podem ser agrupadas em quatro (Bloch et al. 2008):

- a) Simetria: a obsessão de simetria e a compulsão de contagem, ordenamento e repetição;
- b) Pensamentos tabus: as obsessões de agressividade, religiosidade, sexual e somática e as compulsões de checagem;
- c) Contaminação: a obsessão de contaminação e a compulsão de limpeza

d) Acumulação: obsessões e compulsões de acumulação.

Atualmente de acordo com o DSM-5, o TOC foi separado em um capítulo à parte (<http://dx.doi.org/10.1176/appi.books.9781585624836.jb06>), chamado transtorno obsessivo-compulsivo e transtornos relacionados.

Diferentes estudos vêm tentando caracterizar as áreas cerebrais relacionadas ao TOC. As alterações morfológicas foram as primeiras observações neurobiológicas vistas no TOC, onde através da tomografia computadorizada e por ressonância nuclear magnética foi visualizada uma diminuição do volume do núcleo caudado (CN) bilateralmente (Luxenberg et al. 1988; Robinson et al. 1995) enquanto que outros estudos mostraram aumento do núcleo caudado apenas a direita (Scarone et al. 1992) ou até mesmo uma assimetria entre os lados observados apenas nos pacientes com TOC (Calabrese et al. 1993).

Utilizando a técnica de morfometria baseada no voxel, observou-se uma diminuição da substância cinzenta no giro frontal inferior, no giro frontal medial, na insula, no giro do cíngulo e no giro temporal superior, bem como um significativo aumento da substância cinzenta no giro pós-central, tálamo e putâmen (PT) (Yoo et al. 2008). Entretanto, pode-se notar também um aumento da substância cinzenta na porção ventral e lateral do núcleo caudado e putâmen à direita. Este estudo evidencia que é possível apontar diferenças estruturais em regiões distintas dos núcleos da base (que engloba o *striatum*) em pacientes portadores de TOC.

Além disso, por meio de estudos de neuroimagem funcional, é possível indicar que o TOC é um transtorno heterogêneo, em que diferentes estruturas cerebrais são ativadas distintamente para diferentes tipos de “sintomas”, como

exemplo: as alterações cognitivas e afetivas podem ocorrer devido a modificação na porção ventral do núcleo caudado que afeta funcionalmente o circuito cognitivo ventral, enquanto que, alterações de funcionamentos sensoriais, e tiques motores podem ser explicados por ativações localizadas no putâmen que desencadeiam o mau funcionamento do circuito sensoriomotor (Eichstedt & Arnold 2001).

Estudos utilizando técnicas de neuroimagem funcionais, tais como a Tomografia Computadorizada com Emissão de Fóton Único (SPECT) (Busatto et al. 2000), Tomografia por Emissão de Pósitrons (PET) (Swedo et al. 1989) e Ressonância Magnética Funcional (MRf) (Ursu et al. 2003) possibilitaram a identificação de sistemas neuronais no TOC que envolvem a ativação de estruturas cerebrais como o córtex orbitofrontal, o córtex cingulado e o núcleo caudado. Em estudos clínicos, o tratamento medicamentoso e com terapia comportamental de pacientes com TOC já mostrou associação entre a remissão de sintomas e a hiperativação do córtex orbitofrontal no estado basal (Etain & Bonnet-Perrin 2001). O aumento do metabolismo de glicose ou do fluxo sanguíneo cerebral regional no caudado e putâmen foram observados em estudos de PET e SPECT assim como no orbitofrontal em repouso de pacientes com TOC (Saxena et al. 1998; Baxter Jr. et al. 1989). Nos estudos clínicos, o tratamento medicamentoso e terapêutico de pacientes com TOC já mostrou associação entre a remissão de sintomas e a hiperativação do córtex orbitofrontal no estado basal (Etain & Bonnet-Perrin 2001). Técnicas de estimulação cerebral profunda sugerem a hiperatividade do núcleo caudado (CN) durante pensamentos obsessivos (Guehl et al. 2008).

Harrison e colaboradores (2009), utilizando RM estudaram 21 casos-controle pareados para sexo, idade e inteligência estimada, os resultados apontam que o TOC está fortemente associado a alterações funcionais de rede dos núcleos da base e córtex frontal. Uma das principais diferenças visualizadas entre pacientes e controles foi a força de conectividade funcional entre as regiões córtico-estriatal em pacientes com TOC. Os pacientes apresentaram aumento da conectividade funcional entre as regiões do estriado ventral e medial, orbitofrontal, frontal anterior, córtex cingulado anterior e regiões parahipocampal. Há uma forte associação entre atividade do núcleo caudado ventral, região do *nucleo accumbens* e orbitofrontal com a severidade do TOC.

Dalley et al. (2011) classifica a impulsividade em *waiting* e *stopping*, sendo que esta classificação está relacionada com a linha temporal do estímulo inicial. Ou seja, durante a fase de *waiting* certos circuitos serão ativados para iniciação do comportamento enquanto que na fase de *stopping* deve ocorrer manifestação de inibição de um comportamento já iniciado. Da mesma forma que existe uma via de ativação e parada da impulsividade envolvendo diferentes vias cerebrais postula-se que possam existir também uma via de desativação de conexões, relacionadas aos sintomas obsessivos motores e outra via que possa regular os sintomas mais apurados como os pensamentos intrusivos e as tomadas de decisões.

Os avanços dos estudos de neuroimagem apontam o TOC como resultado de uma desregulação no funcionamento do circuito córtico-estriatal-tálamo-cortical (CSTC, do inglês, *cortico-striato-thalamo-cortical*) que envolve estruturas cerebrais como o córtex pré-frontal dorsolateral (dlPFC), orbitofrontal anterolateral (OFC), córtex cingulado anterior (ACC) e principalmente diferentes

regiões do *striatum* (núcleo caudado e putâmen) (Milad & Rauch 2012; Saxena & Rauch 2000) e estão envolvidos nos processos motores, cognitivos e afetivos (Grünblatt et al. 2014).

A principal característica do CSTC é a inervação do córtex da região frontal em direção ao *striatum* (Alexander et al. 1986) enviando informações direta ou indiretamente para o tálamo, que por sua vez, fecha o circuito com a região cortical. Em indivíduos saudáveis, a via direta (excitatória glutamatérgica) é modulado pela via indireta de função inibitória (GABAérgica) e nos pacientes com TOC é sugerido que exista uma desregulação do circuito resultando em uma atividade excessiva da via direta sobre a via indireta (Saxena & Rauch 2000), levando a uma hiperativação da via orbitofrontal – subcortical (Pauls et al. 2014). Também foi reportado no TOC, o aumento da atividade no córtex cingulado anterior /córtex pré-frontal, córtex orbitofrontal e núcleo caudado (Saxena et al. 1998).

Milad e Rauch (2012) propuseram uma alteração no modelo CSTC, com o circuito sendo composto por três pequenos circuitos córtico-estriatais. Cada circuito possui características próprias: afetiva e límbica, cognitivo e associativo dorsal, e cognitivo ventral e motor, sendo que todos possuem diferentes regiões do *striatum* diretamente envolvidas (núcleo caudado, putâmen e *nucleo accumbens*), em conexão com regiões corticais (córtex orbitofrontal e córtex cingulado anterior) (Milad & Rauch 2012) (Figura1).

Figura 1. Modelo do circuito córtico-estriatal-tálamo-cortical. Modelo proposto por Milad e Rauch dos componentes do circuito córtico-estriatal-tálamo-cortical (CSTC) envolvidos com a fisiopatologia do TOC. ACC: córtex cingulado anterior; vmPFC: córtex pré-frontal ventromedial; dlPFC: córtex pré-frontal dorsolateral; IOFC: córtex orbitofrontal anterolateral. Adaptado de Milad & Rauch (2012).

O circuito afetivo e límbico é formado pelo córtex cingulado anterior e pelo córtex pré-frontal ventromedial que está ligado ao *núcleo accumbens*. O córtex cingulado anterior está envolvido na detecção do conflito cognitivo, detecção e monitoramento dos erros e com o medo (Milad & Rauch 2012), enquanto o *núcleo accumbens* está ligado ao prazer e recompensa. O circuito cognitivo ventral é formado pelo córtex orbitofrontal anterolateral que está ligado ao putâmen que está relacionado com anormalidades motoras e resposta inibitória (Milad et al. 2009). O circuito cognitivo dorsal é formado pelo córtex pré-frontal dorsolateral (dlPFC) e pelo núcleo caudado, estando envolvido nas funções executivas (tomada de decisão) e de memória (Milad et al. 2009).

O circuito límbico está associado com os pensamentos obsessivos que causam a ansiedade. As interligações com córtex motor (ventral cognitivo) e putâmen levam a execução das ações compulsivas e então o circuito cognitivo dorsal reforça as ações e as propaga através do *loop* repetitivo segundo revisão em Monteiro & Feng (2015).

1.2. Genética do TOC

O envolvimento de fatores genéticos na etiologia do TOC vem sendo enfatizado desde as primeiras descrições do quadro (Pitman et al. 1987), vários estudos de famílias têm fornecido evidências de que o TOC apresenta agregação familiar (Lenane et al. 1990; Nestadt et al. 2000; do Rosario-Campos et al. 2005) e estima-se uma taxa de herdabilidade entre 26% e 33% para os transtornos do espectro obsessivo-compulsivo (Pauls 2010; Stewart & Pauls 2010).

No intuito de investigar padrões genéticos, alguns estudos de segregação familiar em TOC sugerem ser uma doença com arquitetura genética complexa (Nicolini et al. 2009), onde idade de início e sexo do probando aparecem como fatores com possíveis contribuições específicas.

Estudos realizados em famílias de crianças com TOC mostram que a razão de TOC entre seus familiares é significativamente mais alta do que em famílias de adultos com TOC (Pauls 2010), assim como diferentes padrões de comorbidade (Miguel et al. 2005).

A ideia de uma base genética levou a estudos de ligação, que não apresentam dados concordantes, mas sugerem existir evidência de ligação nos cromossomos 9p24 e 10p15 (Hanna et al. 2002; Hanna et al. 2007), 15q14 (Ross

et al. 2011) e 1p36 (Mathews et al. 2012). Vários estudos de genes candidatos foram realizados, sendo os genes estudados envolvidos nos circuitos serotoninérgicos, dopaminérgicos e os glutamatérgicos (Pauls 2008), porém sem significância estatística e com tamanho amostral muito pequeno (Pauls et al. 2014). Estes dados sugerem que o TOC é uma doença poligênica com um grande número de *loci* de risco associado a um efeito pequeno ou moderado (Pauls et al. 2014).

Nos estudos de GWAS (*genome wide association studies*), técnica que permite investigar vários SNPs (*single nucleotide polymorphism*) distribuídos ao longo do genoma de uma única vez, não é necessária nenhuma hipótese *a priori*, ou seja, procura-se identificar SNPs independentemente de pressupostos de associação, por exemplo, de uma dada via metabólica (Norrsgard et al. 2008). O GWAS explora a ligação de relações de desequilíbrio entre SNPs, tornando possível o ensaio de todo o genoma ao testar um número finito dos mesmos (Liu et al. 2011).

No primeiro GWAS foi encontrado um único SNP associado com o TOC com um pvalor de 10^{-8} que, no entanto, não foi replicado na análise conjunta de trios, casos e controles (Stewart et al. 2013). Vários SNPs que atingiram nível de significância marginal até 10^{-5} , foram caracterizados como eQTLs (*expression quantitative trait loci*) em tecido cerebral sugerindo possíveis *locus* genômicos marginalmente associados que regulam os níveis de expressão gênica (Stewart et al. 2013). No segundo GWAS (Mattheisen et al. 2015), foi encontrado um marcador no cromossomo 9, próximo ao gene *PTPRD*, que está relacionado com regulação do crescimento e diferenciação celular, porém sem significado estatístico. Em um estudo combinando amostras de pacientes com TOC e

síndrome de Tourette (Yu et al. 2015), também não foram encontrados SNPs associados com a doença, mas a análise de *score* poligênico identificou um componente significativo para TOC. GWAs realizado com gêmeos, com uma população fenotipicamente bem estabelecida também encontrou apenas um SNP associado com sintomas obsessivos-compulsivos ligados ao gene *MEF2BNB* (pvalor 2.56×10^{-8}), relacionado com a regulação da expressão gênica em genes específicos musculares (den Braber et al. 2016). Nestes estudos não foi possível identificar genes candidatos em populações heterogêneas.

Uma meta análise utilizando os dados de GWAS de TOC entre casos e controles (Arnold et al. 2017) não encontrou SNPs com significância estatística, apenas marginalmente associada, porém foi encontrado um *score* de risco poligênico (PRS) que prediz o *status* de caso x controles entre as amostras dos estudos de GWAS (Stewart et al. 2013; Mattheisen et al. 2015), mostrando a importância das variantes comuns em TOC para explicar a variância fenotípica.

Diante de vários achados em outros transtornos psiquiátricos com evidências para a contribuição de variantes *de novo* ou muito raras, estudos de variações do número de cópias (CNVs) assim como exoma foram realizados para TOC.

Delorme e colaboradores (2010) pesquisaram rearranjos cromossômicos nas regiões 15q11-13 (síndrome Prader-Willi) e 22q11.2 (síndrome de DiGeorge) em pacientes com TOC e não detectaram nenhum CNV nessas regiões, provavelmente devido à baixa prevalência desses rearranjos em pacientes com TOC, mesmo que pacientes com as síndromes citadas apresentem sintomas obsessivos-compulsivos. Em um estudo piloto com 16 pacientes com TOC de

início precoce e 12 controles saudáveis foi identificada uma microdeleção herdada rara (~64 kb) na região 15q13.3, que compreende parte do gene *FMN1*, envolvido com o sistema glutamatérgico (Cappi et al. 2014). Em outro estudo com pacientes com TOC e síndrome de Tourette foram identificadas CNVs nas regiões 16p13.11, 22q11 e no gene *PARK2* nos pacientes com TOC, além de três deleções (>500kb) patogênicas *de novo* na região 16p13.11 (McGrath et al. 2014). Gazzellone e colaboradores (2016) identificaram CNVs *de novo* em 2,3% dos probandos pediátricos com TOC idiopático. Esses CNVs foram identificados em genes envolvidos com migração neuronal, formação de sinapses e plataforma pós-sinápticas.

Cappi e colaboradores (2016) encontraram variantes raras *de novo* em genes expressos em cérebro e relacionados com o sistema imune e com o desenvolvimento e funcionamento do sistema nervoso central, em uma análise de exoma com 17 trios de pacientes com TOC esporádico.

Os estudos de expressão gênica realizados em amostras de sangue periférico de pacientes com TOC identificaram alterações em *COMT* (Wang et al. 2009) e o *SLC1A1* (Porton et al. 2013). Com relação ao *COMT* foi observada uma diminuição da expressão, além disso, ao comparar os gêneros, o sexo feminino apresentou um nível mais reduzido de expressão do gene (Wang et al. 2009). O estudo de expressão feito com o gene *SLC1A1*, que codifica o transportador neuronal de glutamato, analisou três isoformas do gene, sendo as três conservadas em humanos e camundongos e expressas no cérebro, rim e linfócitos sob condições não patológicas (Porton et al. 2013). Nos sujeitos com TOC, quando comparados com controles saudáveis os transcritos de *SLC1A1* são diferentemente expressos nos linfócitos, mostrando a complexidade da

regulação do gene *SLC1A1* e o potencial clínico do estudo de expressão gênica em TOC (Porton et al. 2013).

No transcriptoma de amostras de cérebro, analisando o núcleo caudado e o putâmen de pacientes com síndrome de Tourette, comorbidade associada ao TOC, revelou 309 genes menos expressos e 822 genes mais expressos nas duas áreas analisadas em conjunto, sendo que poucos genes foram encontrados diferencialmente expressos quando analisado as duas áreas separadamente (Lenington et al. 2016). Nos módulos de co-expressão foram encontrados oito módulos menos expressos, sendo os mais importantes relacionados com sinalização interneurônios e catabolismo neuronal, e para os módulos mais expressos foram caracterizadas vias de sinalização de micróglia e metabolismo de astrócito (Lenington et al. 2016). As diferentes áreas do *striatum* apresentam assinaturas transcricionais próprias (Parkes et al. 2017) e estão associadas aos diferentes circuitos relacionados com o TOC. Até o momento, não há estudos de expressão gênica em TOC em regiões cerebrais envolvidas com a doença que foram avaliadas individualmente ou em estudos utilizando tecido *post mortem*.

Os estudos de redes gênicas são poderosas ferramentas para identificação de genes que poderiam estar associados com doenças complexas. Neste contexto, as redes de co-expressão gênica apresentam uma maneira efetiva de caracterizar o padrão de correlação entre os genes (Li et al. 2018).

Dentre as diversas ferramentas capazes de realizar a análise de co-expressão, o WGCNA (*Weighted Gene Co-expression Network Analysis*) é um dos métodos mais utilizados pela literatura. Por meio deste, é possível criar uma rede de co-expressão (a partir dos valores de expressão utilizados), encontrar módulos de genes altamente correlacionados e também, avaliar seu

nível de preservação entre duas condições específicas (Langfelder & Horvath 2008; Horvath & Dong 2008; Feltrin & Martins-Jr 2016).

Para a definição dos módulos não há a necessidade de um *dataset* de genes definido *a priori*. Ao invés disso, os módulos são construídos a partir do dado de expressão (arrays ou RNAseq) usando parâmetros topológicos da rede de co-expressão, tais como valores de conectividade, separabilidade e modularidade dos elementos (genes) da rede (Horvath & Dong 2008).

De forma geral o WGCNA segue os seguintes passos:

- a) leitura dos dados de expressão e análise topológica inicial da matriz de correlação (para verificar a possibilidade da rede de co-expressão *scale-free*);
- b) agrupamento dos dados baseando-se nos valores de co-expressão (*Topological Overlap Matrix – TOM*);
- c) formação dos módulos a partir dos resultados do *TOM*;
- d) criação dos módulos *eigengenes*: quantificação para otimizar a comparação entre os módulos, criada a partir do primeiro componente principal de cada módulo. Utilizado, também, para avaliação dos elementos conectivos (densidade, conectividade e separabilidade) da rede dos módulos;
- e) análise de preservação dos módulos pelas medidas *medianRank* e *Zsummary*.

Como dito anteriormente, o WGCNA é uma ferramenta que avalia preservação de módulos. Módulos muito preservados não apresentam diferenças relevantes entre os grupos, já um módulo que apresenta um baixo índice de preservação sugere que os genes deste módulo apresentam diferenças topológicas significativas, sendo assim, candidatos para o estudo de doenças.

1.3. Hipótese

Partindo-se das premissas:

- A) Envolvimento *striatum* e córtex frontal no TOC;
- B) SNPs associados ao TOC em estudos de larga escala afetam a expressão gênica;
- C) Assinatura transcricional do *striatum*;
- D) TOC é uma doença poligênica multifatorial caracterizada por múltiplos genes afetados atuando em redes gênicas;

Acreditamos que possa haver uma expressão gênica ou co-expressão diferenciada entre as regiões estriatais em pacientes portadores de TOC comparados a controles, bem como redes gênicas alteradas no *striatum* e nos circuitos.

2. JUSTIFICATIVA

Este projeto de doutorado está vinculado ao projeto temático “Investigação de circuitos neuronais e marcadores biológicos envolvidos no transtorno obsessivo-compulsivo por meio de paradigmas comportamentais de medo e ansiedade” (FAPESP 2011/21357-9). No projeto temático, foi proposta a análise do transcriptoma de três áreas do *striatum* (*nucleo accumbens*, putâmen e núcleo caudado) em casos e controles. Assim dentro da proposta de doutorado, além deste objetivo, foram incluídas as áreas corticais do cérebro com o objetivo de buscar diferenças de co-expressão nos circuitos cerebrais específicos propostos por Milad e colaboradores (2012). Como não havia amostras de córtex pré-frontal dorsolateral no banco de cérebro dos indivíduos dos quais as três áreas do *striatum* haviam sido coletadas, foi proposto neste projeto de doutorado estudar dois dos três circuitos: (1) circuito afetivo e límbico e (2) o circuito cognitivo ventral.

Assim para este estudo foram selecionadas as áreas 47 de Brodmann do córtex orbitofrontal (anterolateral) (OFC), a área 24 de Brodmann do giro do cíngulo anterior (córtex cingulado anterior) (ACC), a cabeça do núcleo caudado (CN), o *nucleo accumbens* (NAC) e o putâmen (PT). O circuito afetivo compreende as áreas ACC e NAC enquanto o circuito cognitivo ventral compreende as áreas OFC e PT.

3. OBJETIVOS

- a) Realizar análises de expressão diferencial e de co-expressão das 3 áreas do *striatum*.
- b) Realizar análises de co-expressão no circuito afetivo (ACC e NAC) e no circuito cognitivo ventral (OFC e PT).

4. MATERIAL E MÉTODOS

4.1. Casuística, avaliação clínica e processamento dos encéfalos

As amostras cerebrais foram coletadas no Serviço de Autópsia de São Paulo da Universidade de São Paulo e são parte da coleção psiquiátrica do Banco de Encéfalos do Grupo de Estudos de Envelhecimento do Cérebro (BEHGEEC). O projeto foi aprovado na CAPPesq do HC-FMUSP sob o no.740/09, como parte do projeto *“Análise estereológica post-mortem de regiões cerebrais de portadores de transtorno afetivo bipolar ou transtorno obsessivo compulsivo”*.

Foram selecionados indivíduos com TOC/SOC e controles sem diagnóstico para doença psiquiátrica, pareados para idade e gênero com idade igual ou superior a 50 anos. Estes casos seguiram os critérios de inclusão do BEHGEEC e os critérios específicos para este estudo (Tabela 1).

Tabela 1. Critérios de inclusão e exclusão do BEHGEEC.

Critérios de Inclusão	Idade maior que 50 anos;
	Ter um parente que convivia próximo ao paciente e que possa providenciar informações relevantes;
	Diagnóstico de TOC de acordo com o DSM IV;
	Intervalo post-mortem até 24 horas;
	pH do líquido cefalorraquidiano maior que 6.0.
Critérios de Exclusão	Indivíduos que morreram de causas cerebrais primárias (por exemplo: acidente vascular encefálico agudo, traumatismo craniano, meningite, tumores, etc);
	Indivíduos que passaram por situações potenciais de causar lesões cerebrais isquêmicas (AVE, parada cardiorrespiratória em um período de 3 meses anterior ao óbito, etc);
	Indivíduos portadores de comorbidades que possam prejudicar a função cognitiva, tais como demências ou deficiência intelectual;
	Inexistência de cuidador primário ou responsável, capaz de fornecer as informações.

No primeiro momento, os parentes próximos dos possíveis doadores que se encaixavam nos critérios de inclusão do BEHGEEC foram convidados a participarem do estudo. Uma vez que os familiares estavam de acordo com a doação do encéfalo para pesquisa, os mesmos foram convidados a realizar uma entrevista clínica e assinar o termo de consentimento livre e esclarecido. Dentre os casos que atenderam os critérios do BEHGEEC, alguns casos preenchiem critérios positivos das escalas de rastreamento para TOC/SOC.

A avaliação clínica foi aplicada em dois momentos: primeiro foi feito o rastreamento para detectar doadores com TOC ou sintomas de TOC de acordo

com o DSM IV. O rastreamento é composto pelo Inventário Neuropsiquiátrico (NPI), uma versão resumida da entrevista clínica estruturada (SCID) e uma versão resumida da escala Dimensional Yale-Brown Obsessive-Compulsive (D-Y-BOCS). Foram aplicadas as escalas de demência clínica (CDR) e questionário semi-estruturado para detectar parkinsonismo, funcionalidade e cognição. No segundo momento, a entrevista psiquiátrica com o familiar foi realizada e incluía uma entrevista clínica estruturada (SCID para DSM-IV), a *Yale-Brown scale* (Y-BOCS) e uma versão reduzida da DY-BOCS. Ao final do processo, dois psiquiatras especializados em TOC confirmaram os diagnósticos para cada caso.

O processamento neuropatológico foi realizado com os seguintes passos:

- a) Remoção do encéfalo: após a craniotomia, o pH do líquido cefalorraquidiano foi registrado e em seguida o encéfalo foi retirado com o polígono de Willis íntegro, pesado e o volume aferido pela técnica de Arquimedes;
- b) Processamento do encéfalo: após a coleta do encéfalo, os hemisférios foram hemi-diseccionados sagitalmente. Alternadamente um dos hemisférios foi fixado por imersão e o outro hemisfério dissecado, criopreservado e armazenado a -80° C até a realização da extração do RNA.
- c) Dissecção das áreas de interesse: o hemisfério foi refrigerado em geladeira para permitir uma melhor visualização e delimitação das áreas de interesse. Durante o procedimento de dissecção o material foi mantido em placa de inox resfriada com gelo seco e armazenado em freezer -80°C em caixa apropriada, identificada e separada dos demais casos (Silva et al. 2012).

Foram selecionadas as áreas 47 de Brodmann do córtex orbitofrontal (anterolateral) (OFC), a área 24 de Brodmann do giro do cíngulo anterior (córtex cingulado anterior) (ACC), a cabeça do núcleo caudado (CN), o *nucleo accumbens* (NAC) e o putâmen (PT).

4.2. Extração do RNA e construção das bibliotecas

As regiões dissecadas foram estocadas a -80°C até o uso. O RNA total de todas as áreas foi isolado utilizando plataforma automatizada QIAasympphony de acordo com as instruções do fabricante. O RIN (*RNA integrity number*) foi avaliado para checar a qualidade do RNA extraído.

As bibliotecas foram preparadas com o kit TruSeq Stranded Total RNA Ribo-Zero Library Preparation *Kit* que sequencia RNA total (exceto RNA ribossomal e microRNAs) e faz o sequenciamento fita específica. O sequenciamento foi realizado na plataforma HiSeq 2500 (Illumina Inc., San Diego, CA, USA).

4.3. Análise de Bioinformática

O controle de qualidade do sequenciamento foi realizado com a ferramenta FASTQC (v.0.11.2) (Andrews 2010). As bases de baixa qualidade e os adaptadores foram trimados com a ferramenta FASTX (v.0.0.13) (Hannon 2009). O mapeamento foi realizado com a ferramenta Tophat2 (v.2.0.13) (Trapnell et al. 2009) com no máximo 2 *mismatches*, com o genoma referência hg38 (*Genome Reference Consortium Human build 38* (GRCh38)). A ferramenta Cufflinks (v.2.2.1) (Trapnell et al. 2009) foi utilizada para fazer a montagem dos transcritos com o *Ensembl gene* (GRCh38.78) como anotação referência. A

contagem das *reads* foi computada pela ferramenta HT-seq (Anders et al. 2014) levando se conta as *reads paired-end* e atributos de gene.

4.3.1. Análise de genes diferencialmente expressos

As análises estatísticas foram realizadas no ambiente R (v.3.2.5) (R Development Core Team 2008). Para as análises de genes diferencialmente expressos, os transcritos atribuídos em mais de um *Ensembl gene* e qualquer possível RNA ribossomal que passou pelo processo de depleção durante a construção das bibliotecas foram removidos dos dados.

Para determinar quais genes seriam considerados expressos, a contagem de *reads* foi convertida para valores de *Counts per Million* (CPM) utilizando o pacote edgeR (v.3.12.1) (Robinson et al. 2010) e os transcritos com pelo menos 0,3 CPM em 50% das amostras do grupo (caso ou controle) foram analisadas posteriormente. Os dados foram normalizados com a função *rlog* (DESeq2, v.1.10.1) (Love et al. 2014) para estimar as covariáveis ocultas utilizando o algoritmo SVA (v.3.18.0) (Leek et al. 2012). O grupo (caso ou controle) foi considerado a variável de interesse e sexo, idade e lotes diferentes de construção das bibliotecas como variáveis ajustáveis. A análise de genes diferencialmente expressos foi realizada com o pacote DESeq2 (Love et al. 2014), modelando para as covariáveis sexo, idade, lotes de construção de biblioteca e as variáveis escondidas estimadas pelo SVA. Foram considerados genes diferencialmente expressos aqueles com $p\text{-valor} < 0.01$.

As análises de enriquecimento para vias biológicas dos genes diferencialmente expressos foram feitas com a ferramenta WebGestalt

(<http://www.webgestalt.org>), utilizando o método de análise de enriquecimento de hiperrepresentação (*Overrepresentation Enrichment Analysis* - ORA) e *gene ontology* (GO) como a base de dados funcional. Como referência foi usada a lista de todos os transcritos mapeados como *Ensembl genes* para cada área. Foram consideradas enriquecidas as categorias funcionais com $FDR < 0.05$. As análises de enriquecimento para os genes descritos nos estudos de TOC e da síndrome de Tourette foram realizados utilizando o teste Mset (*Modular Single-set Enrichment Test*) (Eisinger et al. 2013) dentro do ambiente R. Os genes de cada estudo foram obtidos dos artigos originais e/ou material suplementar. Dos estudos de GWAS foram considerados os genes e os eQTLs com pvalor menor que 10^{-5} .

4.3.2. Análises de co-expressão

As análises de co-expressão foram realizadas com a ferramenta WGCNA (*Weighted Correlation Network Analysis*) (Langfelder & Horvath 2008). Este algoritmo cria redes de co-expressão de padrão topológico *Scale-Free* (Livre de Escala) baseada na correlação de Pearson dos valores de expressão utilizados, a fim de agrupar e identificar diferentes módulos (grupos) de genes que estariam mais ou menos conservados entre as regiões cerebrais.

Em todas as análises foram utilizados os genes expressos com a anotação *Ensembl gene*. Os dados foram normalizados com a função *varianceStabilizingTransformation* (vst, DESeq2) e estimado o tamanho da biblioteca com a função *estimateSizeFactorsForMatrix* (DESeq2). Para cada experimento o WGCNA removeu os transcritos com mais de 50% de valores nulos para ambos os grupos analisados, seguido da escolha da mesma potência

Beta que melhor representa uma rede *scale-free* para os dois grupos ($R^2 \Rightarrow 0.8$).

Após a escolha do parâmetro de conectividade, o algoritmo inicia a clusterização dos pares de genes baseando-se na distância entre os valores de correlação de Pearson, criando diferentes módulos (*Topological Overlap Matrix* - TOM) de genes. Todos os valores TOM são baseados entre um e zero (mais distante e mais próximo, respectivamente). É estipulado um tamanho mínimo de genes por módulo, sendo que cada módulo representa uma rede diferente de genes conectados entre si. Baseado nos diferentes parâmetros de conectividade é selecionado o primeiro componente principal de cada módulo, identificando seu valor como um módulo *eigengene* (ME).

Com a criação de todos os módulos entre as redes dos grupos, foi selecionada uma das áreas (caso ou controle na análise do *striatum*; *striatal* ou *cortical* na análise dos circuitos) como referência, de forma que o algoritmo: 1) mapeia todos os genes em cada um dos módulos da rede referência; 2) forma o mesmo módulo no outro grupo (mesma lista de genes). O objetivo é avaliar a diferença entre a conectividade dos mesmos módulos através dos diferentes tecidos, sendo esta análise composta de dois processos: a estatística *medianRank* e *Zsummary* (Horvart, 2008).

O *Zsummary* usa 100 permutações (valor *default*) para analisar se os parâmetros de conectividade (como os valores de ME, separabilidade e intra-modularidade) dos genes contidos em cada módulo (criado a partir da rede referência) estão estatisticamente diferentes quando comparados com estes mesmos elementos formados a partir da segunda rede (e a rede de genes

randômicos). Dessa forma, os resultados gerados para avaliar a preservação dos módulos são representados pelo seguinte ranqueamento: *Zsummary* $0 < 2$ indica módulos pouco preservados; $2 < 10$ representam módulos moderadamente preservados e valores ≥ 10 representa módulos bem conservados.

O *medianRank* não utiliza permutações e o escore dos módulos é feito de acordo com os valores da mediana dos diferentes parâmetros conectivos entre os genes dos módulos da rede referência com estes mesmos genes da outra rede analisada. Os resultados são apresentados em ordem inversa ao do *Zsummary* (ou seja, os módulos menos preservados são aqueles com as maiores pontuações).

Para a escolha dos módulos mais e menos preservados foram utilizados os critérios de *medianRank* e *Zsummary*. Caso ocorra discordância ou empate, foi utilizado o resultado da correlação kME destes módulos. Na impossibilidade de definir apenas um módulo, foram considerados os dois módulos (mais ou menos preservado, dependendo se for caso ou controle) para as análises posteriores.

Para a análise do *striatum* foram analisados os *casos versus* controles para cada região (CN, NAC e PT) e módulos com no mínimo 300 genes (Figura 2A).

Para a análise dos circuitos a comparação foi realizada entre as regiões ACC *versus* NAC (circuito afetivo e límbico) e as regiões OFC *versus* PT (circuito cognitivo ventral) com pelo menos 300 genes por módulo (Figura 2B).

Figura 2. Desenho esquemático das análises de co-expressão. A) Análises de co-expressão da região estriatal, para cada área (NAC, CN e PT) individualmente foi realizada a análise caso *versus* controle. B) Análises de co-expressão para os dois circuitos de estudo, para cada circuito (NAC x ACC e PT x OFC) foram realizadas as análises para casos e controles individualmente.

As análises de enriquecimento para vias biológicas dos genes encontrados nos módulos mais e menos preservados foram realizados da mesma maneira para os DEGs, com enriquecimento de hiperrepresentação e *gene ontology* como a base de dados funcional, a lista dos *Ensembl genes* mapeados como referência e $FDR < 0.05$.

5. RESULTADOS

5.1. Características das bibliotecas

As amostras foram coletadas entre outubro de 2008 e junho de 2013. Um total de 109 amostras foram selecionadas, sendo 72 amostras como casos psiquiátricos e 37 amostras como controles. Ao final da seleção dos casos com o diagnóstico final das amostras, 22 casos foram diagnosticados como TOC e os outros 50 casos para outras doenças psiquiátricas (19 casos de bipolar, 16 casos de depressão, 10 casos de síndrome de Tourette, 2 casos de esquizofrenia e 3 casos para outras doenças psiquiátricas) (Figura 3). Dos 22 casos de TOC, 8 casos foram selecionados e 8 controles pareados por idade, sexo e lateralidade (Tabela 2).

Figura 3. Fluxograma das amostras coletadas e selecionadas durante o projeto.

Tabela 2. Características demográficas da população (n=16).

amostras	Sexo	Idade	Hemifésrio	pH	IPM (hora)	escolaridade (anos)	uso de alcool	uso de tabaco	Medicação Psiquiatrica	CDR	IQCODE	NPI	SCIDD	SCIDM	Volume (mL)	Peso (g)
CON-01a	Masculino	61	Direito	6,5	12:35	15	Nunca	Sim	Não	0	3	0	Não	Não	1276	1335
CON-02a	Masculino	77	Esquerdo	6,8	17:20	11	Nunca	Nunca	Não	0	3	0	Não	Não	1494	1186
CON-3b	Feminino	62	Esquerdo	6,6	12:45	0	Nunca	Sim	Não	0	3	0	Não	Não	1192	1252
CON-04	Masculino	82	Direito	6,33	16:10	8	Parou	Parou	Não	0	3	0	Não	Não	1100	1136
CON-05	Feminino	98	Direito	6,5	16:31	0	Nunca	Parou	Não	0	3	9	Não	Não	850	914
CON-06	Masculino	83	Esquerdo	7,0	12:34	4	Sim	Parou	Não	0	3	0	Não	Não	na	na
CON-07	Masculino	72	Direito	7,0	19:54	2	Nunca	Nunca	Não	0	3	0	Não	Não	1882	1220
CON-08	Feminino	58	Esquerdo	7,0	11:00	4	Nunca	Sim	Não	0	3	0	Não	Não	1190	1232
TOC-01	Masculino	66	Direito	8	8:50	0	Parou	Sim	Não	0	3	0	Sim	Não	1200	1194
TOC-02	Masculino	77	Esquerdo	6,51	17:00	0	Nunca	Nunca	Não	0	3	14	Não	Não	1100	1258
TOC-03	Feminino	66	Esquerdo	6,98	13:05	2	Sim	Nunca	Desconhecido	0	3	36	Sim	Não	1100	1108
TOC-04	Masculino	81	Direito	7,0	13:55	1	Nunca	Nunca	Não	0	3	0	Não	Não	1100	1162
TOC-05	Feminino	99	Esquerdo	6,43	15:51	0	Nunca	Parou	Não	0	3	18	Não	Não	1000	956
TOC-06	Masculino	86	Esquerdo	6,6	14:50	3	Nunca	Sim	Não	0	3	18	Não	Não	988	1086
TOC-07	Masculino	74	Direito	8,0	19:11	8	Parou	Sim	Não	0	3	49	Não	Não	1200	1298
TOC-08	Feminino	62	Esquerdo	7,2	11:50	4	Nunca	Nunca	Não	0	3	0	Não	Não	na	na

CDR: escalas de demência clínica; IQCODE: Questionário do informante sobre declínio cognitivo na velhice; NPI: Inventário Neuropsiquiátrico; SCIDD: entrevista clínica estruturada para depressão; SCIDM: entrevista clínica estruturada para mania; na: sem informação

Após a seleção dos casos as amostras foram avaliadas quanto a integridade do RNA. Na tabela 3 está um resumo do RIN de cada amostra e da região disponível para cada uma, já que não foi possível obter todas as regiões do estudo para todas as amostras. Ao final, 70 amostras foram sequenciadas entre casos e controles distribuídos pelas cinco regiões do cérebro propostas no estudo.

Tabela 3. Amostras avaliadas no projeto.

Amostras	idade	genero	hemisfério	CN	NAC	PT	OFC	ACC
CON-01a	61	M	D	8,3	8,0	8,0	9,5	8,5
CON-02a	77	M	E	10	8,9	9,6	9,1	9,3
CON-03b	62	F	E	8,4	8,5	5,1	8,7	5,8
CON-04	82	M	D	10	8,2	10	X	8,3
CON-05	98	F	D	10	8,8	9,9	X	9,7
CON-06	83	M	E	9	7,4	8,3	X	9,0
CON-07	72	M	D	9,1	9,1	9,1	9,3	8,8
CON-08	58	F	E	7,7	9,1	6,3	9,1	8,1
TOC-01	66	M	D	X	X	X	5,5	8,7
TOC-02	77	M	E	7,3	8,3	9,8	9,0	8,5
TOC-03	66	F	E	X	6,5	X	9,5	6,9
TOC-04	81	M	D	9,4	8,7	9,4	8	8,5
TOC-05	99	F	E	9,4	5,8	8,7	X	8,1
TOC-06	86	M	E	9,9	6,5	9,9	X	8,4
TOC-07	74	M	D	9,7	9,6	9,7	8,7	9,4
TOC-08	62	F	E	9,1	9,8	9,3	8,5	9,9

Os números correspondem ao RIN (RNA Integration Number). X: amostras que não tem o dado de RIN. COM: amostra controle; TOC: amostra caso; CN: cabeça do núcleo caudado; NAC: *nucleo accumbens*, PT: putâmen; OFC: córtex orbitofrontal (região 47 de Brodmann); ACC: córtex cingulado anterior (região 24 de Brodmann);

As bibliotecas foram construídas seguindo as instruções do fabricante em 3 lotes de experimentos. Foram feitos 9 *pools* com 8 bibliotecas (para uma quantidade equivalente de amostras foram adicionados ao sequenciamento

duas amostras de outro projeto), distribuídos em 2 canaletas da *flow cell*. A corrida foi realizada na plataforma Illumina HiSeq 2500 com o kit V4, com *reads* de 125 nucleotídeos (nt) de cada lado, chamados de R1 e R2.

Os dados brutos (arquivo *fastq*) foram descompactados obtendo-se as *reads* R1 e R2, que foram então, concatenados gerando dois arquivos com todas as *reads*, um arquivo com as *reads* R1 e outro com as *reads* R2. A análise qualitativa dos dados foi realizada com a ferramenta Fastqc e para todas as amostras a nota *Phred* média foi maior ou igual a 30, com queda da qualidade no final do *read* a partir da base 70 (Figura 4).

Todas as *reads* foram trimadas com a ferramenta FastX na base 70. Após a trimagem foi feita novamente a avaliação com a ferramenta Fastqc para verificar a qualidade do dado trimado para dar prosseguimento nas análises.

Figura 4. Análise qualitativa da *read*. Exemplo de uma análise qualitativa realizada com a ferramenta FastQC (amostra CON-01a_ACC-24). A) Boxplot das notas *Phreds*: no eixo Y estão representadas as notas *Phreds* e no eixo X estão descritas as posições das bases variando de 1-125 (tamanho do *read* 125 bases). A linha azul representa a média das bases. B) Distribuição da porcentagem de adaptador Illumina ao longo do *read*. A partir da base 70 foi observado um aumento do número de adaptadores.

Após a avaliação da qualidade das *reads*, foi realizado o mapeamento no genoma referência humano hg38 (ftp://ftp.ensembl.org/pub/release-87/fasta/homo_sapiens/dna/), com o parâmetro “--library-type fr-firststrand” para bibliotecas *stranded* com a ferramenta Tophat2, com no máximo 2 *mismatches*, obtendo-se 4.138.265.932 *reads* (variando de 76,3% a 97,8%) mapeadas para as *reads* R1 e 4.031.120.281 *reads* (variando de 74,4% a 95,9%) mapeadas para as *reads* R2. Ao final, foram obtidas 3.958.257.684 *reads paired end* mapeadas para todas as amostras (Figura 5). O anexo 1 apresenta o resumo do número de *reads* para cada amostra.

Figura 5. Distribuição das sequencias *paired end*. Distribuição das sequencias *paired end* após alinhamento com TopHat para as 70 amostras avaliadas.

A) Córtex cingulado anterior (ACC); B) córtex orbitofrontal (OFC); C) Núcleo caudado (CN); D) *Nucleos accumbens* (NAC); E) Putâmen (PT).

A montagem dos transcritos foi realizada com o transcriptoma referência *Ensembl* hg38 (Homo_sapiens.GRCh38.78.gtf) utilizando a ferramenta Cufflinks (<http://cole-trapnell-lab.github.io/cufflinks/>) e foi obtido 416.558 transcritos montados. Em seguida utilizou-se a ferramenta Cuffmerge para gerar uma referência única de transcritos com base nas 70 montagens geradas pelo Cufflinks (<http://cole-trapnell-lab.github.io/cufflinks/cuffmerge/>).

A determinação da quantidade de *counts* foi feito com a ferramenta HT-Seq, utilizando os parâmetros *-m = intersection strict* (modo que o programa lida com *reads* em mais de um gene, neste caso só conta a *read* que está inteiramente no gene, *reads* parcialmente alinhadas são ditas como *no_feature*, com sobreposição total em dois genes são ditas ambíguas e com alinhamento em mais de um gene são alinhamentos não únicos), *-s = reverse*, específico para bibliotecas fita específica e para parâmetro de contagem de genes.

Na tabela 4 está resumido os valores médios de *reads* obtidas e mapeadas com TopHat e a média de *counts* para o conjunto das 70 amostras. O sequenciamento *paired-end* foi realizado e foi obtida uma média de 56 milhões de *reads* por amostra.

Tabela 4. Quantificação do sequenciamento e contagem de *reads*.

<i>reads</i> R1	61494951.31
<i>reads</i> R1 mapeadas	59118084.74
<i>reads</i> R2	61494951.31
<i>reads</i> R2 mapeadas	57587432.59
<i>reads paired end</i>	56546538.34
HT-Seq	37139813.54

O tamanho médio das bibliotecas foi de 37.139.813,54 *reads* contadas (*read counts*), sendo a menor biblioteca com 10.838.002 *counts* e a maior com 65.588.183 *counts* (Figura 6). No anexo 2 estão os dados obtidos pelo HT-Seq.

O transcriptoma montado é composto de 116.947 genes expressos com 3.913 genes em regiões que compreende mais de dois *Ensembl genes* (que foram descartados), 58.718 genes em regiões não anotadas e 54.316 genes em regiões anotadas.

Figura 6. Distribuição da quantidade de *reads* de cada biblioteca. Tamanho da biblioteca: quantidade de *reads* distribuídas pelos transcritos/genes e considerados nas análises posteriores; alinhamento não único: *reads* alinhadas em mais de uma localização na referência; *no feature*: *reads* parcialmente alinhadas. A) Córtecx cingulado anterior (ACC); B) córtex orbitofrontal (OFC); C) Núcleo caudado (CN); D) *Nucleos accumbens* (NAC); E) Putâmen (PT).

5.2. Genes Diferencialmente Expressos

A análise de genes diferencialmente expressos (DEGs) foi realizada com as amostras da região estriatal, ou seja, as regiões CN, NAC e PT, com a análise de 8 amostras controles e 6 amostras TOC.

A expressão diferencial em cada área estriatal, após a filtragem das *reads* e a correção por CPM, foi obtida de acordo com expressão gênica de cada área CN (n=44.815, com 17.972 *Ensembl genes*), NAC (45.701, com 18.126 *Ensembl genes*) e PT (45.470 com 17.886 *Ensembl genes*). A maior parte do transcriptoma montado foi de regiões não anotadas compondo cerca de 40% do dado e o do transcriptoma anotado (*Ensembl gene*) cerca de 26% são de genes codificadores de proteínas, 3,5% lincRNAs e 3% antisense (Figura 7).

As análises de DEGs resultaram em 245 genes ($p_{adj} \leq 0,05$) em CN, 35 genes ($p_{adj} \leq 0,05$) em NAC e 38 genes ($p_{adj} \leq 0,05$) em PT. Com o objetivo de explorar um *dataset* maior de DEGs, foi utilizado $p_{valor} \leq 0,01$, sem ajustes para múltiplas testagens, resultando em 1127 genes em CN, 310 genes em NAC e 306 genes em PT (Tabela 5 e anexo3).

Figura 7. Composição do biotipo gênico do transcriptoma montado.

Composição do biotipo gênico dos genes expressos (após filtragens) das regiões estriatais CN (A), NAC (B) e PT (C) do transcriptoma montado.

Tabela 5. Genes expressos e DEGs. Genes expressos (utilizados na análise de expressão diferencial) e diferencialmente expressos entre casos e controles de cada área do *striatum*.

Striatum	genes expressos	genes expressos <i>Ensembl</i> <i>Gene</i>	DEGs	
			pvalor≤0,01	padj≤0,05
CN	44815	17972	1127	245
NAC	45701	18126	310	35
PT	45470	17886	306	38

Foram observados 134 genes (96 *Ensembl* genes) em mais de uma comparação (a intersecção das áreas no diagrama de *Venn*, Figura 8A) e o nível da expressão diferencial destes genes foram concordantes com relação ao log2FC (TOC/CON) (Figura 8B).

Foram identificados oito genes comuns as regiões estriatais, sendo três genes hipo-regulados (*NPAS4*, *RNUSA-1* and *RP11.20J15.5*) e cinco genes hiper-regulados (*TMPRSS5*, *bP-21264C1.3*, *bP-21264C1.1*, além de dois genes não anotados XLOC_058328 e XLOC_087511).

Figura 8. Genes diferencialmente expressos. A) Diagrama de Venn dos genes diferencialmente expressos ($p\text{-valor} \leq 0.01$) de cada área do *striatum* (CN, NAC e PT). B) Dot blot do Log2FC (*fold change* em log2) (TOC/CON) no eixo x e no eixo y a representação dos genes, cada cor corresponde a uma área estriatal CN (preto), NAC (vermelho) e PT (azul).

Foram encontradas 253 categorias com predominância de vias relacionadas com sistema imune para o núcleo caudado (CN) e predominância de vias para processamento de sinapse e neurotransmissor para o núcleo acumbens (NAC) (14 categorias) e para o putâmen (PT) (68 categorias) (Anexo 4).

Para explorar se os DEGs deste estudo foram descritos na literatura de TOC, foram realizadas as análises de enriquecimento utilizando os dados publicados dos estudos de GWAS, exomas (SNVs *de novo*) e CNVs em TOC, além do estudo transcriptoma para Síndrome de Tourette (TS). O enriquecimento (com $p\text{-valor} \leq 0,05$) foi observado, para as três áreas estriatais, somente no estudo da TS. Embora nenhuma das listas de genes de variações comuns (estudos de GWAS) bem como variações raras (estudos de exomas e CNVs) foram enriquecidos,

alguns genes se sobrepõem em comparações específicas em TOC e controles por região (Tabela 6, Anexo 5).

Tabela 6. Análise de enriquecimento. Análise de enriquecimento para genes descritos na literatura em TOC.

	DEGs	CNVs	SNVs <i>de novo</i>	GWAS	Síndrome de Tourette
CN	pvalor	0,1134	0,5010	0,0514	0,0001
	nº genes correspondentes	38	1	10	159
NAC	pvalor	0,193	1,000	0,7608	0,0001
	nº genes correspondentes	11	0	1	23
PT	pvalor	0,8011	1,000	0,3971	0,0001
	nº genes correspondentes	6	0	2	35

Comparando os dados de DEGs obtidos neste estudo com os dados do transcriptoma em TS (com as regiões CN e PT juntas), foi visto o enriquecimento em todas as áreas estriatais (CN, NAC e PT). Para CN dos 161 genes enriquecidos, somente 3 genes não estavam na mesma direção de expressão diferencial. Para PT e NAC somente 15 (43%) e 9 (37,5%) dos genes enriquecidos estavam na mesma direção de expressão diferencial (Figura 9).

Figura 9. Scatter plots DEGs striatum x TS. Scatter plots representando $\log_2FC (TS/control)$ dos DEGs na região estriatal (CN e PT) na Síndrome de Tourette no eixo x e $\log_2FC (TOC/control)$ dos DEGs de TOC em cada área estriatal (CN, NAC e PT).

5.3. Análises de co-expressão

As análises de co-expressão foram realizadas para identificar módulos de preservação de genes correlacionados, utilizando o WGCNA. As análises foram realizadas em duas etapas: a primeira análise foi a comparação entre casos e controles para cada região estriatal (CN, NAC e PT) e a segunda análise foi a comparação dos circuitos entre as áreas corticais e estriatais para os casos e os controles, separadamente.

5.3.1. Co-expressão da região estriatal

Para investigar quais módulos estão alterados comparando casos e controles (com os controles como referência), foram escolhidos os módulos menos preservados de acordo com o *medianRank*, *Zsummary* e correlação kME. Após as filtrações descritas no material e métodos foram obtidos 20.960 genes para CN, 21.037 genes para NAC e 20.634 genes para PT que foram utilizados para as análises.

Para a região CN foram encontrados 13 módulos, sendo o módulo Tan (kME: $n = 762$; $cor = -0,051$, $p = 0,16$) menos preservado, na região NAC foram encontrados 16 módulos, com o módulo Purple (kME: $n = 877$, $cor = -0,022$, $p = 0,52$) menos preservado e para a região PT foram encontrados 18 módulos com o Lightgreen (kME: $n = 522$, $cor = 0,094$, $p = 0,032$) sendo o módulo menos preservado (Figura 10).

Figura 10. Análise de WGCNA da região estriatal. *MedianRank*, *Zsummary* e correlação kME dos módulos menos preservados das 3 regiões estriatais: Tan (CN), Purple (NAC) e Lightgreen (PT). Na métrica *medianRank* o módulo menos preservado apresenta um *score* maior enquanto na métrica *Zsummary* módulo menos preservado apresenta um *score* menor. Para as correlações kME, a rede controle é representada pelo eixo X e o TOC pelo eixo y. Os genes em vermelho são aqueles com maior razão de correlação entre os grupos controle e TOC.

Na figura 11A está o diagrama de Venn e a lista de genes localizados em cada um dos três módulos encontra se no anexo 6. Na lista dos genes dos módulos selecionados, alguns genes atuam como *hubs* nas redes de TOC e de controles e foram encontrados um número reduzido de *hubs* e consequentemente pouca intersecção entre eles (Controle/TOC). Para CN, a intersecção apontou 6 genes DAO, SCOCP1, SRSF10P1, RN7SL789P, NNAT e AC195454.1; em NAC foram apontados RP11-389O22.1 e CTD-2636A23.2; e PT foram ZNF22, BAZ1A, ANKRD63, SEPT2, CCNI2 (Figura 11B).

Figura 11. Diagrama de Venn dos módulos menos preservados. A) Diagrama de Venn mostrando as intersecções entre todos os genes dos módulos menos preservados de cada região (CN, NAC e PT) de acordo com *medianRank*, *Zsummary* e correlação kME; B) Diagramas de Venn mostrando as intersecções entre os *hubs* das redes em controles e TOC para cada região (CN, NAC e PT).

Para verificar se os DEGs foram identificados nos módulos menos preservados de cada área estriatal ambos os resultados foram comparados. Em CN somente 27 genes, sendo 2 genes *hubs* para os controles (*PIK3R5* and *RP11-1319K7.1*) e 1 gene *hub* para o TOC (*BAIAP2-AS1*); para NAC foram encontrados apenas 3 genes sendo que nenhum deles são *hub* (*NRIP3*, *RP11-430B1.2* and *CYP4F12*) e na região PT foram encontrados 7 genes (*RPH3A*, *ATOH8*, *NGEF*, *bP-21264C1.3*, *bP-21264C1.1*, *CNTN3* and *LZTS1*) com um *hub* para o TOC (*RPH3A*).

Os módulos pouco preservados apresentam poucas vias hiper-representadas na análise de *gene ontology* ($FDR \leq 0,05$). Somente a região NAC apresentou um processo biológico enriquecido (*regulation of pathway restricted SMAD protein phosphorylation*). Para as regiões CN e PT somente foram encontradas categorias de componentes celulares enriquecidas (Tabela 7).

Para avaliar se os módulos menos preservados de cada área do *striatum* também estão descritos nos estudos genômicos de larga escala em TOC, foi realizada a mesma análise para os DEGs com todo o dado, porém nenhum gene foi enriquecido (anexo 5)

Tabela 7. Categorias funcionais enriquecidas . Categorias funcionais enriquecidas dos módulos menos preservados de cada área estriatal (CN, NAC e PT).

GO	Descrição	pvalor	FDR
CN – GO Cellular component			
GO:0044459	plasma membrane part	7.7532E-05	0.01448481
GO:0005887	integral component of plasma membrane	8.0878E-05	0.01448481
GO:0008305	integrin complex	8.4304E-05	0.01448481
GO:0031226	intrinsic component of plasma membrane	8.9E-05	0.01448481
GO:0098636	protein complex involved in cell adhesion	0.00015267	0.01987779
GO:0030057	desmosome	0.0005315	0.04972917
GO:0009986	cell surface	0.00053472	0.04972917
NAC – GO Biological process			
GO:0010862	positive regulation of pathway-restricted SMAD protein phosphorylation	8.7415E-06	0.04785088
PT – GO Cellular component			
GO:0045202	synapse	1.6072E-05	0.01046316
GO:0044463	cell projection part	5.0989E-05	0.01123273
GO:0042995	cell projection	5.1764E-05	0.01123273
GO:0097458	neuron part	8.857E-05	0.01441477
GO:0005874	microtubule	0.00030896	0.03420123
GO:0005929	cilium	0.00031522	0.03420123
GO:0005930	axoneme	0.00051373	0.03971673
GO:0097014	ciliary plasm	0.00051373	0.03971673
GO:0090544	BAF-type complex	0.00054908	0.03971673
GO:0015630	microtubule cytoskeleton	0.00070283	0.04575424

5.3.2. Co-expressão dos circuitos

Os módulos de co-expressão para os circuitos foram realizados nos circuitos afetivo/límbico (ACC – NAC) e cognitivo ventral (OFC – PT), analisando separadamente os casos e os controles. Após as filtrações foram obtidos 20.441 genes nos controles e 20.574 genes em TOC para o circuito afetivo e 19.421 genes em controles e TOC no circuito cognitivo ventral.

Ao comparar os módulos de co-expressão entre os casos e controles nos dois circuitos, observa-se que a distribuição entre os módulos mais e menos

preservados no circuito cognitivo ventral (OFC – PT) apresenta uma diferença estatística ($tvalue=-5,5013$, $pvalor<0,00001$) (Figura 12).

ACC - NAC

Controles

TOC

OFC - PT

Controles

TOC

Figura 12. Análise de WGCNA dos circuitos. Módulos de co-expressão pelo *medianRank* e *Zsummary* para cada circuito, casos e controles. Circuito afetivo (ACC – NAC): Brown, módulo mais preservado nos controles; Royalblue e Purple, módulos menos preservados no TOC. Circuito cognitivo ventral (OFC – PT): Grey60 e Greenyellow, módulos mais preservados nos controles; Royalblue e Saddlebrown, módulos menos conservados nos TOC.

Na análise do circuito afetivo, que compreende as áreas ACC e NAC (com a área ACC como referência), foram encontrados 26 módulos para os controles (com um módulo mais preservado e um módulo menos preservado) e 30 módulos para os casos (com um módulo mais preservado e dois módulos menos preservados) (Tabela 8 e anexo 7).

Na análise do circuito cognitivo ventral, que compreende as áreas OFC e PT (com a área OFC como referência), foram encontrados 40 módulos para os controles (com dois módulos mais preservados e um módulo menos preservado) e 33 módulos para os casos (com um módulo mais preservado e dois módulos menos preservados) (Tabela 8 e anexo 8).

Tabela 8. Resumo dos dados gerados pelo WGCNA

Circuito	grupo	input genes	preservação	Módulo	tamanho do módulo	medianRank	Zsummary	kME.cor	kME.p
ACC - NAC	controles	20441	mais preservado	brown	1086	1	35	0.74	6.4e-189
			menos preservado	lightyellow	486	20	1.8	0.002	0.96
	TOC	20574	mais preservado	turquoise	1570	1	55	0.92	<1e-200
				royalblue	511	30	4	-0.021	0.64
			menos preservado	purple	661	28	2.2	0.017	0.66
OFC - PT	controles	19421	mais preservado	grey60	461	3	12	0.39	3.4e-18
				greenyellow	536	5	14	-0.48	3.1e-32
			menos preservado	pink	634	39	-0.59	-0.032	0.42
	TOC	20573	mais preservado	brown	1523	1	56	0.9	1e-200
			menos preservado	royalblue	469	33	1.5	0.02	0.67
				saddlebrown	354	33	2	-0.015	0.78

kME.cor = valor de correlação; kME.p = valor de pvalor. ACC-NAC: circuito afetivo; OFC-PT: circuito cognitivo ventral.

Levando-se em conta o número de módulos mais e menos preservados em ambos os circuitos comparando casos e controles não encontramos nenhuma diferença estatística realizando um *chi-quadrado* com alpha de 5%.

A análise da quantidade de genes dos módulos preservados em relação ao de genes nos módulos não preservados, comparando TOC e controles, são significativamente diferentes nos dois circuitos, com $p\text{valor}=0.0000001$ no circuito afetivo e $p\text{valor}=0,015$ no circuito cognitivo ventral. Além das comparações qualitativas podemos observar na figura 13 a intersecção de genes em cada comparação.

Figura 13. Diagrama de Venn dos módulos mais e menos preservados. Diagrama de Venn mostrando a intersecção dos genes dos módulos mais e menos preservados de cada análise. A) ACC/NAC +con: módulo Brown, mais preservado em controle; ACC/NAC -TOC: módulos Royalblue e Purple, menos conservado no TOC; ACC/NAC -con: módulo Lightyellow, menos preservado em controle; ACC/NAC +TOC: módulo Turquoise, mais preservado no TOC. B) OFC/PT +con: módulos Grey60 e Greenyellow, mais preservado em controle; OFC/PT -TOC: módulos Royalblue e Saddlebrown, menos conservado no TOC; OFC/PT -con: módulo Pink, menos preservado em controle; OFC/PT +TOC: módulo Brown, mais preservado no TOC

As vias hiper-representadas na análise de *gene ontology* ($FDR \leq 0,05$) foi realizada para os genes exclusivos na comparação entre TOC e controles nos módulos mais e menos preservados de cada circuito.

No circuito afetivo as vias hiper-representadas nos módulos mais preservados dos controles são vias relacionadas com resposta imune, enquanto que no TOC são encontradas principalmente vias de regulação e nos módulos menos preservado em TOC foram enriquecidas vias para categorias de componentes celulares (anexo 9). Resultados similares foram vistos para o circuito cognitivo ventral (anexo 10).

6. DISCUSSÃO

Neste estudo, foram utilizados tecidos cerebrais *post mortem* com o intuito de buscar genes diferencialmente expressos e módulos de co-expressão não preservados entre casos e controles na região estriatal, bem como encontrar módulos de co-expressão (tanto preservados como não preservados) nos circuitos afetivo/límbico e cognitivo ventral, que estão relacionados com o TOC, nas análises de casos e controles separadamente.

As regiões analisadas foram o córtex orbitofrontal anterolateral (área 47 - OFC), giro do cíngulo anterior (córtex cingulado anterior, área 24 - ACC), cabeça do núcleo caudado (CN), *nucleo accumbens* (NAC) e putâmen (PT). Essas regiões interligadas formam o circuito córtico-estriatal-tálamo-cortical, com a ligação do *striatum*, que compreende as regiões CN, NAC e PT, com a região cortical, que compreende as regiões dIPFC, ACC e OFC. Neste estudo foram avaliados apenas dois circuitos: afetivo/límbico (ACC – NAC) e cognitivo ventral (OFC – PT). O circuito cognitivo dorsal (dIPFC – CN) não foi avaliado devido a forma como o tecido coletado foi separado, não sendo possível obter a região dIPFC.

O plano inicial era realizar o experimento com 10 amostras casos e 10 amostras controles, porém pela dificuldade de encontrar controles que pudessem ser pareados com os casos coletados, a casuística ficou em 8 casos e 8 controles, totalizando 70 amostras coletadas. As amostras foram pareadas em relação a idade, sexo e hemisfério com o único objetivo de encontrar uma casuística de estudo o mais homogêneo possível. Das características descritas dessa população, apenas para escolaridade foi encontrado um pvalor significativo para as diferenças observadas.

O sequenciamento das 70 amostras foi planejado para obter aproximadamente 80 milhões de *reads*, profundidade que permitiria detectar genes pouco expressos (Wang 2001). Apesar do esforço para obter bibliotecas homogêneas, com distribuição equimolar das amostras e com quantidade média de 80 milhões de *reads* por amostra, com o sequenciamento de poucas bibliotecas por *lane*, a média do sequenciamento foi de 56 milhões de *reads* e entre 40 e 50% do dado tem apenas um *count* por *read*, subindo para 60% se analisar apenas os *reads* com anotação *Ensembl gene*.

A maior parte do transcriptoma montado foi de regiões não anotadas compreendendo aproximadamente 62% do dado. A partir do transcriptoma anotado, aproximadamente 44% dos genes codificam proteínas, 14% são lincRNAs e 11% são antisensos, para todas as áreas. Esse dado nos mostra o impacto das *reads* não anotadas no perfil deste transcriptoma, sugerindo a importância destes novos transcritos nas áreas cerebrais estudadas.

O primeiro objetivo desta tese foi identificar genes diferencialmente expressos entre casos e controles nas regiões estriatais, bem como módulos de co-expressão pouco preservados para entender a assinatura transcricional dessas regiões. A análise foi realizada com 8 amostras controles e 6 amostras TOC (não havia tecido para amostras TOC-01 e TOC-03 em todas as áreas analisadas).

A combinação dos DEGs de todas as áreas mostraram que 58%, 15% e 11% foram exclusivos em CN, NAC e PT, respectivamente. Os genes dos módulos de co-expressão menos preservados comparando TOC e controles mostraram que 33,7%, 38,9% e 23,4% foram exclusivos em CN, NAC e PT, respectivamente, sem

genes comuns à todas as áreas. Estes resultados confirmam a especificidade da assinatura transcricional como já descrito em (Parkes et al. 2017) que utilizou o componente principal na análise de expressão gênica e mostram que essas diferenças são mantidas na comparação entre TOC e controles deste estudo.

Comparações entre as áreas mostraram que CN apresenta um número maior DEGs e que são mais comuns com o PT, porém nas análises de co-expressão os genes dos módulos menos preservados em CN são mais comuns com os genes em NAC. Isso pode sugerir que DEGs e genes co-expressos contribuem de formas diferentes para a patologia. Foi observado que o PT apresentou o menor número de DEGs, mas é a área com a maior correlação gene-gene rompido, ou seja, a região com a maior quantidade de genes pouco co-expressos quando comparados TOC e controles. Além disso, a pouca intersecção observada entre os DEGs e os genes dos módulos pouco preservados em cada área confirmam a necessidade da complementariedade das análises (Gaiteri et al. 2014) para buscar diferenças na comparação entre TOC e controles.

Alguns genes foram exclusivamente encontrados em cada área. Em CN dentre os DEGs exclusivos foram encontrados os genes *RGS7BP*, *NOSTRIN*, *OLIG1*. O gene *RGS7BP* (*regulator of G-protein signaling 7 binding protein*) e o gene *NOSTRIN* (*nitric oxide synthase trafficking*) estão envolvidos na neurotransmissão. O gene *RGS7BP* é uma proteína G relacionada com o mecanismo excitatório ou inibitório de transmissão sináptica em neurônios pós-sináptico (Alberini & Kandel 2015) e o gene *NOSTRIN* pode promover a transmissão neuronal por longos períodos (Boehning & Snyder 2003). O gene *OLIG1* (*oligodendrocyte transcription factor 1*) desempenha funções na maturação

do sistema nervoso central diretamente associado com o desenvolvimento de oligodendrócitos (Othman et al. 2011), que protegem e suportam os neurônios.

Na região NAC, os genes *INA* e *SLC5A* são exclusivos. O gene *INA* (*internexin neuronal intermediate filament protein alpha*) apresenta um importante papel na transmissão de informação entre neurônios além do envolvimento com a morfogênese neuronal como suporte de axônios (Armstrong & Cairns 2006; Martins-de-Souza et al. 2009). O gene *SLC5A7* (*solute carrier family 5 member 7*), está relacionado com o transporte de colina para a síntese de acetilcolina em neurônios colinérgicos (Black & Rylett 2012).

Na região PT, os genes *NOS1* e *SYT2* são exclusivos. O gene *NOS1* (*nitric oxide synthase 1*) está associado a modulação sináptica, sendo secretado pelas terminações nervosas de regiões cerebrais que tem papel no comportamento e memória (Boehning & Snyder 2003). O gene *SYT2* (*synaptotagmin II*) está relacionado com as membranas vesiculares sinápticas (Young & Neher 2009) onde a proteína tem função no tráfico vesicular e na exocitose.

Dentre os genes importantes no sistema nervoso, encontramos o gene *DAO* (*D-amino acid oxidase*) em CN. O gene *DAO* é um *hub gene* (genes altamente conectados de uma rede) e atua como um modulador do metabolismo de serina D e conseqüentemente na atividade do receptor N-metil-D-aspartato (Sacchi 2013), sendo um dos genes mais importantes do sistema glutamatérgico.

Parkers e colaboradores (2017) mostraram que a diferença entre as sub-regiões dorsal e ventral do *striatum* estavam enriquecidas para processos biológicos tais como sinalização de receptor de dopamina e resposta a

anfetaminas, monoaminas e catecolaminas envolvidas no sistema canabinóide. Os autores também encontraram bons genes classificadores da região caudal do *striatum* que estão enriquecidos para secreção de glutamato. Neste trabalho também foram encontrados genes importantes dessas vias e alguns são DEGs como o gene *SLC5A7* em NAC, relacionado com a funcionalidade de outros neurotransmissores como a reabsorção de acetilcolina (Black & Rylett 2012) e o gene *SLC6A7* que é um gene *hub* em TOC na região CN, é a da família de neurotransmissores ácido gama-aminobutírico (GABA) (Kim et al. 2010), o principal inibidor do sistema nervoso.

As análises de enriquecimento para processos biológicos mostraram transmissões sinápticas químicas, sinalização trans-sináptica, que foram enriquecidas nas comparações caso controle em todas as áreas. Especificamente, a regulação dos níveis de neurotransmissores (GO:0001505) e a transmissão sináptica química envolvida no processamento pré-sináptico (GO:0099531) foram compartilhadas entre NAC e PT. Respostas a estímulos externos (GO:0009605), regulação da plasticidade sináptica (GO:0048167), modulação da transmissão sináptica (GO:0050804), resposta celular a estímulos químicos (GO:0070887) e resposta a substância orgânicas (GO:0010033) foram compartilhadas entre CN e PT. Processos biológicos enriquecidos especificamente com o sistema imune e citocinas é visto somente em CN e envolvimento do sistema imune em TOC já vem sendo debatido (Dinn et al. 2001; Attwells et al. 2017).

Poucas categorias foram enriquecidas baseadas nos módulos de co-expressão menos preservados das regiões estriatais. Em CN foram observadas que as categorias relacionadas com moléculas de adesão celular são fortemente

relacionadas com sistema imune e, além disso, desregulação nessas categorias, também foram observadas nas análises de metilação comparando TOC e controles (Yue et al. 2016). Na região NAC somente foi identificado o processo de regulação positiva de fosforilação da proteína SMAD (GO:0010862) que é composto por genes que codificam proteínas morfogênicas de ossos (BMPs), que atuam na homeostasia do tecido, com um papel essencial para especificar neurotransmissores (Borodinsky & Belgacem 2016). Com relação a região PT, importantes categorias para desenvolvimento de neurônios e migração foram encontradas e foi visto que no enriquecimento para tipos celulares, os astrócitos estão enriquecidos nos DEGs do PT (dados não mostrados). Estudos em modelos animais mostram que astrócitos nas regiões estriatais estão associados com disfunção dos canais de cálcio contribuindo para a desregulação sináptica da sinalização glutamatérgica (Jiang et al. 2016).

Estudos genômicos em larga escala para TOC, sugerem um PRS, mas também variações únicas muito raras de grande efeito representados por SNVs e CNVs, realizando comparações com mQTLs eQTLs, mostraram algumas evidências que acarretam possíveis alterações transcricionais e corroboram um modelo integrado para TOC (Pauls et al. 2014). Jaffe e colaboradores (2014) selecionaram SNPs baseados em estudos de genes candidatos para transtornos alimentares (EA) e TOC na literatura e mostraram a associação desses SNPs ao longo da vida no córtex pré-frontal entre controles. Quando utilizaram amostras de cérebro de pacientes com EA e TOC/transtorno de personalidade obsessivo compulsivo ou tics comparados aos controles, foram encontrados alguns DEGs, mas nenhum SNPs de risco foram eQTLs ou associados à expressão gênica. O

argumento é que seriam necessários grandes tamanhos de amostra, que provavelmente explicariam que nem variantes comuns nem variantes muito raras foram enriquecidas nos DEGs e em módulos de co-expressão pouco preservados em qualquer área estriatal comparando TOC e controles. Mesmo assim, alguns genes que carregam variantes comuns e/ou raras previamente associados com TOC aparece no conjunto de genes desse estudo. 113 genes presente em ao menos uma comparação do *striatum* estão presentes nos estudos de CNV. Seis (5,3%) genes dos 113 genes da lista aparecem em duas regiões estriatais. Da lista de SNVs, um gene também foi representado em cada área do *striatum*, tanto na análise de DEGs quanto WGCNA, sendo *CR1* para CN, *WWP1* em NAC e *CCDC108* no PT. Vinte e dois genes são comuns entre os estudos de GWAS e o dados gerados por este estudo. Somente *PPP1R15A* estava presente em duas regiões diferentes: CN (na análise de WGCNA) e PT (análise de DEGs). Considerando todos os genomas avaliados e todos os genes deste estudo, tanto os DEGS quanto os dos módulos menos preservados, 51% (70 genes) para CN, 27% (37 genes) foram exclusivos para NAC, 17% (24 genes) para PT e somente 5% (7 genes) estavam presentes em pelo menos duas regiões do *striatum*, confirmando a especificidade de cada área. O gene *CR1* (*complement C3b/C4b receptor 1*) codifica uma proteína que tem funções importantes na ativação dos complexos do sistema imune bem como o gene *PPP1R9B* (*neurabin 2*) que está envolvido na sinapse imunológica das células *natural killer* (Meng et al. 2009), ambos encontrados em CN. O gene *WWP1* (*WW domain containing E3 ubiquitin protein ligase 1*) está muito relacionado com degradação de proteínas e transcrição de RNA (Chen et al. 2017) e também pode estar relacionado com o desbalanço de

neurotransmissores. Por fim, o gene *PP1R15A* (*protein phosphatase 1 regulatory subunit 15A*), encontrado nas regiões CN e PT codifica proteínas que contribuem para a estabilização da síntese protéica depois da exposição ao *stress* (Choy et al. 2015).

Foram encontrados importantes genes, descritos na literatura, que são DEGs neste estudo e encontram-se nos módulos preservados de co-expressão. Dentre estes genes está a sinaptoporina (*SYNPR*), encontrada no GWAS e diferencialmente expresso em PT, que codifica uma proteína de membrana envolvida no desbalanço colinérgico e disfunções comportamentais, motoras e cognitivas (Müller & Bohnen 2013) provavelmente afetando os receptores de nicotina no PT. Dos estudos de CNVs foram encontrados, na região NAC, genes envolvidos com integridade das proteínas de membrana, como o gene *NAPB* (*NSF attachment protein beta*), que atua na fusão de vesículas nas membranas pré-sinápticas e também o gene *FSTL5* (Follistatin-like 5), descrito em câncer (Remke et al. 2011), mas também expresso em cérebros humanos (Adams et al. 1993).

TOC e Síndrome de Tourette frequentemente co-ocorrem nos indivíduos e há evidências das duas doenças compartilharem um risco genético. Os DEGs entre casos e controles de cada área do *striatum* foram comparados aos DEGs encontrados para TS comparados entre casos e controles de duas regiões analisadas em conjunto (CN e PT) (Lenington et al. 2016). Foi observado enriquecimento de DEGs de TS em todas as três áreas do *striatum*, porém os DEGs de TS estavam na mesma direção de expressão dos DEGs de TOC apenas para CN, sendo que para NAC e PT foram 9 (37,5%) e 15 (43%), respectivamente. Esta análise sugere que a desregulação dos genes em CN pode ser parte de uma

arquitetura genética específica compartilhada entre alguns casos de TS e TOC e associados com funções microgliais incluindo falha na neuroproteção, falha de suporte para sobrevivência neuronal e anomalias na poda sináptica (Frick & Pittenger 2016).

As análises de co-expressão dos circuitos, foi realizada para os circuitos afetivos (regiões ACC e NAC) e cognitivo ventral (regiões OFC e PT). Com relação a quantidade de módulos obtidos comparando TOC e controles em cada circuito, foi observado que no circuito cognitivo ventral a distribuição dos módulos de co-expressão mais e menos preservados é menos conservada, ou seja, a quantidade de módulos é diferente e a forma como os módulos estão distribuídos no TOC é muito diferente que no controle.

Ao comparar se o número de módulos, mais e menos preservados de cada circuito, entre casos e controles, não foi visto nenhuma diferença. No entanto, existem diferenças significativas entre o número de genes dos módulos preservados em relação ao número de genes nos módulos não preservados no TOC comparado ao controle nos dois circuitos, ou seja, a diferença da quantidade de circuitos entre casos e controles não é diferente, porém a quantidade de genes em cada um deles o é. Resultados semelhantes foram obtidos ao fazer comparações equivalentes dos genes *hubs*. Os genes *hubs* são os genes mais conectados em uma rede, e também foram vistas diferenças significativas na quantidade de genes *hubs* nos módulos mais e menos preservados quando comparados TOC e controles, sugerindo uma perda da co-expressão entre as áreas.

Estes resultados sugerem que existe uma especificidade dos genes co-expressos em cada grupo e em cada circuito, corroborando com os dados obtidos para as análises de co-expressão e DEGs do *striatum* e com os dados da literatura (Parkes et al. 2017) que mostram que cada área do cérebro tem assinaturas transcricionais próprias. Isso foi visto tanto nos controles (como esperado), quanto no TOC.

As vias enriquecidas para os módulos mais preservados nos controles, seja no circuito afetivo ou no cognitivo ventral são relacionadas com sistema imune e curiosamente para os casos, nos módulos mais preservados dos dois circuitos encontram-se vias relacionadas com regulação. Como descrito anteriormente, o sistema imune está envolvido com o transtorno. Um artigo recente comparou a distribuição do translocador de proteína (TSPO) nos circuitos de indivíduos com TOC e controles e observou um aumento da densidade da proteína TSPO quando as microglias estão ativadas durante a neuroinflamação. Estes achados sugerem, que não são necessariamente os genes que promovem as diferenças, mas como esses genes estão atuando, uma vez que os dois circuitos compartilham vias enriquecidas semelhantes (Attwells et al. 2017).

Este trabalho apresenta limitações, como avaliação clínica *post mortem* feita com familiar; o número pequeno de amostras, resultado da dificuldade de coleta de cérebros *post mortem*, que afetam diretamente a análise estatística. No entanto, deve ser reconhecido a dificuldade de coletar cérebros *post mortem* de TOC, manter espécimes congelados de alta qualidade e avaliação clínica confiável. É importante destacar que foram realizados vários passos com diferentes profissionais treinados para alcançar o diagnóstico psiquiátrico e excluir qualquer

comorbidade, bem como o cuidado em todas as etapas para garantir amostras de boa qualidade, o pequeno intervalo *post mortem*, a inclusão de amostras com bom pH do licor cefalorraquidiano, a boa qualidade do RIN após a extração do RNA, a preparação das bibliotecas com amostras aleatoriamente distribuídas nos *pools* de sequenciamento para alcançar os melhores resultados e diminuir o viés. Um segundo ponto é que, embora fossem utilizados casos e controles pareados por idade, acessando as diferentes medidas (anátomo patológicas e informações clínicas) associadas com neurodegeneração e excluindo qualquer amostra duvidosa, este estudo representa o transcriptoma de indivíduos com mais de 65 anos e as conclusões feitas aqui, podem ser diferentes para os casos de indivíduos mais jovens. Outra questão importante é que parte do transcriptoma montado são de regiões não e, conseqüentemente, não foram utilizados nas análises de enriquecimento. Na avaliação dos circuitos, a melhor maneira de avaliar a conectividade das diferentes áreas que os compõem seria uma análise conjunta entre casos e controles das duas áreas do circuito, porém isso não foi possível devido à impossibilidade de alcançar uma rede *scale free* que está diretamente relacionada com o baixo número de amostras sequenciadas.

7. CONCLUSÕES

Este foi o primeiro trabalho que explorou o transcriptoma das áreas estriatais de forma independente na comparação de casos e controles e as redes de co-expressão de dois dos três circuitos envolvidos com o TOC. Os resultados obtidos confirmam a especificidade das assinaturas transcricionais das áreas estriatais, bem como a especificidade, em termos de genes, de cada circuito, porém com vias funcionais semelhantes. Este trabalho contribui para o melhor entendimento, em nível transcricional, das possíveis diferenças de cada área na patofisiologia do TOC. Estudos futuros, com mais amostras, são necessários para entender essa complexidade.

8. ANEXOS

Anexo 1. Mapeamento das *reads*, oriundos do TopHat.

Amostras	Nº de <i>reads</i> R1	<i>reads</i> R1 mapeadas	% <i>reads</i> mapeadas R1	% alinhamentos múltiplos R1	Nº de <i>reads</i> R2	<i>reads</i> R2 mapeadas	% <i>reads</i> mapeadas R2	% alinhamentos múltiplos R2	Alinhamento pare (R1-R2)	% alinhamentos múltiplos pares (R1-R2)	% alinhamentos discordantes pares (R1-R2)	Razão de alinhamento pares (R1-R2)
CON-01a_CN	43198755	42106484	97.50%	9.30%	43198755	41188679	95.30%	9.20%	40558065	9.20%	1.30%	92.70%
CON-02a_CN	63034757	61654191	97.80%	6.90%	63034757	59663822	94.70%	6.70%	58923057	6.60%	0.90%	92.70%
CON-03b_CN	61171719	59092314	96.60%	7.00%	61171719	58208629	95.20%	6.90%	56927969	6.80%	1.30%	91.80%
CON-04_CN	86876290	84236736	97.00%	5.60%	86876290	82026267	94.40%	5.50%	80562963	5.50%	1.30%	91.50%
CON-05_CN	79315042	76499697	96.50%	6.70%	79315042	75159054	94.80%	6.70%	73559751	6.60%	0.80%	92.00%
CON-06_CN	89027607	86625197	97.30%	24.60%	89027607	84565156	95.00%	24.70%	83312087	24.70%	1.90%	91.80%
CON-07_CN	75000030	71969923	96.00%	6.00%	75000030	70558840	94.10%	5.80%	69230389	5.80%	1.40%	91.00%
CON-08_CN	34002805	32249185	94.80%	9.80%	34002805	31553438	92.80%	9.70%	30988927	9.70%	1.80%	89.50%
TOC-02_CN	70062101	68260423	97.40%	11.90%	70062101	65150044	93.00%	11.70%	64281458	11.70%	1.20%	90.60%
TOC-04_CN	55888476	53969528	96.60%	7.10%	55888476	51981497	93.00%	7.00%	50995524	7.00%	1.50%	89.90%
TOC-05_CN	78883669	76867288	97.40%	7.40%	78883669	75238291	95.40%	7.30%	74111260	7.20%	1.10%	92.90%
TOC-06_CN	61418356	59918158	97.60%	6.30%	61418356	58639661	95.50%	6.20%	57769677	6.10%	1.20%	92.90%
TOC-07_CN	36317314	35014227	96.40%	5.60%	36317314	34331484	94.50%	5.60%	33719347	5.50%	1.20%	91.80%
TOC-08_CN	58516615	54630912	93.40%	8.10%	58516615	53421458	91.30%	8.00%	52264460	7.90%	1.80%	87.70%
CON-01a_NAC	79260529	77010260	97.20%	11.70%	79260529	75548011	95.30%	11.60%	74315228	11.60%	1.40%	92.40%
CON-02a_NAC	48706698	47417399	97.40%	8.80%	48706698	45440571	93.30%	8.50%	44800578	8.50%	1.30%	90.80%
CON-03b_NAC	67437287	65029025	96.40%	8.00%	67437287	62747021	93.00%	7.80%	61627182	7.70%	1.30%	90.20%
CON-04_NAC	57030141	54951068	96.40%	7.80%	57030141	54180539	95.00%	7.70%	52934522	7.70%	1.40%	91.60%
CON-05_NAC	96281346	92948839	96.50%	7.60%	96281346	91322889	94.90%	7.60%	89307901	7.50%	1.20%	91.70%
CON-06_NAC	68041259	65971775	97.00%	25.20%	68041259	64316056	94.50%	25.20%	63304634	25.20%	1.70%	91.50%
CON-07_NAC	52482435	50862415	96.90%	6.80%	52482435	49617206	94.50%	6.60%	48619446	6.50%	1.80%	91.00%
CON-08_NAC	21888239	20011972	91.40%	8.30%	21888239	19623928	89.70%	8.30%	19208141	8.20%	2.00%	86.00%
TOC-02_NAC	64315170	62726993	97.50%	9.50%	64315170	59972989	93.20%	9.30%	59180758	9.30%	1.20%	90.90%
TOC-03_NAC	57001428	55103841	96.70%	8.60%	57001428	53110550	93.20%	8.60%	52128282	8.50%	1.20%	90.40%

TOC-04_NAC	50983346	49552309	97.20%	10.00%	50983346	48107190	94.40%	9.90%	47299820	9.80%	1.60%	91.30%
TOC-05_NAC	97743429	94988636	97.20%	7.10%	97743429	92804252	94.90%	7.00%	91228231	7.00%	1.50%	91.90%
TOC-06_NAC	68423360	66680277	97.50%	5.80%	68423360	65606551	95.90%	5.80%	64549850	5.70%	1.40%	93.00%
TOC-07_NAC	66278779	63219867	95.40%	5.60%	66278779	61942260	93.50%	5.50%	60892140	5.50%	1.30%	90.70%
TOC-08_NAC	59768837	52795529	88.30%	6.50%	59768837	51588882	86.30%	6.40%	50387332	6.40%	1.80%	82.80%
CON-01a_PT	54294948	52879179	97.40%	9.80%	54294948	52018948	95.80%	9.70%	51210934	9.70%	1.40%	93.00%
CON-02a_PT	53360320	51935550	97.30%	6.40%	53360320	50274073	94.20%	6.30%	49599067	6.30%	1.00%	92.00%
CON-03b_PT	69920107	67646206	96.70%	10.20%	69920107	66345573	94.90%	10.10%	64983307	10.00%	1.20%	91.80%
CON-04_PT	65616872	63276081	96.40%	7.10%	65616872	62014060	94.50%	7.10%	60681629	7.00%	1.20%	91.40%
CON-05_PT	66734142	64650290	96.90%	7.70%	66734142	63247981	94.80%	7.60%	62198219	7.60%	1.00%	92.30%
CON-06_PT	62171563	60157639	96.80%	8.80%	62171563	58738606	94.50%	8.70%	57794221	8.60%	1.10%	91.90%
CON-07_PT	40736147	38607183	94.80%	5.80%	40736147	37888835	93.00%	5.70%	37112143	5.60%	1.30%	89.90%
CON-08_PT	39847939	38235514	96.00%	7.30%	39847939	37560037	94.30%	7.20%	36821893	7.20%	2.10%	90.40%
TOC-02_PT	66086925	64261766	97.20%	7.40%	66086925	62156916	94.10%	7.30%	61228324	7.30%	1.30%	91.50%
TOC-04_PT	65550130	63722445	97.20%	7.20%	65550130	62024665	94.60%	7.10%	60970204	7.10%	1.70%	91.50%
TOC-05_PT	61057102	59466767	97.40%	6.80%	61057102	58300471	95.50%	6.70%	57446001	6.70%	1.20%	92.90%
TOC-06_PT	37141792	36145109	97.30%	6.90%	37141792	35430393	95.40%	6.80%	34889250	6.80%	1.20%	92.80%
TOC-07_PT	100378919	96820894	96.50%	16.50%	100378919	94892279	94.50%	16.30%	93127464	16.30%	1.90%	91.00%
TOC-08_PT	41949251	38773585	92.40%	7.80%	41949251	38007132	90.60%	7.70%	37196964	7.70%	1.80%	87.10%
CON-01a_OFC	102850809	99848039	97.10%	8.00%	102850809	96605761	93.90%	7.80%	95108565	7.70%	1.20%	91.40%
CON-02a_OFC	54133535	52645817	97.30%	7.90%	54133535	50935229	94.10%	7.70%	50155263	7.70%	1.30%	91.50%
CON-03b_OFC	86376262	84189640	97.50%	6.30%	86376262	81638532	94.50%	6.10%	80534680	6.10%	1.10%	92.20%
CON-07_OFC	51576692	48326172	93.70%	5.30%	51576692	47388202	91.90%	5.20%	46192827	5.20%	1.40%	88.30%
CON-08_OFC	16788059	16229757	96.70%	7.70%	16788059	15898139	94.70%	7.60%	15618922	7.60%	2.30%	90.90%
TOC-01_OFC	81227727	78846014	97.10%	7.70%	81227727	75966287	93.50%	7.50%	74809032	7.50%	1.50%	90.80%
TOC-02_OFC	73478944	71435675	97.20%	7.90%	73478944	68811812	93.60%	7.80%	67778044	7.70%	1.00%	91.30%
TOC-03_OFC	62442246	60920310	97.60%	6.60%	62442246	58860011	94.30%	6.50%	58028800	6.50%	1.30%	91.70%
TOC-04_OFC	83215445	81070819	97.40%	8.10%	83215445	79152371	95.10%	8.00%	77923040	8.00%	1.50%	92.20%
TOC-07_OFC	89413498	85649117	95.80%	5.50%	89413498	83773202	93.70%	5.40%	81785635	5.40%	1.60%	90.00%
TOC-08_OFC	46967053	45000880	95.80%	6.00%	46967053	44056526	93.80%	5.90%	43187422	5.90%	1.80%	90.30%
CON-01a_ACC	73972725	71797633	97.10%	9.00%	73972725	69420241	93.80%	8.80%	68356018	8.80%	1.30%	91.20%

CON-02a_ACC	53357218	52027253	97.50%	8.50%	53357218	50303268	94.30%	8.30%	49584419	8.30%	1.10%	91.90%
CON-03b_ACC	59689234	57609532	96.50%	10.70%	59689234	55830717	93.50%	10.50%	54820757	10.40%	1.40%	90.60%
CON-04_ACC	71049371	68797618	96.80%	7.80%	71049371	66796076	94.00%	7.70%	65602259	7.70%	1.20%	91.20%
CON-05_ACC	36015886	32089973	89.10%	6.80%	36015886	31493173	87.40%	6.70%	30614694	6.60%	1.20%	84.00%
CON-06_ACC	73246040	68678698	93.80%	7.10%	73246040	67293915	91.90%	7.10%	65671477	7.00%	1.30%	88.50%
CON-07_ACC	47996863	45227227	94.20%	8.20%	47996863	44220383	92.10%	8.00%	43076733	8.00%	1.40%	88.50%
CON-08_ACC	45406015	34662498	76.30%	28.80%	45406015	33761591	74.40%	28.40%	33014897	28.30%	1.90%	71.30%
TOC-01_ACC	38190332	37028712	97.00%	9.60%	38190332	35782575	93.70%	9.50%	35175858	9.40%	1.50%	90.80%
TOC-02_ACC	57846471	56107431	97.00%	8.40%	57846471	54109915	93.50%	8.20%	53243174	8.20%	1.10%	91.00%
TOC-03_ACC	33501215	32347321	96.60%	12.40%	33501215	31335720	93.50%	12.20%	30756025	12.10%	1.20%	90.70%
TOC-04_ACC	88404457	84726955	95.80%	10.60%	88404457	81246210	91.90%	10.50%	79635066	10.50%	1.50%	88.70%
TOC-05_ACC	59672495	56902569	95.40%	7.10%	59672495	55582052	93.10%	6.90%	54268370	6.90%	1.80%	89.30%
TOC-06_ACC	66053215	62997292	95.40%	6.70%	66053215	61758499	93.50%	6.60%	60089794	6.50%	1.90%	89.20%
TOC-07_ACC	23343748	22236609	95.30%	7.30%	23343748	21818343	93.50%	7.20%	21269000	7.20%	1.40%	89.80%
TOC-08_ACC	55229061	51923695	94.00%	6.40%	55229061	50766347	91.90%	6.30%	49708314	6.30%	1.90%	88.30%

Anexo 2. Contagem das *reads* (*read count*), oriundos do HT-Seq.

Amostras	alinhamento não único	no_feature	tamanho da biblioteca
CON-01a_CN	17002909	11097839	27655625
CON-02a_CN	17132239	13247316	44846597
CON-03b_CN	19986905	19661517	36466661
CON-04_CN	20936260	27974005	52871058
CON-05_CN	20988971	18460748	54344932
CON-06_CN	150808002	19878484	46374966
CON-07_CN	17947691	25253502	43652590
CON-08_CN	13778487	7991933	21588727
TOC-02_CN	42176117	16659431	44242288
TOC-04_CN	18937610	20696381	30337993
TOC-05_CN	24465405	23440788	48782928
TOC-06_CN	16104636	19550804	37384140
TOC-07_CN	7716901	9943877	23663088
TOC-08_CN	22623358	18092990	33182662
CON-01a_NAC	43024816	22583309	46486527
CON-02a_NAC	18957708	15096371	28719464
CON-03b_NAC	25792801	21567855	39291566
CON-04_NAC	20692009	19279505	32512995
CON-05_NAC	31395012	30515803	57216950
CON-06_NAC	99501565	12690123	37399893
CON-07_NAC	16015741	17207845	31105772
CON-08_NAC	6115845	5917563	12806288
TOC-02_NAC	27286165	15033033	42447701
TOC-03_NAC	24644292	17594350	33603911
TOC-04_NAC	25750695	16542111	28779840
TOC-05_NAC	31440650	33108458	56577648
TOC-06_NAC	18035359	21589015	42197714
TOC-07_NAC	13053840	18283422	42375819
TOC-08_NAC	15064246	19737267	30739167
CON-01a_PT	24053207	14518541	33914374
CON-02a_PT	14642677	16561346	32660022
CON-03b_PT	37895260	16876082	45074581
CON-04_PT	21063653	21329536	38639065
CON-05_PT	22159010	16413022	44190427
CON-06_PT	23981956	17354820	38381087
CON-07_PT	10571081	12591393	24494523
CON-08_PT	9512500	9534691	26567470
TOC-02_PT	20175816	21103578	39219353
TOC-04_PT	22130096	22860235	37219552
TOC-05_PT	17976480	19479751	36723835
TOC-06_PT	11128350	11347041	22791774
TOC-07_PT	110439978	26533588	55826650
TOC-08_PT	15747682	12097976	24375868
CON-01a_OFC	31238373	27635636	65588183
CON-02a_OFC	19289674	12285632	36884649
CON-03b_OFC	23109858	27991753	51931894
CON-07_OFC	11627733	18613095	28263719
CON-08_OFC	4431345	4399660	10838002
TOC-01_OFC	27576406	28367419	45430704
TOC-02_OFC	24956560	18582806	48133880

TOC-03_OFC	17838080	20387413	37285505
TOC-04_OFC	33117635	26364782	49274678
TOC-07_OFC	19870797	26609966	56133833
TOC-08_OFC	11946299	15283165	27812098
CON-01a_ACC	29657561	20924281	45350866
CON-02a_ACC	21257580	10192826	38051144
CON-03b_ACC	34264329	17577479	34719931
CON-04_ACC	26176574	19642692	44833819
CON-05_ACC	9205820	8899879	21818604
CON-06_ACC	19382943	18799366	46468834
CON-07_ACC	14984368	12310585	30262806
CON-08_ACC	68748430	7036107	18149849
TOC-01_ACC	18080363	11160226	22837637
TOC-02_ACC	20720228	16827666	35343164
TOC-03_ACC	20124108	7563703	21264917
TOC-04_ACC	49622304	27428163	49674375
TOC-05_ACC	20080534	17598627	36477473
TOC-06_ACC	15960072	18800047	41476127
TOC-07_ACC	6726881	5093452	16016000
TOC-08_ACC	15121408	17842055	31730166

Anexo 3. Lista dos genes diferencialmente expressos das regiões estriatais. pvalor≤0,01 e padj≤0,05 (negrito).

ID_CN	Gene Symbol	Ensembl Gene	pvalor	padj	Regulação em TOC	Log2FoldChange
XLOC_084729	HLA-DQA1	ENSG00000196735	9.88E-12	2.28E-07	Up-regulated	2.858934873
XLOC_015610	RARRES3	ENSG00000133321	5.96E-11	6.88E-07	Up-regulated	1.23946222
XLOC_072529	LINC01094	ENSG00000251442	7.84E-10	6.03E-06	Up-regulated	1.237534424
XLOC_025029	CAMKK2	ENSG00000110931	1.18E-08	6.83E-05	Down-regulated	-0.489555891
XLOC_017465	NA	NA	1.85E-08	8.54E-05	Down-regulated	-1.750975212
XLOC_032974	ITPKA	ENSG00000137825	2.23E-08	8.60E-05	Down-regulated	-0.61448617
XLOC_076049	CFI	ENSG00000205403	7.24E-08	0.000238821	Up-regulated	1.533280621
XLOC_002446	FCGR1B	ENSG00000198019	2.05E-07	0.000593081	Up-regulated	2.285454695
XLOC_016910	NRGN	ENSG00000154146	2.73E-07	0.000699743	Down-regulated	-0.803097153
XLOC_080297	RGS14	ENSG00000169220	3.32E-07	0.000767103	Down-regulated	-0.80030733
XLOC_079407	NA	NA	4.45E-07	0.000776303	Up-regulated	1.78678129
XLOC_000707	NA	NA	4.83E-07	0.000776303	Down-regulated	-0.975515675
XLOC_003726	IGFN1	ENSG00000163395	4.83E-07	0.000776303	Down-regulated	-1.677091833
XLOC_063540	NA	NA	4.98E-07	0.000776303	Down-regulated	-0.967973504
XLOC_088517	HLA-DQB1	ENSG00000179344	5.04E-07	0.000776303	Up-regulated	3.561052142
XLOC_005693	COL9A2	ENSG00000049089	6.65E-07	0.000959821	Down-regulated	-0.71266533
XLOC_054170	CDK5R2	ENSG00000171450	1.14E-06	0.001539929	Down-regulated	-0.604179955
XLOC_093183	RP4-630C24.3	ENSG00000241345	1.31E-06	0.001539929	Down-regulated	-1.35988874
XLOC_088531	HLA-DPA1	ENSG00000231389	1.32E-06	0.001539929	Up-regulated	1.521416295
XLOC_087519	NA	NA	1.33E-06	0.001539929	Up-regulated	0.918964344
XLOC_038176	CASKIN1	ENSG00000167971	1.63E-06	0.001708597	Down-regulated	-0.624204202
XLOC_017176	SNORA54	ENSG00000207008	1.63E-06	0.001708597	Down-regulated	-0.758957386
XLOC_052047	IL1R1	ENSG00000115594	1.79E-06	0.00179977	Up-regulated	1.503338597
XLOC_066769	ACPP	ENSG00000014257	2.14E-06	0.001904181	Up-regulated	1.855797101
XLOC_018345	MS4A4E	ENSG00000214787	2.17E-06	0.001904181	Up-regulated	1.052290986

XLOC_080256	CPLX2	ENSG00000145920	2.18E-06	0.001904181	Down-regulated	-0.787808475
XLOC_107348	MIR219A2	ENSG00000207955	2.23E-06	0.001904181	Down-regulated	-0.915578791
XLOC_037927	JPH3	ENSG00000154118	2.46E-06	0.002028587	Down-regulated	-0.585056362
XLOC_010432	NA	NA	2.60E-06	0.002070357	Down-regulated	-1.081573773
XLOC_087545	NA	NA	2.72E-06	0.0020922	Up-regulated	0.990216188
XLOC_087518	NA	NA	3.07E-06	0.002290152	Up-regulated	0.993152957
XLOC_072986	NA	NA	3.70E-06	0.002671891	Down-regulated	-1.405461373
XLOC_087573	NA	NA	4.73E-06	0.003312257	Up-regulated	0.986897182
XLOC_037081	ADCY7	ENSG00000121281	5.16E-06	0.003449039	Up-regulated	0.979473974
XLOC_033422	RNU5A-1	ENSG00000199568	5.23E-06	0.003449039	Down-regulated	-0.923906398
XLOC_101023	BAALC-AS1	ENSG00000247081	5.91E-06	0.003793883	Up-regulated	1.083430194
XLOC_054355	NA	NA	6.45E-06	0.003910349	Up-regulated	1.015505946
XLOC_101456	NA	NA	6.59E-06	0.003910349	Up-regulated	2.190600759
XLOC_048447	LPPR3;	ENSG00000129951	6.61E-06	0.003910349	Down-regulated	-0.631319661
XLOC_043147	GFAP	ENSG00000131095	6.92E-06	0.003910349	Up-regulated	0.934803756
XLOC_074333	CPLX1	ENSG00000168993	7.11E-06	0.003910349	Down-regulated	-0.665656929
XLOC_072985	NA	NA	7.11E-06	0.003910349	Down-regulated	-1.228430065
XLOC_048269	BRSK1	ENSG00000160469	7.64E-06	0.004104374	Down-regulated	-0.494395001
XLOC_065685	STAB1	ENSG00000010327	8.02E-06	0.004190088	Up-regulated	1.206274558
XLOC_058327	RPL7L1P9	ENSG00000231035	8.16E-06	0.004190088	Up-regulated	1.091045286
XLOC_087523	NA	NA	8.78E-06	0.004322094	Up-regulated	1.00874489
XLOC_049801	LRRRC4B	ENSG00000131409	8.80E-06	0.004322094	Down-regulated	-0.664052812
XLOC_101690	SCRT1	ENSG00000261678	9.96E-06	0.00470339	Down-regulated	-0.549805083
XLOC_048751	CDKN2D	ENSG00000129355	9.98E-06	0.00470339	Down-regulated	-0.52507561
XLOC_054186	SPEG	ENSG00000072195	1.08E-05	0.004987015	Down-regulated	-0.460774328
XLOC_115044	MAOB	ENSG00000069535	1.13E-05	0.005095448	Up-regulated	0.630482568
XLOC_063492	RASD2	ENSG00000100302	1.27E-05	0.005646707	Down-regulated	-0.553964932
XLOC_010985	NA	NA	1.30E-05	0.005673257	Up-regulated	0.650003365

XLOC_006102	RN7SL475P	ENSG00000265535	1.34E-05	0.005720009	Up-regulated	2.26987187
XLOC_038099	FBXL16	ENSG00000127585	1.40E-05	0.005886698	Down-regulated	-0.697108713
XLOC_084427	BTN3A3	ENSG00000111801	1.46E-05	0.006034949	Up-regulated	0.572446143
XLOC_084775	PACSIN1	ENSG00000124507	1.52E-05	0.006146884	Down-regulated	-0.463740851
XLOC_046696	HCN2	ENSG00000099822	1.57E-05	0.006146884	Down-regulated	-0.529443326
XLOC_044186	FASN	ENSG00000169710	1.58E-05	0.006146884	Down-regulated	-0.516302026
XLOC_060069	COL9A3	ENSG00000092758	1.63E-05	0.006146884	Down-regulated	-0.966403162
XLOC_007636	PAQR6	ENSG00000160781	1.65E-05	0.006146884	Down-regulated	-0.699002729
XLOC_031755	DIO2	ENSG00000211448	1.67E-05	0.006146884	Down-regulated	-1.345063307
XLOC_087571	NA	NA	1.68E-05	0.006146884	Up-regulated	1.024436784
XLOC_015140	CD44	ENSG00000026508	1.76E-05	0.006350682	Up-regulated	1.163913737
XLOC_018256	APLNR	ENSG00000134817	1.86E-05	0.006612739	Up-regulated	1.331538379
XLOC_090385	HMGA1P7	ENSG00000216753	2.00E-05	0.006994658	Down-regulated	-1.140969767
XLOC_041427	SCPEP1	ENSG00000121064	2.22E-05	0.007664461	Up-regulated	0.590890647
XLOC_044073	RBFOX3	ENSG00000167281	2.26E-05	0.007664461	Down-regulated	-0.415713194
XLOC_064501	KCNJ4	ENSG00000168135	2.36E-05	0.007913653	Down-regulated	-0.679428953
XLOC_079405	NA	NA	2.51E-05	0.008285394	Up-regulated	1.479350899
XLOC_030625	CEP170B	ENSG00000099814	2.88E-05	0.009358081	Down-regulated	-0.534655878
XLOC_101120	NA	NA	2.92E-05	0.009365265	Down-regulated	-1.002280037
XLOC_023578	PCED1B-AS1	ENSG00000247774	2.99E-05	0.009454718	Up-regulated	1.60468568
XLOC_007052	RP5-965F6.2	ENSG00000231246	3.03E-05	0.009454718	Up-regulated	1.632867607
XLOC_042916	SRCIN1	ENSG00000277363	3.24E-05	0.009909825	Down-regulated	-0.575221037
XLOC_078163	RGS7BP	ENSG00000186479	3.26E-05	0.009909825	Down-regulated	-0.446317146
XLOC_062128	bP- 21264C1.1	ENSG00000279208	3.38E-05	0.01013527	Up-regulated	1.726818384
XLOC_015741	CNIH2	ENSG00000174871	3.51E-05	0.010400295	Down-regulated	-0.553000221
XLOC_090173	RP11- 624M8.1	ENSG00000237742	3.75E-05	0.010929917	Down-regulated	-0.949698788
XLOC_035357	C15orf59	ENSG00000205363	3.80E-05	0.010929917	Down-regulated	-0.480121042

XLOC_116110	CHRD1	ENSG00000101938	3.86E-05	0.010929917	Down-regulated	-0.58450847
XLOC_082005	PCSK1	ENSG00000175426	3.89E-05	0.010929917	Down-regulated	-0.701603006
XLOC_096535	ZNF467	ENSG00000181444	3.93E-05	0.010929917	Down-regulated	-0.798638231
XLOC_084229	GMPT	ENSG00000137198	4.07E-05	0.011083854	Up-regulated	1.054931442
XLOC_007045	NA	NA	4.08E-05	0.011083854	Up-regulated	1.682587019
XLOC_011314	PLCE1	ENSG00000138193	4.74E-05	0.012721398	Up-regulated	0.541119782
XLOC_080540	NA	NA	4.95E-05	0.013130311	Down-regulated	-0.638429175
XLOC_036614	CACNG3	ENSG00000006116	5.03E-05	0.013203774	Down-regulated	-0.51108393
XLOC_048848	SAMD1	ENSG00000141858	5.09E-05	0.013210258	Down-regulated	-0.520686757
XLOC_089792	NA	NA	5.21E-05	0.013359043	Up-regulated	1.581783046
XLOC_072872	CCDC109B	ENSG00000005059	5.53E-05	0.013873327	Up-regulated	0.97625491
XLOC_039941	CTD-2555A7.2	ENSG00000256982	5.53E-05	0.013873327	Down-regulated	-0.529549738
XLOC_029044	NA	NA	5.82E-05	0.014439705	Down-regulated	-1.075803503
XLOC_101121	NA	NA	6.18E-05	0.015128319	Down-regulated	-0.911573264
XLOC_101122	NA	NA	6.25E-05	0.015128319	Down-regulated	-0.962991605
XLOC_043045	KCNH4	ENSG00000089558	6.32E-05	0.015128319	Down-regulated	-0.635009574
XLOC_065545	CCR5	ENSG00000160791	6.35E-05	0.015128319	Up-regulated	2.182382218
XLOC_063510	APOL1	ENSG00000100342	6.53E-05	0.01539495	Up-regulated	1.016741262
XLOC_049425	FCGBP	ENSG00000275395	6.86E-05	0.015994395	Up-regulated	2.410683387
XLOC_054352	NA	NA	7.42E-05	0.016662589	Up-regulated	1.019097058
XLOC_002931	SLAMF8	ENSG00000158714	7.42E-05	0.016662589	Up-regulated	3.319294638
XLOC_036002	CACNA1H	ENSG00000196557	7.51E-05	0.016662589	Down-regulated	-0.713127259
XLOC_018771	PDE2A	ENSG00000186642	7.52E-05	0.016662589	Down-regulated	-0.372033461
XLOC_116841	PDZD4	ENSG00000067840	7.52E-05	0.016662589	Down-regulated	-0.605086717
XLOC_035987	HAGHL	ENSG00000103253	7.58E-05	0.016662589	Down-regulated	-0.777713005
XLOC_007337	ITGA10	ENSG00000143127	7.98E-05	0.017370478	Up-regulated	0.947886912
XLOC_087524	NA	NA	8.05E-05	0.017370478	Up-regulated	0.816847558

XLOC_017124	CEND1	ENSG00000184524	8.12E-05	0.017370478	Down-regulated	-0.545944411
XLOC_018793	UCP2	ENSG00000175567	8.33E-05	0.017641274	Up-regulated	0.900186145
XLOC_047226	KCNN1	ENSG00000105642	8.48E-05	0.017764548	Down-regulated	-0.677420914
XLOC_036829	ITGAL	ENSG00000005844	8.54E-05	0.017764548	Up-regulated	1.385175224
XLOC_087512	NA	NA	8.62E-05	0.017764548	Up-regulated	1.002581495
XLOC_080509	CTC-471C19.1	ENSG00000261037	8.99E-05	0.018250686	Down-regulated	-0.578372497
XLOC_023933	AGAP2	ENSG00000135439	9.07E-05	0.018250686	Down-regulated	-0.562499639
XLOC_065013	KCNH8	ENSG00000183960	9.09E-05	0.018250686	Down-regulated	-0.812423071
XLOC_116113	DCX	ENSG00000077279	9.34E-05	0.018602212	Down-regulated	-0.435614007
XLOC_077813	OSMR	ENSG00000145623	9.55E-05	0.018854811	Up-regulated	1.29954213
XLOC_000710	NA	NA	9.82E-05	0.019074109	Down-regulated	-0.960845499
XLOC_055216	NLRC4	ENSG00000091106	9.83E-05	0.019074109	Up-regulated	2.176104642
XLOC_044140	AATK	ENSG00000181409	9.95E-05	0.019111344	Down-regulated	-0.69885863
XLOC_013772	MYOF	ENSG00000138119	0.000100997	0.019111344	Up-regulated	0.837170109
XLOC_087563	NA	NA	0.000101021	0.019111344	Up-regulated	0.941268884
XLOC_035958	HBA2	ENSG00000188536	0.00010278	0.019111344	Down-regulated	-1.650571118
XLOC_032586	SNORD116-15	ENSG00000207174	0.000104022	0.019111344	Down-regulated	-1.517143507
XLOC_035959	HBA1	ENSG00000206172	0.000104474	0.019111344	Down-regulated	-1.838810238
XLOC_024528	NA	NA	0.000104986	0.019111344	Up-regulated	0.936827865
XLOC_003935	TRAF3IP3	ENSG00000009790	0.000107448	0.019111344	Up-regulated	1.034371142
XLOC_060085	COL20A1	ENSG00000101203	0.000108124	0.019111344	Down-regulated	-1.022713369
XLOC_087533	NA	NA	0.000108366	0.019111344	Up-regulated	0.899206413
XLOC_061251	KCNQ2	ENSG00000075043	0.000109166	0.019111344	Down-regulated	-0.598517818
XLOC_084772	HMGA1	ENSG00000137309	0.0001092	0.019111344	Down-regulated	-0.500967804
XLOC_036607	PRKCB	ENSG00000166501	0.000109241	0.019111344	Down-regulated	-0.500470815
XLOC_059285	NA	NA	0.000110358	0.019161717	Down-regulated	-1.077742355
XLOC_061253	EEF1A2	ENSG00000101210	0.000113079	0.019487625	Down-regulated	-0.423953117

XLOC_015789	CARNS1	ENSG00000172508	0.000113951	0.019492388	Down-regulated	-0.825533821
XLOC_089135	RP11-553A21.3	ENSG00000231652	0.000115039	0.019533856	Up-regulated	0.789517299
XLOC_116085	RNA28S5	ENSG00000226958	0.000117077	0.019709219	Down-regulated	-5.716920746
XLOC_063559	NA	NA	0.000117779	0.019709219	Down-regulated	-0.867643313
XLOC_068457	RFTN1	ENSG00000131378	0.000122572	0.020363762	Up-regulated	0.919311166
XLOC_048630	CTD-3128G10.7	ENSG00000276980	0.000126701	0.020899292	Up-regulated	2.044296469
XLOC_055800	BCL11A	ENSG00000119866	0.000128396	0.021028669	Down-regulated	-0.529737807
XLOC_082995	NA	NA	0.000130422	0.02121004	Down-regulated	-1.101136512
XLOC_115483	VSIG4	ENSG00000155659	0.000132713	0.021387787	Up-regulated	2.676416742
XLOC_024526	NA	NA	0.000133372	0.021387787	Up-regulated	0.993492228
XLOC_058328	NA	NA	0.000134293	0.021387787	Up-regulated	0.937609041
XLOC_093560	EPHB6	ENSG00000106123	0.000136085	0.021426917	Down-regulated	-0.435031792
XLOC_013746	PPP1R3C	ENSG00000119938	0.000136394	0.021426917	Down-regulated	-0.725617464
XLOC_007485	CELF3	ENSG00000159409	0.000142752	0.022203139	Down-regulated	-0.40327046
XLOC_078452	BHMT2	ENSG00000132840	0.000143258	0.022203139	Up-regulated	0.77884785
XLOC_085160	MTRNR2L9	ENSG00000255633	0.000146504	0.022531097	Down-regulated	-0.837205806
XLOC_034612	ANKRD63	ENSG00000230778	0.000147326	0.022531097	Down-regulated	-0.510390877
XLOC_024718	NA	NA	0.00014889	0.02262056	Down-regulated	-0.765101019
XLOC_018344	MS4A6A	ENSG00000110077	0.000153241	0.023024195	Up-regulated	2.087322332
XLOC_035463	CHRNA3	ENSG00000080644	0.000153541	0.023024195	Up-regulated	1.672900295
XLOC_048485	KLF16	ENSG00000129911	0.000160593	0.023926288	Down-regulated	-0.483930225
XLOC_048527	AES	ENSG00000104964	0.000162368	0.024035701	Down-regulated	-0.444125987
XLOC_080165	DOCK2	ENSG00000134516	0.000167568	0.02445099	Up-regulated	1.134345271
XLOC_043878	FAM20A	ENSG00000108950	0.000168723	0.02445099	Up-regulated	1.251565155
XLOC_035084	ANXA2	ENSG00000182718	0.000168857	0.02445099	Up-regulated	0.988172753
XLOC_019672	GUCY1A2	ENSG00000152402	0.000169409	0.02445099	Down-regulated	-0.435376776
XLOC_000120	KCNAB2	ENSG00000069424	0.000173242	0.024848876	Down-regulated	-0.433154314

XLOC_093284	IRF5	ENSG00000128604	0.000181009	0.025802733	Up-regulated	0.94581833
XLOC_042845	SLFN11	ENSG00000172716	0.000182911	0.025913865	Up-regulated	0.7978721
XLOC_104623	NA	NA	0.000189359	0.026663804	Up-regulated	1.106384732
XLOC_020582	C1RL-AS1	ENSG00000205885	0.00019311	0.026829521	Up-regulated	0.857263803
XLOC_088228	NA	NA	0.000193471	0.026829521	Up-regulated	1.361434507
XLOC_005129	CAMK2N1	ENSG00000162545	0.000194021	0.026829521	Down-regulated	-0.591043699
XLOC_104622	NA	NA	0.00019545	0.026866199	Up-regulated	0.823791499
XLOC_007759	ARHGAP30	ENSG00000186517	0.000198656	0.027145397	Up-regulated	1.571217583
XLOC_084728	HLA-DRA	ENSG00000204287	0.000203121	0.02759226	Up-regulated	1.155127387
XLOC_116873	GAB3	ENSG00000160219	0.000207743	0.028054959	Up-regulated	0.926882644
XLOC_032172	NA	NA	0.000210692	0.028287872	Down-regulated	-1.407828632
XLOC_064813	NA	NA	0.000215983	0.02883063	Down-regulated	-0.51626497
XLOC_009116	C1orf145	ENSG00000162913	0.000218366	0.02898118	Down-regulated	-0.562396985
XLOC_010440	WDFY4	ENSG00000128815	0.000231533	0.030415114	Up-regulated	1.091228132
XLOC_021223	KCNH3	ENSG00000135519	0.000232949	0.030415114	Down-regulated	-0.609739909
XLOC_061383	bP-2189O9.2	ENSG00000278931	0.000233122	0.030415114	Up-regulated	1.538912624
XLOC_024519	NA	NA	0.000235302	0.030527123	Up-regulated	1.155132667
XLOC_012103	PWWP2B	ENSG00000171813	0.00024165	0.031175503	Down-regulated	-0.445879034
XLOC_044156	RP11-1055B8.4	ENSG00000262877	0.000249291	0.03198269	Down-regulated	-0.687943928
XLOC_017467	LINC00958	ENSG00000251381	0.00025349	0.032341687	Down-regulated	-1.472463804
XLOC_072124	ATP10D	ENSG00000145246	0.000273276	0.034674553	Up-regulated	0.406886089
XLOC_074383	AC141928.1	ENSG00000250986	0.000277407	0.034909925	Down-regulated	-0.582687934
XLOC_010433	NA	NA	0.000278155	0.034909925	Down-regulated	-1.046095363
XLOC_019433	CTSC	ENSG00000109861	0.00028422	0.035426718	Up-regulated	0.967413819
XLOC_015726	CCDC85B	ENSG00000175602	0.000285341	0.035426718	Down-regulated	-0.756200017
XLOC_015556	ASRGL1	ENSG00000162174	0.000287091	0.035453434	Down-regulated	-0.538071327
XLOC_052317	STEAP3	ENSG00000115107	0.000294074	0.036122597	Up-regulated	1.456783464

XLOC_098710	NA	NA	0.000295684	0.036128167	Down-regulated	-0.509134985
XLOC_048576	SEMA6B	ENSG00000167680	0.000299722	0.036428853	Down-regulated	-0.512350471
XLOC_024521	NA	NA	0.000303949	0.036749135	Up-regulated	1.092778703
XLOC_079592	NA	NA	0.000306851	0.036906808	Down-regulated	-1.117238453
XLOC_048073	CD33	ENSG00000105383	0.000313559	0.037518186	Up-regulated	1.111834699
XLOC_077203	NA	NA	0.000315453	0.037550314	Down-regulated	-0.829686963
XLOC_017144	DUSP8	ENSG00000184545	0.000321809	0.038043273	Down-regulated	-0.529095018
XLOC_015751	NPAS4	ENSG00000174576	0.000322889	0.038043273	Down-regulated	-3.014511845
XLOC_111858	GYG2	ENSG00000056998	0.000335604	0.039283168	Up-regulated	0.800359724
XLOC_081484	SGTB	ENSG00000197860	0.000336815	0.039283168	Down-regulated	-0.364169962
XLOC_015435	SERPING1	ENSG00000149131	0.000342503	0.039745801	Up-regulated	0.809657188
XLOC_111850	CD99P1	ENSG00000223773	0.000344312	0.039756024	Up-regulated	1.025101708
XLOC_008257	FAM129A	ENSG00000135842	0.000349401	0.039983105	Up-regulated	1.374496206
XLOC_015849	CCND1	ENSG00000110092	0.000349742	0.039983105	Down-regulated	-0.401494336
XLOC_093686	GIMAP2	ENSG00000106560	0.000351519	0.039988336	Up-regulated	0.819427784
XLOC_002283	CD53	ENSG00000143119	0.000353974	0.040070254	Up-regulated	1.286023022
XLOC_048550	MATK	ENSG00000007264	0.000355854	0.040086482	Down-regulated	-0.518064376
XLOC_049799	NA	NA	0.000357598	0.040087403	Down-regulated	-1.286645099
XLOC_041088	FZD2	ENSG00000180340	0.000361299	0.040306625	Down-regulated	-1.094939376
XLOC_048629	C3	ENSG00000125730	0.000365425	0.040547148	Up-regulated	1.892338094
XLOC_063539	KCTD17	ENSG00000100379	0.000366966	0.040547148	Down-regulated	-0.45709463
XLOC_087527	NA	NA	0.000369169	0.04059625	Up-regulated	0.800301446
XLOC_020675	RP11-726G1.1	ENSG00000214776	0.000372164	0.040721314	Down-regulated	-1.552363939
XLOC_029092	NA	NA	0.000374163	0.040721314	Up-regulated	1.591083136
XLOC_044155	RP11-1055B8.3	ENSG00000262223	0.000375596	0.040721314	Down-regulated	-0.614489365
XLOC_072987	NA	NA	0.000379375	0.040938774	Down-regulated	-1.052617218
XLOC_030335	TUNAR	ENSG00000250366	0.000383753	0.041218644	Down-regulated	-0.495214845

XLOC_079406	RP11-515C16.1	ENSG00000240518	0.000389782	0.041540552	Up-regulated	1.295039136
XLOC_021519	NA	NA	0.000390348	0.041540552	Down-regulated	-0.827789459
XLOC_104374	NEK6	ENSG00000119408	0.000394133	0.041750933	Up-regulated	0.342954739
XLOC_064418	APOL4	ENSG00000100336	0.000397557	0.041866541	Up-regulated	1.243732688
XLOC_013661	ANKRD22	ENSG00000152766	0.000401753	0.041866541	Up-regulated	2.026561356
XLOC_048664	CTXN1	ENSG00000178531	0.000402008	0.041866541	Down-regulated	-0.776138799
XLOC_013364	NA	NA	0.000403347	0.041866541	Up-regulated	1.302128763
XLOC_032971	NUSAP1	ENSG00000137804	0.000404289	0.041866541	Up-regulated	1.255637241
XLOC_071323	ADRA2C	ENSG00000184160	0.000413364	0.042518806	Down-regulated	-0.655552761
XLOC_107336	FAM102A	ENSG00000167106	0.00041427	0.042518806	Down-regulated	-0.390871141
XLOC_033403	SNX22	ENSG00000157734	0.000427681	0.04370105	Down-regulated	-0.545975485
XLOC_017835	SLC1A2	ENSG00000110436	0.000436157	0.044370841	Down-regulated	-0.47602258
XLOC_054350	DAW1	ENSG00000123977	0.000439554	0.044520311	Up-regulated	0.714438349
XLOC_047554	ARHGAP33	ENSG00000004777	0.000446854	0.045002681	Down-regulated	-0.463395102
XLOC_041597	RGS9	ENSG00000108370	0.000448214	0.045002681	Down-regulated	-0.539684536
XLOC_070269	SLC9A9	ENSG00000181804	0.000451907	0.045177035	Up-regulated	0.485478586
XLOC_054193	SLC4A3	ENSG00000114923	0.000454742	0.045264476	Down-regulated	-0.378179214
XLOC_031269	PYGL	ENSG00000100504	0.000459704	0.04538725	Up-regulated	1.019748238
XLOC_068889	CSPG5	ENSG00000114646	0.000459906	0.04538725	Down-regulated	-0.545793247
XLOC_083758	RIPK1	ENSG00000137275	0.000468832	0.046071251	Up-regulated	0.456306795
XLOC_075808	ADH1B	ENSG00000196616	0.000475219	0.046500943	Up-regulated	1.836040017
XLOC_086038	FHL5	ENSG00000112214	0.000478329	0.04660779	Up-regulated	0.668257143
XLOC_096574	TMEM176B	ENSG00000106565	0.000485742	0.04713128	Up-regulated	0.809106216
XLOC_087522	NA	NA	0.000493573	0.047588678	Up-regulated	1.08553869
XLOC_007050	NA	NA	0.000496089	0.047588678	Up-regulated	1.308604913
XLOC_054354	NA	NA	0.000496638	0.047588678	Up-regulated	1.217646235
XLOC_024530	NA	NA	0.000501104	0.047818139	Up-regulated	0.92636598

XLOC_043361	CA10	ENSG00000154975	0.000505123	0.048003359	Down-regulated	-0.890350478
XLOC_107493	RNU6ATAC	ENSG00000221676	0.000513871	0.048634555	Down-regulated	-0.914998972
XLOC_009767	NA	NA	0.000527259	0.04969797	Down-regulated	-0.544700704
XLOC_104625	NA	NA	0.000534291	0.050156014	Up-regulated	0.970699897
XLOC_002442	CH17-3B23.1	ENSG00000273136	0.000542231	0.050695313	Up-regulated	1.169468506
XLOC_071694	RP11-496D24.2	ENSG00000261121	0.000562397	0.052368711	Down-regulated	-1.109238872
XLOC_002616	NBPF14	ENSG00000271383	0.00057415	0.052860535	Up-regulated	0.577307971
XLOC_063477	HMOX1	ENSG00000100292	0.000575454	0.052860535	Up-regulated	1.302646578
XLOC_096578	KCNH2	ENSG00000055118	0.000576558	0.052860535	Down-regulated	-0.476542842
XLOC_094130	ETV1	ENSG00000006468	0.000576835	0.052860535	Down-regulated	-0.453872753
XLOC_039564	FA2H	ENSG00000103089	0.000582105	0.05313263	Down-regulated	-0.686027698
XLOC_020919	NA	NA	0.000592773	0.053614309	Up-regulated	0.734998342
XLOC_092807	DLX6	ENSG00000006377	0.000592894	0.053614309	Down-regulated	-0.493041192
XLOC_000782	HPCA	ENSG00000121905	0.000594347	0.053614309	Down-regulated	-0.53149327
XLOC_087567	NA	NA	0.000601542	0.053738549	Up-regulated	1.044625353
XLOC_058544	NGEF	ENSG00000066248	0.000602691	0.053738549	Down-regulated	-0.49988799
XLOC_054592	GPC1	ENSG00000063660	0.0006039	0.053738549	Down-regulated	-0.450244778
XLOC_032165	NA	NA	0.000605033	0.053738549	Down-regulated	-0.885863038
XLOC_090603	STXBP5-AS1	ENSG00000233452	0.000620635	0.054913082	Down-regulated	-0.436313278
XLOC_050691	NA	NA	0.00062455	0.055048595	Down-regulated	-1.09519276
XLOC_062127	bP-21264C1.3	ENSG00000279718	0.000630852	0.055281867	Up-regulated	1.553470541
XLOC_010883	PALD1	ENSG00000107719	0.000633071	0.055281867	Up-regulated	0.758036183
XLOC_035282	NA	NA	0.000635235	0.055281867	Up-regulated	1.480456624
XLOC_037492	CDH1	ENSG00000039068	0.000638123	0.055281867	Down-regulated	-0.915965361
XLOC_067300	KCNAB1	ENSG00000169282	0.000641534	0.055281867	Down-regulated	-0.534799574
XLOC_075122	NA	NA	0.000642658	0.055281867	Up-regulated	1.104765633
XLOC_021703	LYZ	ENSG00000090382	0.000643954	0.055281867	Up-regulated	1.327370801

XLOC_076696	NA	NA	0.000667851	0.057121038	Up-regulated	2.440709581
XLOC_002993	HSPA7	ENSG00000225217	0.000673551	0.057124111	Up-regulated	1.09702363
XLOC_041852	DNAH17-AS1	ENSG00000267432	0.000674921	0.057124111	Down-regulated	-1.562922537
XLOC_099176	RP11-489O18.1	ENSG00000253988	0.000675308	0.057124111	Up-regulated	1.301574214
XLOC_002912	IFI16	ENSG00000163565	0.000681963	0.057476556	Up-regulated	0.820929945
XLOC_017300	OR6A2	ENSG00000184933	0.000693413	0.058191524	Down-regulated	-0.447570095
XLOC_017125	SLC25A22	ENSG00000177542	0.000695486	0.058191524	Down-regulated	-0.65921884
XLOC_018598	SPTBN2	ENSG00000173898	0.000710212	0.059074611	Down-regulated	-0.423636389
XLOC_044573	MIB1	ENSG00000101752	0.000711157	0.059074611	Down-regulated	-0.273787639
XLOC_037209	NLRC5	ENSG00000140853	0.000726921	0.059980859	Up-regulated	0.743466287
XLOC_002228	GP5M2	ENSG00000121957	0.000727261	0.059980859	Down-regulated	-0.583796913
XLOC_096840	NA	NA	0.000736573	0.060370021	Down-regulated	-1.028565033
XLOC_113618	IL13RA1	ENSG00000131724	0.000737208	0.060370021	Up-regulated	0.891571497
XLOC_032547	NA	NA	0.000774237	0.063132206	Down-regulated	-6.158033161
XLOC_069462	FILIP1L	ENSG00000168386	0.000776406	0.063132206	Up-regulated	0.926149986
XLOC_032558	NA	NA	0.000784649	0.063578619	Down-regulated	-4.804937624
XLOC_098733	NA	NA	0.000798513	0.064475716	Down-regulated	-1.010724186
XLOC_032036	CCDC85C	ENSG00000205476	0.000809335	0.065121849	Down-regulated	-0.438852915
XLOC_063654	LINC00634	ENSG00000205704	0.000815792	0.065413493	Down-regulated	-0.524510628
XLOC_015264	CREB3L1	ENSG00000157613	0.000821759	0.065663963	Down-regulated	-1.348455924
XLOC_112536	TIMP1	ENSG00000102265	0.000834206	0.066428654	Up-regulated	0.865220935
XLOC_002624	FCGR1A	ENSG00000150337	0.000841091	0.066746746	Up-regulated	2.234729201
XLOC_065206	TGFBR2	ENSG00000163513	0.000847337	0.067012205	Up-regulated	0.727718697
XLOC_064187	MN1	ENSG00000169184	0.000854817	0.067372965	Down-regulated	-0.41245385
XLOC_112576	WAS	ENSG00000015285	0.00085942	0.06738615	Up-regulated	1.426171928
XLOC_064470	MFNG	ENSG00000100060	0.000862037	0.06738615	Up-regulated	0.859287522
XLOC_088161	RN7SL128P	ENSG00000240869	0.000863804	0.06738615	Down-regulated	-0.931244251

XLOC_054353	NA	NA	0.000866656	0.06738615	Up-regulated	0.899228991
XLOC_104624	NA	NA	0.000882292	0.068235663	Up-regulated	1.015500812
XLOC_047220	FCHO1	ENSG00000130475	0.000883491	0.068235663	Down-regulated	-0.429815721
XLOC_017374	MTRNR2L8	ENSG00000255823	0.000888434	0.068388673	Down-regulated	-1.18526638
XLOC_073391	NA	NA	0.000903336	0.069304752	Up-regulated	1.67363507
XLOC_015017	ANO3	ENSG00000134343	0.000925073	0.070737432	Down-regulated	-0.549529511
XLOC_027809	NA	NA	0.00093174	0.071012101	Down-regulated	-0.383063183
XLOC_019749	IL18	ENSG00000150782	0.00093932	0.071152432	Up-regulated	1.28376015
XLOC_065625	BSN	ENSG00000164061	0.000939743	0.071152432	Down-regulated	-0.335650202
XLOC_004220	GUK1	ENSG00000143774	0.000964192	0.07264638	Down-regulated	-0.400406809
XLOC_087588	NA	NA	0.000965766	0.07264638	Up-regulated	1.005879385
XLOC_041811	MGAT5B	ENSG00000167889	0.000969791	0.072712316	Down-regulated	-0.480133174
XLOC_046983	ICAM5	ENSG00000105376	0.000976071	0.072946269	Down-regulated	-0.534249714
XLOC_063037	ZDHHC8	ENSG00000099904	0.001004941	0.074861594	Down-regulated	-0.478534583
XLOC_098679	RP11-23810.1	ENSG00000253122	0.001009472	0.074957359	Down-regulated	-0.405246095
XLOC_080172	NA	NA	0.001018792	0.075352761	Up-regulated	1.260340477
XLOC_004552	KIF26B	ENSG00000162849	0.001021811	0.075352761	Down-regulated	-0.560586609
XLOC_062772	TMPRSS3	ENSG00000160183	0.001028196	0.075352761	Up-regulated	0.957001773
XLOC_005302	PTAFR	ENSG00000169403	0.001029129	0.075352761	Up-regulated	1.058318248
XLOC_002256	CSF1	ENSG00000184371	0.001031586	0.075352761	Up-regulated	0.581809079
XLOC_056009	NA	NA	0.001034375	0.075352761	Down-regulated	-1.422203254
XLOC_082658	CXCL14	ENSG00000145824	0.001040024	0.075371659	Down-regulated	-0.650834757
XLOC_075123	NA	NA	0.001041162	0.075371659	Up-regulated	0.929626585
XLOC_034111	LRRK1	ENSG00000154237	0.001049685	0.07575114	Up-regulated	0.711708297
XLOC_023822	PPP1R1A	ENSG00000135447	0.001056311	0.075991864	Down-regulated	-0.4440561
XLOC_071625	LAP3	ENSG00000002549	0.001064948	0.076217031	Up-regulated	0.48847085
XLOC_043146	AC015936.3	ENSG00000224911	0.001068773	0.076217031	Up-regulated	1.570200377

XLOC_032587	SNORD116-16	ENSG00000207263	0.001071103	0.076217031	Down-regulated	-1.331917186
XLOC_024523	NA	NA	0.001073534	0.076217031	Up-regulated	1.229017662
XLOC_042159	PITPNM3	ENSG00000091622	0.001075943	0.076217031	Down-regulated	-0.455017822
XLOC_057356	NMI	ENSG00000123609	0.00108271	0.076415912	Up-regulated	0.621286689
XLOC_003916	CR1	ENSG00000203710	0.001086317	0.076415912	Up-regulated	1.35438058
XLOC_004791	GNB1	ENSG00000078369	0.001088678	0.076415912	Down-regulated	-0.269681181
XLOC_010987	NA	NA	0.00109841	0.076796521	Up-regulated	0.714626749
XLOC_047700	MAP3K10	ENSG00000130758	0.001100751	0.076796521	Down-regulated	-0.574083965
XLOC_003861	CDK18	ENSG00000117266	0.001105531	0.076897653	Down-regulated	-0.559543057
XLOC_087543	NA	NA	0.00111982	0.077397681	Up-regulated	0.881554222
XLOC_032061	BEGAIN	ENSG00000183092	0.001120996	0.077397681	Down-regulated	-0.441358796
XLOC_087580	NA	NA	0.001122774	0.077397681	Up-regulated	0.693806499
XLOC_093684	GIMAP4	ENSG00000133574	0.001129898	0.077536894	Up-regulated	0.791743672
XLOC_111341	NA	NA	0.001131509	0.077536894	Down-regulated	-1.872732749
XLOC_048510	GNG7	ENSG00000176533	0.001140742	0.07793836	Down-regulated	-0.6327708
XLOC_063918	CECR1	ENSG00000093072	0.001156783	0.078321765	Up-regulated	0.627901353
XLOC_013359	NA	NA	0.00115733	0.078321765	Up-regulated	1.199396637
XLOC_070680	EIF5A2	ENSG00000163577	0.001169626	0.078321765	Down-regulated	-0.351424242
XLOC_036805	ASPHD1	ENSG00000174939	0.001172661	0.078321765	Down-regulated	-0.524449952
XLOC_047247	SSBP4	ENSG00000130511	0.001177546	0.078321765	Down-regulated	-0.468122344
XLOC_029277	NA	NA	0.001178573	0.078321765	Down-regulated	-0.956101142
XLOC_112572	WDR13	ENSG00000101940	0.001187778	0.078321765	Down-regulated	-0.354806663
XLOC_005355	BAI2	ENSG00000121753	0.001189794	0.078321765	Down-regulated	-0.449584728
XLOC_087546	NA	NA	0.00119214	0.078321765	Up-regulated	0.748133247
XLOC_040918	PPP1R1B	ENSG00000131771	0.001194045	0.078321765	Down-regulated	-0.407366141
XLOC_028776	NA	NA	0.001199733	0.078321765	Up-regulated	0.891497057
XLOC_032163	NA	NA	0.001201138	0.078321765	Down-regulated	-0.863340405

XLOC_019534	SMCO4	ENSG00000166002	0.001201356	0.078321765	Up-regulated	1.040638978
XLOC_100412	NA	NA	0.001201696	0.078321765	Down-regulated	-0.516410661
XLOC_083901	DSP	ENSG00000096696	0.001202058	0.078321765	Up-regulated	0.622944966
XLOC_030771	SLC7A7	ENSG00000155465	0.001203468	0.078321765	Up-regulated	1.248156364
XLOC_017022	ST14	ENSG00000149418	0.001204011	0.078321765	Up-regulated	1.912754989
XLOC_064815	NA	NA	0.001226744	0.079576394	Down-regulated	-0.412874705
XLOC_041578	MILR1	ENSG00000271605	0.001238986	0.080145398	Up-regulated	1.083102356
XLOC_003496	NPL	ENSG00000135838	0.001269965	0.081831168	Up-regulated	0.57885613
XLOC_041846	TMEM235	ENSG00000204278	0.001272134	0.081831168	Down-regulated	-0.831154472
XLOC_111860	NA	NA	0.001282345	0.082258875	Up-regulated	1.222053631
XLOC_014546	BRSK2	ENSG00000174672	0.001290741	0.08256811	Down-regulated	-0.369057073
XLOC_094859	IGFBP3	ENSG00000146674	0.001331212	0.084921765	Up-regulated	2.419166173
XLOC_024809	CMKLR1	ENSG00000174600	0.001359162	0.086465919	Up-regulated	0.927362562
XLOC_063824	PANX2	ENSG00000073150	0.001364704	0.086579954	Down-regulated	-0.60090596
XLOC_115163	PCSK1N	ENSG00000102109	0.001370803	0.0866032	Down-regulated	-0.77862975
XLOC_077809	EGFLAM	ENSG00000164318	0.001376128	0.0866032	Up-regulated	1.270978113
XLOC_101632	LYNX1	ENSG00000180155	0.001376321	0.0866032	Down-regulated	-0.427595446
XLOC_027066	AMER2	ENSG00000165566	0.00140372	0.087915572	Down-regulated	-0.432558142
XLOC_042205	DLG4	ENSG00000132535	0.001404791	0.087915572	Down-regulated	-0.402609894
XLOC_015265	DGKZ	ENSG00000149091	0.001421392	0.08871405	Down-regulated	-0.465999189
XLOC_045272	DOK6	ENSG00000206052	0.001426128	0.088769762	Down-regulated	-0.39618079
XLOC_066572	DTX3L	ENSG00000163840	0.0014336	0.088994974	Up-regulated	0.670943906
XLOC_086957	LAMA2	ENSG00000196569	0.001439551	0.08912479	Up-regulated	0.605745571
XLOC_004436	NA	NA	0.001445314	0.089162782	Up-regulated	0.440985317
XLOC_059517	VSTM2L	ENSG00000132821	0.001449369	0.089162782	Down-regulated	-0.464145532
XLOC_008435	DENND1B	ENSG00000213047	0.001452436	0.089162782	Down-regulated	-0.401579353
XLOC_055092	OTOF	ENSG00000115155	0.001457107	0.089162782	Down-regulated	-0.450318827
XLOC_066807	EPHB1	ENSG00000154928	0.00145947	0.089162782	Down-regulated	-0.362911757

XLOC_093014	PIK3CG	ENSG00000105851	0.001500904	0.091452167	Up-regulated	1.071861848
XLOC_071967	TBC1D1	ENSG00000065882	0.001505261	0.091476267	Up-regulated	0.324991922
XLOC_075762	GPRIN3	ENSG00000185477	0.001524294	0.092389793	Down-regulated	-0.343178052
XLOC_013363	NA	NA	0.00152931	0.092419728	Up-regulated	1.043214733
XLOC_057090	RAB6C-AS1	ENSG00000225449	0.001532792	0.092419728	Down-regulated	-1.229602439
XLOC_005186	ASAP3	ENSG00000088280	0.001539281	0.092569337	Up-regulated	0.480957021
XLOC_023655	DDN	ENSG00000181418	0.001547676	0.092832448	Down-regulated	-0.672737291
XLOC_047533	HAMP	ENSG00000105697	0.001555494	0.092934761	Up-regulated	3.139624354
XLOC_012363	PROSER2-AS1	ENSG00000225778	0.001557431	0.092934761	Up-regulated	0.94823959
XLOC_072785	DAPP1	ENSG00000070190	0.001565061	0.093149341	Up-regulated	1.344577498
XLOC_114267	BGN	ENSG00000182492	0.001578349	0.09369876	Up-regulated	0.585532981
XLOC_018458	NA	NA	0.001598772	0.094428204	Up-regulated	1.478822201
XLOC_089951	TRAF3IP2	ENSG00000056972	0.001600988	0.094428204	Up-regulated	0.493019008
XLOC_016964	ST3GAL4	ENSG00000110080	0.001602904	0.094428204	Down-regulated	-0.423201037
XLOC_019807	TMPRSS5	ENSG00000166682	0.001609832	0.094595041	Up-regulated	0.570502533
XLOC_099452	ANGPT2	ENSG00000091879	0.001622405	0.094753452	Up-regulated	1.105345005
XLOC_070678	RP11-373E16.4	ENSG00000239739	0.001623222	0.094753452	Up-regulated	1.040967797
XLOC_049961	HSPBP1	ENSG00000133265	0.001624837	0.094753452	Down-regulated	-0.424980573
XLOC_084523	RN7SL471P	ENSG00000263426	0.001631103	0.094879255	Down-regulated	-0.77096619
XLOC_032548	NA	NA	0.001635246	0.094881237	Down-regulated	-6.280323041
XLOC_087511	NA	NA	0.001642551	0.095066231	Up-regulated	0.868150358
XLOC_040041	SGSM2	ENSG00000141258	0.001657101	0.09551189	Down-regulated	-0.364766203
XLOC_020813	MGST1	ENSG00000008394	0.001658523	0.09551189	Up-regulated	0.664242895
XLOC_038842	HERC2P4	ENSG00000230267	0.001666307	0.095646678	Up-regulated	1.701880118
XLOC_066526	PLA1A	ENSG00000144837	0.001670161	0.095646678	Up-regulated	2.359551914
XLOC_057522	FAP	ENSG00000078098	0.001675701	0.095646678	Up-regulated	1.023469855
XLOC_038808	STX1B	ENSG00000099365	0.001677431	0.095646678	Down-regulated	-0.372560852

XLOC_015998	SLCO2B1	ENSG00000137491	0.001686368	0.095919469	Up-regulated	0.667202772
XLOC_014384	MKI67	ENSG00000148773	0.001693513	0.096089195	Up-regulated	3.199562011
XLOC_084404	HFE	ENSG00000010704	0.001700463	0.096247055	Up-regulated	0.653227992
XLOC_083449	HK3	ENSG00000160883	0.001729248	0.097637005	Up-regulated	2.029714298
XLOC_098851	NOV	ENSG00000136999	0.001756414	0.098689251	Up-regulated	0.68669714
XLOC_107547	SOHLH1	ENSG00000165643	0.001764393	0.098689251	Down-regulated	-1.073888779
XLOC_087352	SYNJ2	ENSG00000078269	0.001771689	0.098689251	Down-regulated	-0.604286883
XLOC_018090	CHST1	ENSG00000175264	0.001772905	0.098689251	Down-regulated	-0.308924415
XLOC_029640	LGALS3	ENSG00000131981	0.001777633	0.098689251	Up-regulated	0.538033367
XLOC_090858	NA	NA	0.001780169	0.098689251	Down-regulated	-0.810090418
XLOC_077501	SNHG18	ENSG00000250786	0.001781168	0.098689251	Down-regulated	-0.853374842
XLOC_048748	S1PR5	ENSG00000180739	0.001782073	0.098689251	Down-regulated	-0.765542121
XLOC_030278	SLC24A4	ENSG00000140090	0.001789908	0.098885968	Up-regulated	0.585626795
XLOC_082994	NA	NA	0.00179573	0.098970864	Down-regulated	-0.956442587
XLOC_099746	LZTS1	ENSG00000061337	0.001811751	0.099053682	Down-regulated	-0.525859422
XLOC_021215	TUBA1C	ENSG00000167553	0.001812181	0.099053682	Up-regulated	0.800531397
XLOC_027607	LPAR6	ENSG00000139679	0.001812239	0.099053682	Up-regulated	0.641739933
XLOC_089539	NA	NA	0.00181439	0.099053682	Down-regulated	-0.662038534
XLOC_007393	NA	NA	0.001819358	0.099090621	Up-regulated	0.628117193
XLOC_039130	NA	NA	0.0018292	0.099392293	Down-regulated	-0.946062965
XLOC_041907	BAHCC1	ENSG00000266074	0.00183785	0.09962787	Down-regulated	-0.402155863
XLOC_057541	SLC38A11	ENSG00000169507	0.001843974	0.099725729	Up-regulated	0.627894364
XLOC_011533	NEURL1	ENSG00000107954	0.00187654	0.101249855	Down-regulated	-0.435003031
XLOC_087509	NA	NA	0.001885988	0.101522406	Up-regulated	0.9613476
XLOC_004110	FAM177B	ENSG00000197520	0.001898685	0.101968231	Up-regulated	0.914706935
XLOC_041084	RUNDC3A	ENSG00000108309	0.001934864	0.103670109	Down-regulated	-0.329098549
XLOC_080534	NA	NA	0.001952573	0.10420119	Down-regulated	-0.913294834
XLOC_107488	VAV2	ENSG00000160293	0.001955295	0.10420119	Up-regulated	0.456383053

XLOC_068085	NA	NA	0.001958313	0.10420119	Up-regulated	0.663196119
XLOC_101123	NA	NA	0.001967599	0.104380408	Down-regulated	-0.933132527
XLOC_010983	MIR606	ENSG00000207583	0.001972649	0.104380408	Up-regulated	0.467014149
XLOC_013290	NA	NA	0.001975241	0.104380408	Down-regulated	-0.695567973
XLOC_046981	ICAM1	ENSG00000090339	0.001983104	0.104556684	Up-regulated	1.168453712
XLOC_049701	CARD8	ENSG00000105483	0.002001884	0.10530641	Up-regulated	0.446637257
XLOC_075108	NA	NA	0.002031365	0.10654951	Up-regulated	1.13193905
XLOC_083547	FLT4	ENSG00000037280	0.002034744	0.10654951	Down-regulated	-0.751849413
XLOC_063605	CACNA1I	ENSG00000100346	0.002040325	0.106600038	Down-regulated	-0.374951833
XLOC_101790	DOCK8	ENSG00000107099	0.002070286	0.107905277	Up-regulated	1.036510539
XLOC_043799	PECAM1	ENSG00000261371	0.002074652	0.107905277	Up-regulated	0.987551746
XLOC_022733	SNORA49	ENSG00000208892	0.002093824	0.108657701	Down-regulated	-0.601956233
XLOC_075121	NA	NA	0.002110457	0.109275281	Up-regulated	1.124324759
XLOC_060799	SAMHD1	ENSG00000101347	0.002133672	0.110230191	Up-regulated	0.867465928
XLOC_064819	NA	NA	0.002146588	0.110572115	Down-regulated	-0.514647516
XLOC_089797	NA	NA	0.002154097	0.110572115	Up-regulated	1.133779799
XLOC_021530	NA	NA	0.002157875	0.110572115	Down-regulated	-0.822230718
XLOC_090444	IFNGR1	ENSG00000027697	0.002159443	0.110572115	Up-regulated	0.652149683
XLOC_033223	TMOD2	ENSG00000128872	0.002173593	0.111050399	Down-regulated	-0.24221023
XLOC_075126	RP11-663P9.1	ENSG00000250863	0.002196036	0.111515554	Up-regulated	0.81957076
XLOC_081808	HAPLN1	ENSG00000145681	0.002199254	0.111515554	Down-regulated	-0.618908711
XLOC_103729	SYK	ENSG00000165025	0.002199843	0.111515554	Up-regulated	1.110224353
XLOC_049369	PPP1R14A	ENSG00000167641	0.002206576	0.111515554	Down-regulated	-0.805185324
XLOC_048458	C19orf26	ENSG00000099625	0.002206842	0.111515554	Down-regulated	-0.600735656
XLOC_040068	ASPA	ENSG00000108381	0.002215664	0.111716869	Down-regulated	-0.755645432
XLOC_094545	CPVL	ENSG00000106066	0.002233209	0.112337981	Up-regulated	0.75584561
XLOC_002786	IL6R	ENSG00000160712	0.002237711	0.112337981	Up-regulated	0.756191179

XLOC_033249	UNC13C	ENSG00000137766	0.002252626	0.112841421	Down-regulated	-0.448621282
XLOC_104626	NA	NA	0.002261126	0.113022049	Up-regulated	0.806018245
XLOC_007774	FCGR3A	ENSG00000203747	0.002273002	0.113326756	Up-regulated	2.238369846
XLOC_011535	RP11-416N2.4	ENSG00000273108	0.002277037	0.113326756	Down-regulated	-0.601603211
XLOC_044057	DNAH17	ENSG00000187775	0.002302293	0.113824399	Down-regulated	-0.857602168
XLOC_073166	C4orf33	ENSG00000151470	0.002302673	0.113824399	Down-regulated	-0.415419971
XLOC_088006	ATXN1	ENSG00000124788	0.002307483	0.113824399	Down-regulated	-0.347381461
XLOC_060982	CDH22	ENSG00000149654	0.002307498	0.113824399	Down-regulated	-0.454738336
XLOC_098706	NA	NA	0.002311681	0.113824399	Down-regulated	-0.620949816
XLOC_006103	C1orf87	ENSG00000162598	0.002342882	0.115115254	Up-regulated	1.521948743
XLOC_048488	ABHD17A	ENSG00000129968	0.002367219	0.115715961	Down-regulated	-0.501741551
XLOC_069830	PARP9	ENSG00000138496	0.002369295	0.115715961	Up-regulated	0.557187883
XLOC_104542	NCS1	ENSG00000107130	0.002374261	0.115715961	Down-regulated	-0.346628279
XLOC_003857	TMCC2	ENSG00000133069	0.002375151	0.115715961	Down-regulated	-0.393239037
XLOC_059539	PPP1R16B	ENSG00000101445	0.002380679	0.115741081	Down-regulated	-0.475593846
XLOC_007314	NBPF8	ENSG00000162825	0.00240437	0.116647321	Up-regulated	0.4194431
XLOC_101623	ARC	ENSG00000198576	0.002416712	0.117000269	Down-regulated	-0.838083951
XLOC_107588	ABCA2	ENSG00000107331	0.002457892	0.118744998	Down-regulated	-0.489381532
XLOC_024970	WSB2	ENSG00000176871	0.00247104	0.118931959	Down-regulated	-0.315525745
XLOC_083020	CAMK2A	ENSG00000070808	0.002475765	0.118931959	Down-regulated	-0.440535095
XLOC_081862	NA	NA	0.002477213	0.118931959	Down-regulated	-1.008553279
XLOC_074324	RP11-1263C18.1	ENSG00000273238	0.002488974	0.119248706	Down-regulated	-0.385490252
XLOC_062964	AC006946.15	ENSG00000235478	0.002521169	0.120541094	Down-regulated	-0.732709085
XLOC_013287	NA	NA	0.002548157	0.121554029	Down-regulated	-0.659797338
XLOC_078229	RP11-848G14.5	ENSG00000250138	0.002552882	0.121554029	Up-regulated	1.974750335
XLOC_063038	NA	NA	0.00262509	0.124193745	Down-regulated	-0.78664807

XLOC_084833	FGD2	ENSG00000146192	0.002625538	0.124193745	Up-regulated	1.077472995
XLOC_030223	GPR65	ENSG00000140030	0.002627151	0.124193745	Up-regulated	1.435598318
XLOC_069834	ADCY5	ENSG00000173175	0.002629833	0.124193745	Down-regulated	-0.353781869
XLOC_096312	ZC3HAV1	ENSG00000105939	0.002650734	0.124636633	Up-regulated	0.435301161
XLOC_008590	CHI3L1	ENSG00000133048	0.002652092	0.124636633	Up-regulated	1.85640676
XLOC_030841	STXBP6	ENSG00000168952	0.002657526	0.124636633	Down-regulated	-0.407047345
XLOC_083896	RREB1	ENSG00000124782	0.0026608	0.124636633	Up-regulated	0.542996811
XLOC_034074	SYNM	ENSG00000182253	0.002678394	0.125206783	Up-regulated	0.303880373
XLOC_027134	UBL3	ENSG00000122042	0.002685527	0.125248013	Down-regulated	-0.302845956
XLOC_035514	BCL2A1	ENSG00000140379	0.002690657	0.125248013	Up-regulated	2.135233916
XLOC_007395	NA	NA	0.002699543	0.125248013	Up-regulated	0.601912787
XLOC_087513	NA	NA	0.002706173	0.125248013	Up-regulated	0.905023175
XLOC_084707	C4B	ENSG00000224389	0.002706394	0.125248013	Up-regulated	1.577675032
XLOC_096492	RNY1	ENSG00000201098	0.00275046	0.127032759	Down-regulated	-0.77971095
XLOC_000171	PIK3CD	ENSG00000171608	0.002799321	0.128620703	Up-regulated	0.677084343
XLOC_054113	IGFBP2	ENSG00000115457	0.002800556	0.128620703	Up-regulated	1.194722584
XLOC_096410	TRPV6	ENSG00000165125	0.002801551	0.128620703	Down-regulated	-1.026299914
XLOC_054687	PXDN	ENSG00000130508	0.002849053	0.13054204	Up-regulated	0.503258847
XLOC_023051	AC091814.2	ENSG00000225231	0.002863299	0.130775914	Down-regulated	-3.656919455
XLOC_021251	ASIC1	ENSG00000110881	0.00286828	0.130775914	Down-regulated	-0.379872528
XLOC_104797	VLDLR-AS1	ENSG00000236404	0.002871147	0.130775914	Down-regulated	-0.3856733
XLOC_102474	TMEM8B	ENSG00000137103	0.002913483	0.132443024	Down-regulated	-0.268723421
XLOC_089544	NDUFAF4	ENSG00000123545	0.002948632	0.133610453	Down-regulated	-0.393593842
XLOC_012542	NA	NA	0.002950735	0.133610453	Down-regulated	-1.150105128
XLOC_007341	ANKRD34A	ENSG00000272031	0.002969011	0.13417488	Down-regulated	-0.414904441
XLOC_037406	CMTM3	ENSG00000140931	0.002980862	0.134447342	Up-regulated	0.793283641
XLOC_022290	FAM222A	ENSG00000139438	0.002998571	0.134982464	Down-regulated	-0.452030498
XLOC_014775	SNORA23	ENSG00000201998	0.003010447	0.135253412	Down-regulated	-0.604869002

XLOC_063534	NCF4	ENSG00000100365	0.00302464	0.135627196	Up-regulated	1.402775239
XLOC_064087	NA	NA	0.003051541	0.136568306	Up-regulated	0.765599816
XLOC_001319	PODN	ENSG00000174348	0.003089869	0.138016156	Up-regulated	0.883383424
XLOC_092355	LAT2	ENSG00000086730	0.003101743	0.138279077	Up-regulated	1.151172753
XLOC_001067	FOXO6	ENSG00000204060	0.003109573	0.13836104	Down-regulated	-0.565640449
XLOC_024524	NA	NA	0.003123712	0.138722867	Up-regulated	0.836370689
XLOC_019978	MPZL2	ENSG00000149573	0.00314586	0.139235682	Up-regulated	2.472835656
XLOC_063544	CYTH4	ENSG00000100055	0.003148663	0.139235682	Up-regulated	0.90944015
XLOC_027859	MZT1	ENSG00000204899	0.003153348	0.139235682	Down-regulated	-0.464072858
XLOC_066793	RP11-404G16.2	ENSG00000244062	0.003170479	0.139724953	Down-regulated	-0.650660043
XLOC_070402	TM4SF1	ENSG00000169908	0.003186914	0.140181705	Up-regulated	0.855144767
XLOC_031919	SERPINA1	ENSG00000197249	0.003201444	0.14055312	Up-regulated	2.085326932
XLOC_013237	RTKN2	ENSG00000182010	0.003238485	0.141820272	Down-regulated	-0.521250023
XLOC_056142	NA	NA	0.003242589	0.141820272	Down-regulated	-1.051043323
XLOC_024317	NA	NA	0.003254423	0.141862651	Up-regulated	0.86103473
XLOC_090871	PDE10A	ENSG00000112541	0.003257639	0.141862651	Down-regulated	-0.500705852
XLOC_030296	NA	NA	0.003261987	0.141862651	Down-regulated	-0.392633895
XLOC_000288	PDPN	ENSG00000162493	0.003273806	0.142109036	Up-regulated	0.390307311
XLOC_014366	UROS	ENSG00000188690	0.003298296	0.14290346	Down-regulated	-0.470211752
XLOC_099847	TNFRSF10D	ENSG00000173530	0.003312538	0.143251763	Up-regulated	1.227076801
XLOC_102903	LINC01410	ENSG00000238113	0.003323512	0.143275001	Up-regulated	0.91543219
XLOC_107609	NRARP	ENSG00000198435	0.003325484	0.143275001	Down-regulated	-0.777529438
XLOC_081576	NAIP	ENSG00000249437	0.00334568	0.14363534	Up-regulated	0.770990668
XLOC_043209	ARL17B	ENSG00000228696	0.003346287	0.14363534	Down-regulated	-1.157724133
XLOC_106036	RFK	ENSG00000135002	0.003357196	0.143778576	Down-regulated	-0.29965219
XLOC_088012	NA	NA	0.003368896	0.143778576	Down-regulated	-0.669956312
XLOC_008568	PTPN7	ENSG00000143851	0.003368303	0.143778576	Down-regulated	-0.539349174

XLOC_087528	NA	NA	0.003376217	0.143850497	Up-regulated	0.789770854
XLOC_076184	ANXA5	ENSG00000164111	0.003387972	0.144085528	Up-regulated	0.44826002
XLOC_023156	ARHGDIB	ENSG00000111348	0.003397709	0.144234015	Up-regulated	0.864894764
XLOC_080301	PRR7	ENSG00000131188	0.003431463	0.144964972	Down-regulated	-0.757335564
XLOC_072983	UGT8	ENSG00000174607	0.003435007	0.144964972	Down-regulated	-0.671497285
XLOC_016752	NA	NA	0.003438637	0.144964972	Down-regulated	-0.791747444
XLOC_075921	NA	NA	0.003440038	0.144964972	Down-regulated	-0.91159901
XLOC_028340	ABCC4	ENSG00000125257	0.003446592	0.144976575	Up-regulated	0.792723582
XLOC_003239	FMO2	ENSG00000094963	0.003455263	0.145077066	Up-regulated	0.986097926
XLOC_095650	PON3	ENSG00000105852	0.003471682	0.145501924	Up-regulated	0.767474963
XLOC_018509	RASGRP2	ENSG00000068831	0.003479935	0.145583588	Down-regulated	-0.439119905
XLOC_089796	NA	NA	0.003547762	0.14796833	Up-regulated	1.210724358
XLOC_087357	TULP4	ENSG00000130338	0.003558531	0.14796833	Down-regulated	-0.36161175
XLOC_032171	MIR4710	ENSG00000265291	0.00355992	0.14796833	Down-regulated	-0.777602735
XLOC_007728	TAGLN2	ENSG00000158710	0.003562568	0.14796833	Up-regulated	0.856721678
XLOC_000486	HTR6	ENSG00000158748	0.003590091	0.148516171	Down-regulated	-0.456055359
XLOC_089745	NA	NA	0.003595016	0.148516171	Up-regulated	1.011564228
XLOC_083265	UBTD2	ENSG00000168246	0.003595052	0.148516171	Down-regulated	-0.401046753
XLOC_096842	NA	NA	0.003608671	0.148613062	Down-regulated	-0.929620756
XLOC_058410	RP11-384O8.1	ENSG00000267034	0.003610268	0.148613062	Down-regulated	-0.56184712
XLOC_056820	NA	NA	0.00362408	0.148773472	Up-regulated	1.001507529
XLOC_065640	NA	NA	0.00362705	0.148773472	Down-regulated	-1.187408253
XLOC_083875	LY86	ENSG00000112799	0.003635787	0.148867423	Up-regulated	1.182202886
XLOC_048503	LINGO3	ENSG00000220008	0.003647025	0.148885752	Down-regulated	-0.522623567
XLOC_038819	PYCARD	ENSG00000103490	0.003661372	0.148885752	Up-regulated	1.523126247
XLOC_054001	AC010731.4	ENSG00000235118	0.003661547	0.148885752	Down-regulated	-0.988555685
XLOC_021117	ANO6	ENSG00000177119	0.003662023	0.148885752	Up-regulated	0.472246179

XLOC_000090	PLCH2	ENSG00000149527	0.003678145	0.149141251	Down-regulated	-0.499105966
XLOC_041024	ARL4D	ENSG00000175906	0.003681224	0.149141251	Down-regulated	-0.589851332
XLOC_034937	ATP8B4	ENSG00000104043	0.003692576	0.149339174	Up-regulated	0.732305914
XLOC_067918	ST6GAL1	ENSG00000073849	0.00370992	0.1497783	Up-regulated	0.745530441
XLOC_012541	NA	NA	0.00373592	0.150564767	Down-regulated	-0.976626582
XLOC_036899	NA	NA	0.003763822	0.151290554	Up-regulated	1.674199729
XLOC_107414	FIBCD1	ENSG00000130720	0.003767032	0.151290554	Down-regulated	-0.676291492
XLOC_015645	FERMT3	ENSG00000149781	0.00377926	0.151317734	Up-regulated	1.015817335
XLOC_095190	MLXIPL	ENSG00000009950	0.003786213	0.151317734	Up-regulated	0.687923809
XLOC_011132	PAPSS2	ENSG00000198682	0.00378766	0.151317734	Up-regulated	0.953720783
XLOC_084395	TRIM38	ENSG00000112343	0.00379789	0.151317734	Up-regulated	0.724588567
XLOC_012938	RP11-38L15.3	ENSG00000231187	0.003800471	0.151317734	Down-regulated	-0.648184118
XLOC_061265	STMN3	ENSG00000197457	0.003808778	0.15138746	Down-regulated	-0.375425913
XLOC_031144	LINC00639	ENSG00000259070	0.003815504	0.151394209	Down-regulated	-0.702362172
XLOC_091830	CCM2	ENSG00000136280	0.003837832	0.152018971	Down-regulated	-0.349389855
XLOC_007502	S100A11	ENSG00000163191	0.003857227	0.152525601	Up-regulated	0.950863226
XLOC_045909	NA	NA	0.003885961	0.153399121	Down-regulated	-0.565980386
XLOC_017007	FLI1	ENSG00000151702	0.003901192	0.153556886	Up-regulated	0.530792916
XLOC_064812	LRRN1	ENSG00000175928	0.003911668	0.153556886	Down-regulated	-0.367111313
XLOC_093690	TMEM176A	ENSG00000002933	0.003919387	0.153556886	Up-regulated	0.717531997
XLOC_032551	NA	NA	0.0039222	0.153556886	Down-regulated	-5.350432089
XLOC_013669	NA	NA	0.003923205	0.153556886	Down-regulated	-0.900401341
XLOC_059469	MYH7B	ENSG00000078814	0.003946249	0.154197526	Down-regulated	-0.636483847
XLOC_013816	BLNK	ENSG00000095585	0.00395388	0.154234703	Up-regulated	0.973063812
XLOC_032949	CASC5	ENSG00000137812	0.003961962	0.154289356	Up-regulated	1.343862433
XLOC_047772	CIC	ENSG00000079432	0.003974151	0.154503496	Down-regulated	-0.359178085
XLOC_030940	FOXG1-AS1	ENSG00000257126	0.004016767	0.155897823	Down-regulated	-0.439774417

XLOC_018570	GAL3ST3	ENSG00000175229	0.004032286	0.156237539	Down-regulated	-0.490778306
XLOC_056036	LOXL3	ENSG00000115318	0.004039434	0.156252361	Up-regulated	0.561833082
XLOC_038998	SNX20	ENSG00000167208	0.004048498	0.156319466	Up-regulated	2.195803305
XLOC_091831	RAMP3	ENSG00000122679	0.004054707	0.156319466	Up-regulated	0.996343617
XLOC_098658	NA	NA	0.004080204	0.157040265	Down-regulated	-0.338369103
XLOC_053243	ITGA6	ENSG00000091409	0.004096076	0.157388819	Up-regulated	0.487337674
XLOC_058300	4-Mar	ENSG00000144583	0.004125205	0.15798392	Down-regulated	-0.476471566
XLOC_008998	TLR5	ENSG00000187554	0.004127097	0.15798392	Up-regulated	0.963372302
XLOC_064610	NAGA	ENSG00000198951	0.004132087	0.15798392	Up-regulated	0.507856462
XLOC_115689	TRAPPC13P1	ENSG00000235447	0.004165059	0.158981345	Down-regulated	-0.727042638
XLOC_085040	BEND6	ENSG00000151917	0.004174042	0.159061313	Down-regulated	-0.390196893
XLOC_083685	NA	NA	0.004189026	0.159369303	Down-regulated	-0.70395202
XLOC_004061	NA	NA	0.004213136	0.159713039	Up-regulated	0.883764182
XLOC_023191	SLCO1A2	ENSG00000084453	0.004218074	0.159713039	Down-regulated	-0.693333146
XLOC_020572	PTPN6	ENSG00000111679	0.004219695	0.159713039	Up-regulated	1.018356068
XLOC_012343	RP11-271F18.4	ENSG00000270111	0.004225725	0.159713039	Down-regulated	-0.553468455
XLOC_089763	NA	NA	0.004254309	0.160215881	Up-regulated	0.977430068
XLOC_019633	CASP4	ENSG00000196954	0.004256047	0.160215881	Up-regulated	1.082106478
XLOC_064515	CBX6	ENSG00000183741	0.004259843	0.160215881	Down-regulated	-0.400276963
XLOC_029052	RP11-66N24.6	ENSG00000274002	0.004271411	0.160389732	Down-regulated	-0.548086821
XLOC_093077	TES	ENSG00000135269	0.004278572	0.160397839	Up-regulated	0.923766065
XLOC_012637	SVIL	ENSG00000197321	0.004305183	0.16113386	Up-regulated	0.560986213
XLOC_089793	NA	NA	0.004349788	0.162539887	Up-regulated	1.146297625
XLOC_029867	PLEKHG3	ENSG00000126822	0.00437357	0.163164528	Down-regulated	-0.529513747
XLOC_017317	CYB5R2	ENSG00000166394	0.004385946	0.163362347	Down-regulated	-0.717556992
XLOC_065413	MOBP	ENSG00000168314	0.004408279	0.16392977	Down-regulated	-0.882502647
XLOC_086869	HEY2	ENSG00000135547	0.004476012	0.166024977	Down-regulated	-0.512884706

XLOC_076882	SH3RF1	ENSG00000154447	0.00448051	0.166024977	Down-regulated	-0.300549675
XLOC_066717	RN7SL752P	ENSG00000239437	0.004501615	0.166024977	Down-regulated	-1.033748555
XLOC_003810	PRELP	ENSG00000188783	0.004502882	0.166024977	Up-regulated	0.565215711
XLOC_042965	TOP2A	ENSG00000131747	0.004506761	0.166024977	Up-regulated	3.149743526
XLOC_008616	ETNK2	ENSG00000143845	0.004507758	0.166024977	Down-regulated	-0.386874055
XLOC_030632	PACS2	ENSG00000179364	0.004520017	0.166025257	Down-regulated	-0.331831547
XLOC_002716	NA	NA	0.004529218	0.166025257	Up-regulated	0.521869331
XLOC_101515	ST3GAL1	ENSG00000008513	0.004532419	0.166025257	Up-regulated	0.480258207
XLOC_038101	CCDC78	ENSG00000162004	0.004536523	0.166025257	Down-regulated	-0.750180952
XLOC_085481	NA	NA	0.004556997	0.166481043	Down-regulated	-0.506099796
XLOC_106595	ABCA1	ENSG00000165029	0.004564774	0.166481043	Up-regulated	0.320150987
XLOC_094941	PHKG1	ENSG00000164776	0.004570605	0.166481043	Up-regulated	0.678184119
XLOC_044139	BAIAP2-AS1	ENSG00000226137	0.004582307	0.166644417	Down-regulated	-0.380152507
XLOC_091400	MPP6	ENSG00000105926	0.004604816	0.167199724	Down-regulated	-0.258441226
XLOC_006613	GBP5	ENSG00000154451	0.004618677	0.167439743	Up-regulated	0.832938967
XLOC_033424	RNU5B-1	ENSG00000200156	0.004660925	0.168588054	Down-regulated	-0.854322496
XLOC_094852	NACAD	ENSG00000136274	0.004664953	0.168588054	Down-regulated	-0.365857863
XLOC_066383	NA	NA	0.004723406	0.170433779	Down-regulated	-0.528894238
XLOC_075105	NA	NA	0.004735469	0.170602466	Up-regulated	0.953313227
XLOC_064479	SOX10	ENSG00000100146	0.004761899	0.171287434	Down-regulated	-0.505187096
XLOC_080171	CTD-2270F17.1	ENSG00000253647	0.004777401	0.1715778	Up-regulated	1.189836768
XLOC_089787	NA	NA	0.004787707	0.171680914	Up-regulated	1.157309639
XLOC_047665	PAK4	ENSG00000130669	0.004811742	0.17227527	Down-regulated	-0.435252694
XLOC_068259	NA	NA	0.004850263	0.173385652	Down-regulated	-0.598412526
XLOC_069818	HCLS1	ENSG00000180353	0.004941758	0.176195811	Up-regulated	1.794088849
XLOC_064285	NA	NA	0.004951239	0.176195811	Down-regulated	-0.690188637
XLOC_090363	TAAR3	ENSG00000179073	0.004952521	0.176195811	Up-regulated	1.593944814

XLOC_085856	NA	NA	0.004963091	0.176195811	Down-regulated	-1.130721573
XLOC_035843	NA	NA	0.004967023	0.176195811	Up-regulated	1.131472387
XLOC_105073	PTPLAD2	ENSG00000188921	0.004981509	0.176214463	Up-regulated	0.523493483
XLOC_031142	NA	NA	0.004988711	0.176214463	Down-regulated	-0.608225294
XLOC_000082	GABRD	ENSG00000187730	0.004990441	0.176214463	Down-regulated	-0.412553177
XLOC_026536	HS6ST3	ENSG00000185352	0.005032394	0.177285934	Down-regulated	-0.398713624
XLOC_114813	CXorf21	ENSG00000120280	0.00503614	0.177285934	Up-regulated	1.515409541
XLOC_010984	RP11-367B6.2	ENSG00000228280	0.005048755	0.177459516	Up-regulated	0.468139763
XLOC_056642	AFF3	ENSG00000144218	0.005070682	0.177959361	Down-regulated	-0.46596657
XLOC_057226	CXCR4	ENSG00000121966	0.005117229	0.179028731	Down-regulated	-0.724018011
XLOC_081566	RP11-1319K7.1	ENSG00000179978	0.005136348	0.179028731	Up-regulated	0.857699222
XLOC_050877	RHOQ	ENSG00000119729	0.005137892	0.179028731	Down-regulated	-0.23664851
XLOC_106982	FKBP15	ENSG00000119321	0.005139946	0.179028731	Up-regulated	0.327722057
XLOC_010900	NA	NA	0.005151877	0.179028731	Down-regulated	-3.109400666
XLOC_094000	FBXL18	ENSG00000155034	0.005158324	0.179028731	Down-regulated	-0.374818187
XLOC_099332	MFSD3	ENSG00000167700	0.005173874	0.179028731	Down-regulated	-0.451777771
XLOC_043996	RNF157	ENSG00000141576	0.00517432	0.179028731	Down-regulated	-0.302093196
XLOC_059745	PABPC1L	ENSG00000101104	0.005176863	0.179028731	Up-regulated	0.44997831
XLOC_083023	CD74	ENSG00000019582	0.005178677	0.179028731	Up-regulated	1.284812496
XLOC_083250	LCP2	ENSG00000043462	0.005199036	0.179115491	Up-regulated	0.867385936
XLOC_022726	MMP17	ENSG00000198598	0.00520117	0.179115491	Down-regulated	-0.442717264
XLOC_114583	FANCB	ENSG00000181544	0.005204456	0.179115491	Down-regulated	-0.459351978
XLOC_090881	NA	NA	0.005279313	0.181421406	Down-regulated	-0.641972153
XLOC_040732	TMEM98	ENSG00000006042	0.005304629	0.181808146	Down-regulated	-0.559748232
XLOC_049711	DBP	ENSG00000105516	0.005309923	0.181808146	Down-regulated	-0.355852789
XLOC_019576	CCDC82	ENSG00000149231	0.005314186	0.181808146	Down-regulated	-0.322543791
XLOC_038168	NTHL1	ENSG00000065057	0.005328814	0.182038917	Down-regulated	-0.413949261

XLOC_075416	RP11-707A18.1	ENSG00000250125	0.005380714	0.183330022	Up-regulated	1.084907713
XLOC_068842	TMEM158	ENSG00000249992	0.00538289	0.183330022	Down-regulated	-0.543878303
XLOC_019938	BUD13	ENSG00000137656	0.005390425	0.183330022	Up-regulated	0.349604227
XLOC_018510	PYGM	ENSG00000068976	0.005423221	0.184044313	Down-regulated	-0.538822537
XLOC_075014	RELL1	ENSG00000181826	0.005433936	0.184044313	Up-regulated	0.631452253
XLOC_075421	NA	NA	0.005435336	0.184044313	Up-regulated	1.736309116
XLOC_047941	EHD2	ENSG00000024422	0.005457472	0.184523296	Up-regulated	0.652237294
XLOC_075627	RP11-377G16.2	ENSG00000248719	0.005490994	0.185385271	Down-regulated	-0.701122438
XLOC_031106	CTD-2058B24.2	ENSG00000259048	0.005510386	0.185578832	Down-regulated	-0.571386957
XLOC_081761	CTD-2015H6.3	ENSG00000249042	0.0055128	0.185578832	Down-regulated	-0.297899222
XLOC_011082	NA	NA	0.00552887	0.185848911	Down-regulated	-1.105421236
XLOC_030832	CIDEB	ENSG00000136305	0.005538114	0.185889048	Up-regulated	0.889081625
XLOC_060862	MAFB	ENSG00000204103	0.005554772	0.186177582	Up-regulated	1.119587725
XLOC_048678	MYO1F	ENSG00000142347	0.005579634	0.186567822	Up-regulated	1.053312117
XLOC_094485	CYCS	ENSG00000172115	0.005598612	0.186567822	Down-regulated	-0.345995932
XLOC_075115	NA	NA	0.005598689	0.186567822	Up-regulated	1.099228195
XLOC_007394	NA	NA	0.005603461	0.186567822	Up-regulated	0.491437062
XLOC_047333	NA	NA	0.005609488	0.186567822	Down-regulated	-0.737959827
XLOC_047089	NACC1	ENSG00000160877	0.005621484	0.186567822	Down-regulated	-0.394996926
XLOC_105566	IGFBPL1	ENSG00000137142	0.00562862	0.186567822	Down-regulated	-0.409700034
XLOC_036435	RP11-65J21.3	ENSG00000262454	0.005638522	0.186567822	Down-regulated	-0.425112212
XLOC_030254	CALM1	ENSG00000198668	0.005641173	0.186567822	Down-regulated	-0.320752575
XLOC_033723	KIAA1024	ENSG00000169330	0.005650983	0.186567822	Down-regulated	-0.539467305
XLOC_031651	SYNDIG1L	ENSG00000183379	0.005655284	0.186567822	Down-regulated	-0.544430752
XLOC_027811	NA	NA	0.005665939	0.186652691	Down-regulated	-0.398270907

XLOC_009781	NA	NA	0.005692035	0.187245251	Down-regulated	-0.720960279
XLOC_099204	DENND3	ENSG00000105339	0.005725831	0.18808907	Up-regulated	1.1960446
XLOC_043320	PPP1R9B	ENSG00000108819	0.005750626	0.188635229	Down-regulated	-0.426864729
XLOC_013286	NA	NA	0.005760376	0.188687049	Down-regulated	-0.634063962
XLOC_098041	NA	NA	0.005783359	0.189149603	Down-regulated	-0.417711883
XLOC_017112	HRAS	ENSG00000174775	0.005790879	0.189149603	Down-regulated	-0.370567294
XLOC_095829	DPY19L2P2	ENSG00000170629	0.005816703	0.189472469	Down-regulated	-0.332545154
XLOC_113056	CHIC1	ENSG00000204116	0.005817173	0.189472469	Down-regulated	-0.211580259
XLOC_063856	SHANK3	ENSG00000251322	0.005836138	0.189822445	Down-regulated	-0.382627415
XLOC_004537	ZBTB18	ENSG00000179456	0.005845847	0.189870818	Down-regulated	-0.248120351
XLOC_087517	NA	NA	0.005884189	0.190847715	Up-regulated	0.789412597
XLOC_092357	CLIP2	ENSG00000106665	0.005945162	0.192554861	Down-regulated	-0.324454232
XLOC_064110	GGT5	ENSG00000099998	0.005955561	0.192582231	Up-regulated	0.843077145
XLOC_046735	NDUFS7	ENSG00000115286	0.005962685	0.192582231	Down-regulated	-0.466417713
XLOC_010363	RP11-20J15.5	ENSG00000277288	0.005979047	0.192840951	Down-regulated	-0.976854895
XLOC_067873	VWA5B2	ENSG00000145198	0.005988062	0.192856896	Down-regulated	-0.548149027
XLOC_022780	WASH7P	ENSG00000226210	0.005996244	0.192856896	Up-regulated	0.736551219
XLOC_056205	NA	NA	0.006020145	0.193356341	Down-regulated	-1.01064836
XLOC_000612	EXTL1	ENSG00000158008	0.006043909	0.193843515	Down-regulated	-0.418929239
XLOC_060237	C20orf27	ENSG00000101220	0.006059439	0.193843515	Down-regulated	-0.457041812
XLOC_097672	LYN	ENSG00000254087	0.006060495	0.193843515	Up-regulated	0.975657302
XLOC_052772	AC103564.9	ENSG00000223588	0.006094004	0.1946457	Down-regulated	-0.701470734
XLOC_007012	DENND2D	ENSG00000162777	0.006197553	0.197679696	Up-regulated	1.074735789
XLOC_096462	RP11-61L23.2	ENSG00000253882	0.006209182	0.197777426	Up-regulated	1.127383741
XLOC_071108	TNK2	ENSG00000061938	0.006224483	0.19799172	Down-regulated	-0.408970513
XLOC_087532	NA	NA	0.006267688	0.199058185	Up-regulated	0.781603011
XLOC_045876	DSC2	ENSG00000134755	0.006277526	0.199058185	Up-regulated	0.715137954

XLOC_070398	CP	ENSG00000047457	0.00628387	0.199058185	Up-regulated	1.500040641
XLOC_093648	RNY3	ENSG00000202354	0.006309212	0.199587162	Down-regulated	-1.244434412
XLOC_053272	LINC01305	ENSG00000231453	0.006317967	0.199590706	Down-regulated	-0.768328782
XLOC_087526	NA	NA	0.00634827	0.200274055	Up-regulated	0.929664774
XLOC_053349	NA	NA	0.006373701	0.20080203	Down-regulated	-0.846318749
XLOC_093449	TBXAS1	ENSG00000059377	0.006406967	0.201575061	Up-regulated	1.024180238
XLOC_012540	NA	NA	0.006431367	0.202067426	Down-regulated	-0.970889677
XLOC_021518	NA	NA	0.006444479	0.202204281	Down-regulated	-0.821054763
XLOC_076995	GPM6A	ENSG00000150625	0.006467353	0.20254412	Down-regulated	-0.356921263
XLOC_101490	KCNQ3	ENSG00000184156	0.006472852	0.20254412	Down-regulated	-0.420847505
XLOC_098004	LY96	ENSG00000154589	0.006487869	0.202739336	Up-regulated	1.120943007
XLOC_079346	EGR1	ENSG00000120738	0.006497709	0.202772431	Down-regulated	-0.468933994
XLOC_068341	IQSEC1	ENSG00000144711	0.006524404	0.20333073	Down-regulated	-0.270758906
XLOC_022990	C3AR1	ENSG00000171860	0.006549227	0.203756813	Up-regulated	1.148107002
XLOC_047232	MAST3	ENSG00000099308	0.006566994	0.203756813	Down-regulated	-0.332451144
XLOC_050357	RN7SL674P	ENSG00000239899	0.006567654	0.203756813	Down-regulated	-0.842841317
XLOC_098655	NA	NA	0.006578894	0.203756813	Down-regulated	-0.395849427
XLOC_037796	NECAB2	ENSG00000103154	0.006592514	0.203756813	Down-regulated	-0.372052973
XLOC_085339	NA	NA	0.006599441	0.203756813	Up-regulated	1.187348373
XLOC_015255	MAPK8IP1	ENSG00000121653	0.006609138	0.203756813	Down-regulated	-0.287679382
XLOC_094923	NA	NA	0.006610416	0.203756813	Down-regulated	-0.389277032
XLOC_049712	CA11	ENSG00000063180	0.006620273	0.203756813	Down-regulated	-0.394604558
XLOC_088530	HLA-DOA	ENSG00000204252	0.00662631	0.203756813	Up-regulated	1.015882308
XLOC_048934	ABHD8	ENSG00000127220	0.006644821	0.204054333	Down-regulated	-0.453085454
XLOC_075283	NA	NA	0.006687114	0.205080385	Down-regulated	-1.025394483
XLOC_039923	CYBA	ENSG00000051523	0.006731563	0.206169749	Up-regulated	0.936454959
XLOC_059897	TSHZ2	ENSG00000182463	0.006757741	0.206381382	Up-regulated	0.459191717
XLOC_106936	LPAR1	ENSG00000198121	0.006763549	0.206381382	Down-regulated	-0.804885392

XLOC_046702	PALM	ENSG00000099864	0.00677932	0.206381382	Down-regulated	-0.449922178
XLOC_022890	TNFRSF1A	ENSG00000067182	0.006782388	0.206381382	Up-regulated	0.89390712
XLOC_018123	SPI1	ENSG00000066336	0.006783158	0.206381382	Up-regulated	1.212465165
XLOC_038483	NPIPA5	ENSG00000183793	0.006820658	0.207249288	Down-regulated	-1.163635302
XLOC_017836	NA	NA	0.006854067	0.207817856	Down-regulated	-0.691949006
XLOC_030631	BTBD6	ENSG00000184887	0.006857368	0.207817856	Down-regulated	-0.297682287
XLOC_054308	AC010980.2	ENSG00000237732	0.006915817	0.209314486	Down-regulated	-0.798666973
XLOC_105021	BNC2	ENSG00000173068	0.006930061	0.209347595	Up-regulated	0.788644376
XLOC_052880	ARHGAP15	ENSG00000075884	0.006935041	0.209347595	Up-regulated	0.827961219
XLOC_037607	NA	NA	0.006947478	0.209449219	Down-regulated	-0.448087374
XLOC_024730	NA	NA	0.006963026	0.209644283	Down-regulated	-0.497916832
XLOC_007782	OLFML2B	ENSG00000162745	0.00698962	0.210170961	Up-regulated	1.239382924
XLOC_098931	NDUFB9	ENSG00000147684	0.007018382	0.210761373	Down-regulated	-0.338785381
XLOC_087542	NA	NA	0.007050019	0.211436494	Up-regulated	0.86256819
XLOC_060470	NA	NA	0.007074035	0.21175039	Down-regulated	-0.785076259
XLOC_082130	FBXL17	ENSG00000145743	0.007084476	0.21175039	Down-regulated	-0.270052324
XLOC_091068	TTYH3	ENSG00000136295	0.007087994	0.21175039	Down-regulated	-0.355762356
XLOC_075660	PLAC8	ENSG00000145287	0.007107285	0.212052363	Up-regulated	2.495299134
XLOC_004164	EPHX1	ENSG00000143819	0.007131093	0.21248818	Up-regulated	0.361531522
XLOC_043031	HAP1	ENSG00000173805	0.007145823	0.212517147	Up-regulated	0.673368298
XLOC_107365	SH3GLB2	ENSG00000148341	0.00715297	0.212517147	Down-regulated	-0.32257836
XLOC_004810	HES5	ENSG00000197921	0.007163506	0.212517147	Down-regulated	-1.206844149
XLOC_033821	PDE8A	ENSG00000073417	0.00717104	0.212517147	Down-regulated	-0.395742451
XLOC_054502	AGAP1	ENSG00000157985	0.007181663	0.212517147	Down-regulated	-0.309844841
XLOC_079214	SOWAHA	ENSG00000198944	0.007187282	0.212517147	Down-regulated	-0.471908539
XLOC_074460	ABLIM2	ENSG00000163995	0.007199823	0.212595672	Down-regulated	-0.29082076
XLOC_004764	DVL1	ENSG00000107404	0.007208349	0.212595672	Down-regulated	-0.456415759
XLOC_056204	NA	NA	0.007230928	0.212989571	Down-regulated	-1.127060785

XLOC_073368	GUSBP5	ENSG00000236296	0.007277651	0.214092733	Up-regulated	0.894319412
XLOC_008095	KIAA0040	ENSG00000235750	0.007338863	0.215381189	Up-regulated	0.792735792
XLOC_064095	CHCHD10	ENSG00000250479	0.007350759	0.215381189	Down-regulated	-0.350482632
XLOC_046729	ATP5D	ENSG00000099624	0.007351557	0.215381189	Down-regulated	-0.466885075
XLOC_034936	NA	NA	0.007358756	0.215381189	Up-regulated	0.889973633
XLOC_100537	ZFHX4-AS1	ENSG00000253661	0.007375763	0.215497057	Down-regulated	-0.697732662
XLOC_047959	C19orf68	ENSG00000185453	0.007381378	0.215497057	Down-regulated	-0.472207558
XLOC_024308	NA	NA	0.00740378	0.215878133	Up-regulated	1.049255527
XLOC_096843	NA	NA	0.007469253	0.217115819	Down-regulated	-0.787354855
XLOC_046893	EVI5L	ENSG00000142459	0.007471508	0.217115819	Down-regulated	-0.373777696
XLOC_036871	ITGAM	ENSG00000169896	0.007486113	0.217115819	Up-regulated	0.903837061
XLOC_102697	NA	NA	0.007502832	0.217115819	Up-regulated	0.546377564
XLOC_089394	CNR1	ENSG00000118432	0.00750415	0.217115819	Down-regulated	-0.396881278
XLOC_051259	ARHGAP25	ENSG00000163219	0.007511102	0.217115819	Up-regulated	0.795901147
XLOC_017311	OR2D2	ENSG00000166368	0.00751204	0.217115819	Down-regulated	-0.372522204
XLOC_030934	NA	NA	0.007540368	0.217429947	Down-regulated	-1.671481267
XLOC_023154	MGP	ENSG00000111341	0.007547238	0.217429947	Up-regulated	1.082017403
XLOC_113908	LINC00086	ENSG00000178947	0.007558784	0.217429947	Down-regulated	-0.412112881
XLOC_094086	NA	NA	0.00756057	0.217429947	Up-regulated	0.639862845
XLOC_041988	RPH3AL	ENSG00000181031	0.007577616	0.217649115	Up-regulated	0.516971501
XLOC_100824	FLJ46284	ENSG00000248858	0.007609765	0.217854612	Down-regulated	-0.430243453
XLOC_013288	NA	NA	0.007621731	0.217854612	Down-regulated	-0.598020389
XLOC_032167	NA	NA	0.007626038	0.217854612	Down-regulated	-0.555323657
XLOC_011451	LZTS2	ENSG00000107816	0.007629858	0.217854612	Down-regulated	-0.32681587
XLOC_078126	NA	NA	0.00763194	0.217854612	Down-regulated	-0.724180022
XLOC_057455	CYTIP	ENSG00000115165	0.007666576	0.218573127	Up-regulated	0.831083923
XLOC_095056	RP11-328P23.3	ENSG00000226767	0.007700838	0.218937221	Down-regulated	-0.814684745

XLOC_047950	SEPW1	ENSG00000178980	0.007701365	0.218937221	Down-regulated	-0.356031848
XLOC_048975	FKBP8	ENSG00000105701	0.007711107	0.218937221	Down-regulated	-0.351981155
XLOC_009753	NA	NA	0.007717269	0.218937221	Down-regulated	-0.400884164
XLOC_024536	NA	NA	0.007735288	0.219179143	Up-regulated	0.776884895
XLOC_013279	CTNNA3	ENSG00000183230	0.007797291	0.220593506	Down-regulated	-0.641798907
XLOC_090869	NA	NA	0.007804308	0.220593506	Up-regulated	0.770313093
XLOC_084704	NA	NA	0.007823249	0.220717177	Up-regulated	0.920683516
XLOC_038000	NA	NA	0.007831421	0.220717177	Down-regulated	-0.473310967
XLOC_073390	NA	NA	0.007837357	0.220717177	Up-regulated	1.211608182
XLOC_087508	NA	NA	0.007901698	0.222258106	Up-regulated	0.891643118
XLOC_061107	BCAS1	ENSG00000064787	0.007913077	0.222307415	Down-regulated	-0.788850067
XLOC_005369	MARCKSL1	ENSG00000175130	0.007931392	0.222551188	Down-regulated	-0.398024225
XLOC_023670	FMNL3	ENSG00000161791	0.00795009	0.22280513	Up-regulated	0.528943255
XLOC_059412	HCK	ENSG00000101336	0.007969435	0.222975839	Up-regulated	1.632658492
XLOC_037605	AC004158.3	ENSG00000260664	0.007983729	0.222975839	Down-regulated	-0.429761243
XLOC_112450	CYBB	ENSG00000165168	0.007991686	0.222975839	Up-regulated	1.158990851
XLOC_048620	SLC25A23	ENSG00000125648	0.008002298	0.222975839	Down-regulated	-0.444870893
XLOC_047410	NA	NA	0.008015676	0.222975839	Down-regulated	-0.572290906
XLOC_081723	LHFPL2	ENSG00000145685	0.008020241	0.222975839	Up-regulated	0.667158665
XLOC_103792	WNK2	ENSG00000165238	0.008042613	0.222975839	Down-regulated	-0.328475655
XLOC_031109	NA	NA	0.008057591	0.222975839	Down-regulated	-0.709969806
XLOC_075054	RBM47	ENSG00000163694	0.008061241	0.222975839	Up-regulated	1.027100981
XLOC_087531	NA	NA	0.008063615	0.222975839	Up-regulated	0.817984555
XLOC_000541	C1QB	ENSG00000173369	0.008074549	0.222975839	Up-regulated	2.018685168
XLOC_011626	ACSL5	ENSG00000197142	0.008080707	0.222975839	Up-regulated	1.299536368
XLOC_041734	CD300A	ENSG00000167851	0.008081703	0.222975839	Up-regulated	1.694057845
XLOC_032160	NA	NA	0.008101523	0.22325593	Down-regulated	-0.788909508
XLOC_106227	SEMA4D	ENSG00000187764	0.008123764	0.223574302	Down-regulated	-0.43920753

XLOC_086530	RWDD1	ENSG00000111832	0.008133105	0.223574302	Down-regulated	-0.274264334
XLOC_002377	SLC22A15	ENSG00000163393	0.00814212	0.223574302	Down-regulated	-0.314347961
XLOC_004023	PROX1	ENSG00000117707	0.008182623	0.22395702	Down-regulated	-0.414228042
XLOC_044833	DTNA	ENSG00000134769	0.008187969	0.22395702	Up-regulated	0.340395565
XLOC_079151	ADAMTS19	ENSG00000145808	0.008193011	0.22395702	Down-regulated	-0.325156423
XLOC_031779	DYNLL1P1	ENSG00000205579	0.00819485	0.22395702	Up-regulated	0.952906613
XLOC_034223	CYFIP1	ENSG00000273749	0.008230826	0.224409381	Up-regulated	0.488712574
XLOC_088749	LRRC73	ENSG00000204052	0.008230838	0.224409381	Down-regulated	-0.435765739
XLOC_009830	ECHDC3	ENSG00000134463	0.008276176	0.225273383	Up-regulated	1.128138549
XLOC_083246	NA	NA	0.008282038	0.225273383	Down-regulated	-0.580016432
XLOC_051726	VAMP8	ENSG00000118640	0.008307431	0.225698228	Up-regulated	0.988437433
XLOC_063784	NA	NA	0.008338802	0.226284325	Down-regulated	-0.428181673
XLOC_015944	P2RY6	ENSG00000171631	0.008366762	0.226418146	Up-regulated	1.059043299
XLOC_074430	PPP2R2C	ENSG00000074211	0.008368169	0.226418146	Down-regulated	-0.256676046
XLOC_042267	PIK3R5	ENSG00000141506	0.008373148	0.226418146	Up-regulated	0.867246254
XLOC_005284	FGR	ENSG00000000938	0.008411134	0.226847551	Up-regulated	1.088113762
XLOC_003780	NA	NA	0.008416347	0.226847551	Down-regulated	-0.604942623
XLOC_059758	WFDC2	ENSG00000101443	0.008418497	0.226847551	Down-regulated	-0.589197081
XLOC_033746	IL16	ENSG00000172349	0.008489976	0.228507003	Up-regulated	0.545659418
XLOC_040675	NA	NA	0.008528284	0.229270848	Up-regulated	0.640209168
XLOC_053180	NOSTRIN	ENSG00000163072	0.008544051	0.229408193	Up-regulated	0.472204644
XLOC_019326	DLG2	ENSG00000150672	0.008553261	0.229408193	Down-regulated	-0.277168916
XLOC_057775	ZNF385B	ENSG00000144331	0.008574226	0.229703715	Down-regulated	-0.377137429
XLOC_010753	NA	NA	0.008604186	0.230239245	Down-regulated	-0.37190377
XLOC_013356	C10orf54	ENSG00000107738	0.008622656	0.230370149	Up-regulated	0.846728297
XLOC_113518	COL4A5	ENSG00000188153	0.008631708	0.230370149	Down-regulated	-0.420916242
XLOC_072672	SPP1	ENSG00000118785	0.008644327	0.230370149	Up-regulated	1.104401798
XLOC_047642	KCNK6	ENSG00000099337	0.008648981	0.230370149	Up-regulated	1.18766614

XLOC_095623	SAMD9L	ENSG00000177409	0.008684432	0.231047921	Up-regulated	0.485643408
XLOC_087888	F13A1	ENSG00000124491	0.008712018	0.231515115	Up-regulated	1.259096474
XLOC_107554	C9orf69	ENSG00000238227	0.008755969	0.232242241	Down-regulated	-0.331557492
XLOC_001610	NA	NA	0.008759494	0.232242241	Down-regulated	-0.620470949
XLOC_056201	NA	NA	0.008779685	0.232510615	Down-regulated	-1.046684894
XLOC_112462	MID1IP1	ENSG00000165175	0.008853288	0.233978668	Down-regulated	-0.555438442
XLOC_093184	RP5-921G16.1	ENSG00000242593	0.008855383	0.233978668	Down-regulated	-0.308378935
XLOC_101511	SLA	ENSG00000155926	0.008895385	0.2347029	Up-regulated	1.327043045
XLOC_115972	BTB	ENSG0000010671	0.008908428	0.2347029	Up-regulated	1.086589247
XLOC_074852	NA	NA	0.008919775	0.2347029	Down-regulated	-0.766973656
XLOC_054405	SP140L	ENSG00000185404	0.008923446	0.2347029	Up-regulated	0.533162926
XLOC_113357	SRPX2	ENSG00000102359	0.008995681	0.23633364	Up-regulated	0.875231297
XLOC_061260	NA	NA	0.009046996	0.237273877	Down-regulated	-0.708099549
XLOC_013863	DNMBP	ENSG00000107554	0.009052019	0.237273877	Up-regulated	0.388828965
XLOC_096792	NA	NA	0.009076719	0.237651546	Down-regulated	-0.27599987
XLOC_089543	GPR63	ENSG00000112218	0.009093591	0.237760204	Down-regulated	-0.406925858
XLOC_005842	TAL1	ENSG00000162367	0.00910146	0.237760204	Up-regulated	0.717735196
XLOC_013054	NA	NA	0.009150414	0.238668783	Up-regulated	1.232732724
XLOC_062665	RUNX1	ENSG00000159216	0.009156911	0.238668783	Up-regulated	1.310536499
XLOC_007392	NA	NA	0.009189917	0.239259021	Up-regulated	0.474668109
XLOC_061787	OLIG1	ENSG00000184221	0.009238702	0.240008186	Down-regulated	-0.533236378
XLOC_026980	GJA3	ENSG00000121743	0.009239479	0.240008186	Down-regulated	-0.837949833
XLOC_099330	KIFC2	ENSG00000167702	0.009284544	0.240901904	Down-regulated	-0.392950623
XLOC_032579	SNORD116-8	ENSG00000207093	0.009294747	0.240901904	Down-regulated	-0.909537037
XLOC_032164	NA	NA	0.009372259	0.242638543	Down-regulated	-0.724304627
XLOC_011756	ATRNL1	ENSG00000107518	0.009386692	0.242740065	Down-regulated	-0.310902781
XLOC_090870	NA	NA	0.009416858	0.243043433	Up-regulated	0.832111556

XLOC_094926	VOPP1	ENSG00000154978	0.009427114	0.243043433	Up-regulated	0.284185997
XLOC_003676	CFH	ENSG00000000971	0.009433394	0.243043433	Up-regulated	0.830206719
XLOC_027492	LCP1	ENSG00000136167	0.009464594	0.243043433	Up-regulated	1.625968151
XLOC_082514	NA	NA	0.009469532	0.243043433	Down-regulated	-0.878811014
XLOC_116574	RAP2C	ENSG00000123728	0.009472757	0.243043433	Down-regulated	-0.268329457
XLOC_000711	NA	NA	0.009479442	0.243043433	Down-regulated	-0.992796243
XLOC_007629	NA	NA	0.009482874	0.243043433	Down-regulated	-0.466633568
XLOC_000979	NA	NA	0.009495808	0.243043433	Up-regulated	0.56449912
XLOC_064817	NA	NA	0.009503669	0.243043433	Down-regulated	-0.463261954
XLOC_033019	B2M	ENSG00000166710	0.009543211	0.243784692	Up-regulated	0.392437627
XLOC_079052	TNFAIP8	ENSG00000145779	0.009560817	0.243964585	Up-regulated	0.911845129
XLOC_012120	KNDC1	ENSG00000171798	0.009574193	0.244036243	Down-regulated	-0.385167759
XLOC_046807	EBI3	ENSG00000105246	0.009614948	0.244571996	Up-regulated	1.346977334
XLOC_103695	CKS2	ENSG00000123975	0.009625324	0.244571996	Down-regulated	-0.922749231
XLOC_059214	NA	NA	0.009626984	0.244571996	Down-regulated	-0.636872752
XLOC_006200	NA	NA	0.009641408	0.244669277	Up-regulated	0.484342015
XLOC_066123	CADM2	ENSG00000175161	0.009669168	0.245104399	Down-regulated	-0.281227227
XLOC_096201	NA	NA	0.009692313	0.24542169	Up-regulated	0.297796979
XLOC_010467	ASAH2B	ENSG00000204147	0.009713982	0.245700963	Down-regulated	-0.495739735
XLOC_111339	NA	NA	0.009732829	0.245908342	Down-regulated	-1.881238291
XLOC_015537	DAGLA	ENSG00000134780	0.009748185	0.246027154	Down-regulated	-0.393051144
XLOC_106062	GNAQ	ENSG00000156052	0.009776222	0.246424805	Down-regulated	-0.248781426
XLOC_091049	NUDT1	ENSG00000106268	0.009785283	0.246424805	Down-regulated	-0.475383972
XLOC_094544	TRIL	ENSG00000255690	0.009800152	0.246530396	Down-regulated	-0.506956814
XLOC_029255	INSM2	ENSG00000168348	0.009828914	0.24698489	Down-regulated	-0.578974224
XLOC_030457	CYP46A1	ENSG00000036530	0.009843642	0.247071952	Down-regulated	-0.317149965
XLOC_049724	PLEKHA4	ENSG00000105559	0.009857145	0.247071952	Up-regulated	0.644169579
XLOC_059524	SNORA60	ENSG00000199266	0.00987214	0.247071952	Down-regulated	-0.992082634

XLOC_018802	KCNE3	ENSG00000175538	0.009885145	0.247071952	Up-regulated	0.688865718
XLOC_047105	MIR1199	ENSG00000141854	0.009888402	0.247071952	Down-regulated	-0.545155934
XLOC_098715	NA	NA	0.009896573	0.247071952	Down-regulated	-0.591006339
XLOC_052236	PSD4	ENSG00000125637	0.009936241	0.247721163	Up-regulated	0.469939123
XLOC_111837	IL3RA	ENSG00000185291	0.009944031	0.247721163	Up-regulated	0.934998502
XLOC_094828	CAMK2B	ENSG00000058404	0.009988347	0.247736222	Down-regulated	-0.324834323
XLOC_048656	FLJ22184	ENSG00000183248	0.009998536	0.247736222	Down-regulated	-0.496992038
XLOC_084176	NA	NA	2.15E-05	NA	Down-regulated	-1.853278782
XLOC_048627	TNFSF14	ENSG00000125735	2.29E-05	NA	Up-regulated	2.134544104
XLOC_013050	NA	NA	4.62E-05	NA	Up-regulated	2.179933318
XLOC_111711	NA	NA	5.61E-05	NA	Up-regulated	1.883000134
XLOC_104738	TUBBP5	ENSG00000159247	6.10E-05	NA	Up-regulated	1.887073626
XLOC_024303	NA	NA	0.000125981	NA	Up-regulated	1.516480842
XLOC_084148	NA	NA	0.000154652	NA	Down-regulated	-1.409133082
XLOC_002486	NA	NA	0.000225074	NA	Up-regulated	2.809513393
XLOC_090915	KIF25-AS1	ENSG00000229921	0.000343844	NA	Down-regulated	-3.526528382
XLOC_028884	RNASE2	ENSG00000169385	0.000357525	NA	Up-regulated	3.131629655
XLOC_076277	NA	NA	0.0003676	NA	Up-regulated	2.910894642
XLOC_098633	PKHD1L1	ENSG00000205038	0.000369842	NA	Up-regulated	1.545078231
XLOC_026608	NA	NA	0.00037177	NA	Down-regulated	-3.56600559
XLOC_084136	NA	NA	0.000374326	NA	Down-regulated	-1.387964698
XLOC_096841	NA	NA	0.000413205	NA	Down-regulated	-1.980539771
XLOC_088239	HIST1H3B	ENSG00000274267	0.000418315	NA	Up-regulated	2.388042695
XLOC_082502	NA	NA	0.000511398	NA	Down-regulated	-2.571327644
XLOC_084118	NA	NA	0.000558898	NA	Down-regulated	-1.870391454
XLOC_060941	NA	NA	0.000606242	NA	Up-regulated	2.220156211
XLOC_007033	NA	NA	0.000692858	NA	Up-regulated	2.528011804
XLOC_073315	NA	NA	0.000705376	NA	Up-regulated	1.443236921

XLOC_040235	ALOX15B	ENSG00000179593	0.000710576	NA	Up-regulated	2.960671199
XLOC_007655	IQGAP3	ENSG00000183856	0.000734487	NA	Up-regulated	2.749544513
XLOC_084681	TNF	ENSG00000232810	0.000740611	NA	Up-regulated	2.734129907
XLOC_018459	NA	NA	0.000742124	NA	Up-regulated	2.604079421
XLOC_071695	NA	NA	0.000813832	NA	Down-regulated	-1.765845188
XLOC_012342	NA	NA	0.000888395	NA	Down-regulated	-1.395506419
XLOC_041579	NA	NA	0.000891303	NA	Up-regulated	2.010977955
XLOC_084155	ARPC3P5	ENSG00000214027	0.000950114	NA	Down-regulated	-2.483496903
XLOC_093334	NA	NA	0.000965261	NA	Up-regulated	1.559990149
XLOC_057422	NA	NA	0.001088898	NA	Up-regulated	3.17895323
XLOC_076444	NA	NA	0.001091558	NA	Up-regulated	2.909334814
XLOC_084153	NA	NA	0.001130879	NA	Down-regulated	-1.327778859
XLOC_002896	CD1D	ENSG00000158473	0.001146081	NA	Up-regulated	2.589516761
XLOC_084191	NA	NA	0.001169512	NA	Down-regulated	-1.902701302
XLOC_073305	NA	NA	0.001171088	NA	Up-regulated	1.83577991
XLOC_084140	NA	NA	0.001185192	NA	Down-regulated	-2.009075775
XLOC_084145	NA	NA	0.001190951	NA	Down-regulated	-1.595347008
XLOC_085304	NA	NA	0.001197843	NA	Down-regulated	-2.371126296
XLOC_093005	NA	NA	0.001213308	NA	Up-regulated	4.053232178
XLOC_093921	RP11-90P13.1	ENSG00000261795	0.001306235	NA	Up-regulated	1.493704009
XLOC_015459	FAM111B	ENSG00000189057	0.00133834	NA	Up-regulated	3.405384088
XLOC_048866	OR7A5	ENSG00000188269	0.001433983	NA	Up-regulated	2.194341146
XLOC_021059	MUC19	ENSG00000205592	0.001459437	NA	Down-regulated	-1.774204935
XLOC_064417	NA	NA	0.001501937	NA	Up-regulated	3.046799986
XLOC_076069	NEUROG2	ENSG00000178403	0.001563799	NA	Down-regulated	-1.618818747
XLOC_103532	NA	NA	0.001564747	NA	Up-regulated	3.229286482
XLOC_085861	NA	NA	0.001635731	NA	Down-regulated	-2.398941381

XLOC_087486	NA	NA	0.001636434	NA	Up-regulated	1.806798475
XLOC_010290	NA	NA	0.001749994	NA	Up-regulated	1.897785976
XLOC_068139	FAM157A	ENSG00000236438	0.001782896	NA	Up-regulated	1.744455225
XLOC_004753	TTLL10-AS1	ENSG00000205231	0.001809954	NA	Down-regulated	-2.854836228
XLOC_007046	NA	NA	0.00183448	NA	Up-regulated	1.463736029
XLOC_037024	RP11-523L20.2	ENSG00000261231	0.001909943	NA	Down-regulated	-1.890555343
XLOC_032592	SNORD116-23	ENSG00000207375	0.002021593	NA	Down-regulated	-1.544035181
XLOC_067919	RTP1	ENSG00000175077	0.002072843	NA	Up-regulated	1.698235447
XLOC_072684	NA	NA	0.002189093	NA	Up-regulated	1.707482757
XLOC_073297	NA	NA	0.002314895	NA	Up-regulated	1.473013048
XLOC_032829	CHRM5	ENSG00000184984	0.00232165	NA	Up-regulated	1.964660675
XLOC_084195	NA	NA	0.002337576	NA	Down-regulated	-2.722834372
XLOC_103249	NA	NA	0.002338533	NA	Down-regulated	-2.162996825
XLOC_032556	NA	NA	0.002486258	NA	Down-regulated	-4.727573587
XLOC_060939	NA	NA	0.002588002	NA	Up-regulated	2.773754927
XLOC_021433	METTL7B	ENSG00000170439	0.002592128	NA	Up-regulated	1.34229053
XLOC_002485	FCGR1C	ENSG00000265531	0.00264554	NA	Up-regulated	1.919941646
XLOC_060931	NA	NA	0.0027559	NA	Up-regulated	1.831583317
XLOC_007047	NA	NA	0.00278817	NA	Up-regulated	2.618506961
XLOC_011305	CEP55	ENSG00000138180	0.002871944	NA	Up-regulated	2.924531397
XLOC_007051	NA	NA	0.002929103	NA	Up-regulated	1.830373986
XLOC_014102	NA	NA	0.002935386	NA	Up-regulated	2.649680666
XLOC_057398	NA	NA	0.003072027	NA	Up-regulated	3.079972897
XLOC_091874	RP4-815D20.1	ENSG00000279578	0.003084621	NA	Down-regulated	-1.355995241
XLOC_087568	NA	NA	0.00309209	NA	Up-regulated	1.134319971
XLOC_084157	NA	NA	0.003175357	NA	Down-regulated	-2.952914455

XLOC_030606	NA	NA	0.003237256	NA	Up-regulated	2.575797417
XLOC_024722	NA	NA	0.003245492	NA	Down-regulated	-1.039145313
XLOC_115336	ALAS2	ENSG00000158578	0.003339043	NA	Down-regulated	-2.26409524
XLOC_103819	PCAT7	ENSG00000231806	0.003352267	NA	Up-regulated	1.718464441
XLOC_079340	KIF20A	ENSG00000112984	0.003410292	NA	Up-regulated	3.288147816
XLOC_089828	NA	NA	0.003427844	NA	Up-regulated	1.589028074
XLOC_027460	TUSC8	ENSG00000237361	0.003516197	NA	Up-regulated	1.605116846
XLOC_066446	NA	NA	0.003584415	NA	Down-regulated	-1.313931801
XLOC_037220	GPR114	ENSG00000159618	0.003604266	NA	Up-regulated	2.023264947
XLOC_001205	CYP4B1	ENSG00000142973	0.003619066	NA	Up-regulated	2.622889551
XLOC_009975	PTF1A	ENSG00000168267	0.003639333	NA	Down-regulated	-2.647095068
XLOC_013360	NA	NA	0.003646126	NA	Up-regulated	2.627063738
XLOC_070356	NA	NA	0.003694958	NA	Down-regulated	-2.51186424
XLOC_014105	NA	NA	0.003788617	NA	Up-regulated	2.870294038
XLOC_039831	RP11-442O1.3	ENSG00000275088	0.003789999	NA	Down-regulated	-2.347081312
XLOC_052238	NA	NA	0.003808069	NA	Up-regulated	1.630452761
XLOC_087569	NA	NA	0.003818171	NA	Up-regulated	1.213441529
XLOC_031652	NA	NA	0.003831376	NA	Down-regulated	-1.125462306
XLOC_083682	IRF4	ENSG00000137265	0.003841973	NA	Up-regulated	1.542827483
XLOC_029630	NA	NA	0.003846759	NA	Down-regulated	-4.111783448
XLOC_089824	NA	NA	0.003915642	NA	Up-regulated	1.51270196
XLOC_101457	NA	NA	0.003958581	NA	Up-regulated	1.62448384
XLOC_031345	DLGAP5	ENSG00000126787	0.003971066	NA	Up-regulated	3.54082374
XLOC_064412	NA	NA	0.003973437	NA	Up-regulated	3.221310983
XLOC_048218	NA	NA	0.003981481	NA	Down-regulated	-2.281074445
XLOC_014108	NA	NA	0.004114082	NA	Up-regulated	3.199487132
XLOC_099694	FGF20	ENSG00000078579	0.004141927	NA	Up-regulated	1.33948221

XLOC_007777	FCGR3B	ENSG00000162747	0.004142362	NA	Up-regulated	1.890688954
XLOC_076273	NA	NA	0.004154658	NA	Up-regulated	3.607241016
XLOC_082976	NA	NA	0.004160499	NA	Down-regulated	-1.396153245
XLOC_084139	NA	NA	0.00417769	NA	Down-regulated	-2.305371869
XLOC_032434	NA	NA	0.004204004	NA	Up-regulated	2.840245793
XLOC_005405	NA	NA	0.004220389	NA	Down-regulated	-1.899811267
XLOC_093337	NA	NA	0.004267487	NA	Up-regulated	1.254709339
XLOC_021540	NA	NA	0.004395231	NA	Down-regulated	-1.797126996
XLOC_075100	NA	NA	0.004424909	NA	Up-regulated	1.689637285
XLOC_089795	NA	NA	0.004481336	NA	Up-regulated	1.502289991
XLOC_087538	NA	NA	0.004555548	NA	Up-regulated	1.011365942
XLOC_032552	NA	NA	0.004731234	NA	Down-regulated	-5.348050196
XLOC_030224	NA	NA	0.004773638	NA	Up-regulated	2.729838365
XLOC_084164	NA	NA	0.004824472	NA	Down-regulated	-1.630984734
XLOC_058491	AC098823.3	ENSG00000226125	0.004835574	NA	Up-regulated	2.117225764
XLOC_060930	NA	NA	0.004889629	NA	Up-regulated	2.333829305
XLOC_075422	NA	NA	0.004944485	NA	Up-regulated	2.662831922
XLOC_087497	NA	NA	0.004955743	NA	Up-regulated	2.295096144
XLOC_101390	NA	NA	0.005025845	NA	Up-regulated	2.538373014
XLOC_084188	NA	NA	0.005026729	NA	Down-regulated	-1.247126512
XLOC_025353	NA	NA	0.005070016	NA	Up-regulated	1.889541169
XLOC_014229	NA	NA	0.005175634	NA	Down-regulated	-1.966273058
XLOC_116291	NA	NA	0.005226982	NA	Down-regulated	-2.966033891
XLOC_087539	NA	NA	0.005233052	NA	Up-regulated	1.158067117
XLOC_084655	PSORS1C1	ENSG00000204540	0.00525259	NA	Up-regulated	1.366737292
XLOC_073312	NA	NA	0.005252883	NA	Up-regulated	1.620048437
XLOC_053368	NA	NA	0.005346422	NA	Down-regulated	-3.278840572
XLOC_075943	NA	NA	0.005366369	NA	Down-regulated	-1.035181404

XLOC_101460	NA	NA	0.00551916	NA	Up-regulated	1.559984344
XLOC_114420	NA	NA	0.005571463	NA	Up-regulated	2.272431003
XLOC_072689	NA	NA	0.005576383	NA	Up-regulated	2.087195599
XLOC_082984	NA	NA	0.005640889	NA	Down-regulated	-1.353844451
XLOC_010989	NA	NA	0.005761296	NA	Up-regulated	1.22967083
XLOC_027838	NA	NA	0.005788915	NA	Up-regulated	2.20039577
XLOC_077213	NA	NA	0.005840108	NA	Down-regulated	-0.984343422
XLOC_066567	CSTA	ENSG00000121552	0.005922457	NA	Up-regulated	1.909308181
XLOC_058330	NA	NA	0.00607566	NA	Up-regulated	1.333890878
XLOC_070070	SLCO2A1	ENSG00000174640	0.00617207	NA	Up-regulated	1.536623364
XLOC_063727	GTSE1	ENSG00000075218	0.006345551	NA	Up-regulated	1.461402406
XLOC_101447	NA	NA	0.006363992	NA	Up-regulated	2.099442125
XLOC_046961	NA	NA	0.006428131	NA	Up-regulated	2.248751793
XLOC_111443	NA	NA	0.006489747	NA	Up-regulated	2.05938336
XLOC_101117	NA	NA	0.00658347	NA	Down-regulated	-2.392489785
XLOC_105716	NA	NA	0.006652463	NA	Up-regulated	2.967849944
XLOC_058715	AC114730.3	ENSG00000224272	0.006693134	NA	Down-regulated	-1.77278757
XLOC_044501	NA	NA	0.006727735	NA	Up-regulated	1.680516282
XLOC_041280	ABCC3	ENSG00000108846	0.006790436	NA	Up-regulated	1.051960421
XLOC_035281	NA	NA	0.006793092	NA	Up-regulated	1.44901476
XLOC_084204	NA	NA	0.006916303	NA	Down-regulated	-1.172605527
XLOC_043890	RP1-193H18.3	ENSG00000267653	0.006998352	NA	Up-regulated	4.050337452
XLOC_098813	NA	NA	0.007034011	NA	Up-regulated	1.737295637
XLOC_102740	NA	NA	0.007168229	NA	Up-regulated	1.221660754
XLOC_011155	NA	NA	0.007194118	NA	Up-regulated	2.188154066
XLOC_103758	NA	NA	0.00725528	NA	Down-regulated	-0.97175181
XLOC_041228	NA	NA	0.007399793	NA	Up-regulated	1.848222676

XLOC_008884	NA	NA	0.007441876	NA	Up-regulated	1.525238967
XLOC_079599	NA	NA	0.007527815	NA	Down-regulated	-1.849517159
XLOC_075106	NA	NA	0.0075652	NA	Up-regulated	1.469271154
XLOC_066148	NA	NA	0.007600307	NA	Up-regulated	1.107103387
XLOC_114359	P2RY8	ENSG00000182162	0.007632829	NA	Up-regulated	1.460151276
XLOC_069249	NA	NA	0.007666104	NA	Down-regulated	-1.757889327
XLOC_046808	NA	NA	0.00767318	NA	Up-regulated	1.788758478
XLOC_024522	NA	NA	0.007890754	NA	Up-regulated	1.107068545
XLOC_000112	NA	NA	0.007921409	NA	Down-regulated	-2.951333973
XLOC_014099	NA	NA	0.007961319	NA	Up-regulated	2.441245093
XLOC_087495	NA	NA	0.008000714	NA	Up-regulated	1.239408725
XLOC_031777	NA	NA	0.008024644	NA	Up-regulated	1.582342155
XLOC_040267	GLP2R	ENSG00000065325	0.008032085	NA	Up-regulated	1.275511194
XLOC_063579	RP3-508I15.21	ENSG00000272669	0.008105523	NA	Up-regulated	2.185500181
XLOC_089836	NA	NA	0.008108386	NA	Up-regulated	1.116527841
XLOC_027839	NA	NA	0.00822107	NA	Up-regulated	1.341429439
XLOC_011143	NA	NA	0.008257822	NA	Up-regulated	1.845667909
XLOC_056207	NA	NA	0.008289815	NA	Down-regulated	-1.584668323
XLOC_067244	NA	NA	0.008528568	NA	Down-regulated	-1.419619529
XLOC_056198	NA	NA	0.008627499	NA	Down-regulated	-1.1896295
XLOC_064413	NA	NA	0.008652648	NA	Up-regulated	1.935188084
XLOC_084403	HIST1H3C	ENSG00000278272	0.00878109	NA	Up-regulated	2.136048915
XLOC_063236	DDTL	ENSG00000099974	0.008863201	NA	Down-regulated	-3.227413965
XLOC_066447	NA	NA	0.008998999	NA	Down-regulated	-2.151087145
XLOC_114787	NA	NA	0.009074712	NA	Up-regulated	1.334803952
XLOC_070051	NA	NA	0.00909843	NA	Up-regulated	2.638571462
XLOC_068456	NA	NA	0.009145361	NA	Up-regulated	1.500482466

XLOC_081125	GOLGA5P1	ENSG00000251215	0.009196158	NA	Up-regulated	1.507838989
XLOC_096259	NA	NA	0.00925173	NA	Down-regulated	-1.258315799
XLOC_012338	NA	NA	0.009253955	NA	Down-regulated	-1.746757369
XLOC_045431	NA	NA	0.009273597	NA	Down-regulated	-2.231169534
XLOC_028030	NA	NA	0.009386524	NA	Up-regulated	1.467991743
XLOC_087595	NA	NA	0.009398385	NA	Up-regulated	0.985559912
XLOC_042293	LINC00675	ENSG00000263429	0.009407203	NA	Up-regulated	2.297074843
XLOC_075417	NA	NA	0.009528841	NA	Up-regulated	2.659136712
XLOC_066938	NA	NA	0.00966232	NA	Up-regulated	2.6179787
XLOC_105238	NA	NA	0.009783396	NA	Up-regulated	2.117048526
XLOC_008860	NEK2	ENSG00000117650	0.0098176	NA	Up-regulated	1.613118046
XLOC_099541	NA	NA	0.009910868	NA	Down-regulated	-1.318781644
XLOC_088015	NA	NA	0.009918169	NA	Down-regulated	-1.133251753
XLOC_065198	NA	NA	0.00999315	NA	Down-regulated	-1.348725027
XLOC_112434	NA	NA	0.009998042	NA	Up-regulated	1.303497957
ID_NAC	Gene Symbol	Ensembl Gene	pvalor	padj	Regulação em TOC	Log2FoldChange
XLOC_032558	NA	NA	1.62E-20	3.53E-16	Down-regulated	-5.80848092
XLOC_032521	NA	NA	5.04E-16	5.49E-12	Down-regulated	-3.547804004
XLOC_032483	PWRN3	ENSG00000260760	5.32E-10	3.86E-06	Down-regulated	-1.787190503
XLOC_022445	RPS2P5	ENSG00000240342	1.27E-09	6.89E-06	Down-regulated	-3.543282212
XLOC_015751	NPAS4	ENSG00000174576	2.67E-09	1.16E-05	Down-regulated	-2.861805913
XLOC_032547	NA	NA	7.15E-09	2.60E-05	Down-regulated	-6.96632516
XLOC_032549	NA	NA	1.22E-08	3.80E-05	Down-regulated	-5.389922552
XLOC_032551	NA	NA	1.74E-08	4.73E-05	Down-regulated	-6.159326125
XLOC_032548	NA	NA	4.76E-08	0.000115253	Down-regulated	-6.565244834
XLOC_085344	RNU6-411P	ENSG00000207180	2.54E-07	0.000552209	Up-regulated	1.878230578
XLOC_048978	CRLF1	ENSG00000006016	5.60E-07	0.001109354	Up-regulated	2.298239596
XLOC_114768	NA	NA	1.22E-06	0.002212075	Up-regulated	1.708101354

XLOC_042458	SNORD3C	ENSG00000264940	2.18E-06	0.003651458	Down-regulated	-1.998280738
XLOC_078178	NA	NA	2.51E-06	0.003897503	Up-regulated	1.629812532
XLOC_017245	HBB	ENSG00000244734	4.60E-06	0.006682611	Down-regulated	-2.137080083
XLOC_058465	SPHKAP	ENSG00000153820	6.50E-06	0.008849266	Down-regulated	-1.413447391
XLOC_095425	NA	NA	7.37E-06	0.009441018	Up-regulated	1.641729207
XLOC_022361	RN7SKP71	ENSG00000201428	8.49E-06	0.010241466	Down-regulated	-2.942899025
XLOC_005945	RAB3B	ENSG00000169213	8.94E-06	0.010241466	Down-regulated	-2.110996503
XLOC_037319	NA	NA	1.35E-05	0.014675142	Down-regulated	-1.669515628
XLOC_079846	GABRA1	ENSG00000022355	1.60E-05	0.01663841	Down-regulated	-1.60639902
XLOC_083667	NA	NA	1.73E-05	0.017093089	Down-regulated	-3.947613349
XLOC_095416	NA	NA	1.82E-05	0.017211284	Up-regulated	1.358802814
XLOC_095435	NA	NA	1.93E-05	0.017461419	Up-regulated	1.563641636
XLOC_078101	RAB3C	ENSG00000152932	2.00E-05	0.017461419	Down-regulated	-1.36763468
XLOC_116085	RNA28S5	ENSG00000226958	2.66E-05	0.022268493	Down-regulated	-5.446428098
XLOC_094334	TMEM196	ENSG00000173452	3.49E-05	0.027661256	Down-regulated	-1.208055787
XLOC_088517	HLA-DQB1	ENSG00000179344	3.56E-05	0.027661256	Up-regulated	2.562978855
XLOC_045101	NA	NA	4.04E-05	0.030318739	Up-regulated	2.217148687
XLOC_079135	CTXN3	ENSG00000205279	4.40E-05	0.03190617	Down-regulated	-1.810889549
XLOC_037727	VAT1L	ENSG00000171724	4.91E-05	0.033524655	Down-regulated	-1.100321267
XLOC_095432	NA	NA	4.93E-05	0.033524655	Up-regulated	1.334092138
XLOC_045411	GALR1	ENSG00000166573	5.35E-05	0.035279177	Down-regulated	-1.496929477
XLOC_021877	NTS	ENSG00000133636	6.08E-05	0.038957248	Down-regulated	-2.380701038
XLOC_038680	IL21R-AS1	ENSG00000259954	7.65E-05	0.047602486	Up-regulated	2.135339435
XLOC_019807	TMPRSS5	ENSG00000166682	9.60E-05	0.056622956	Up-regulated	1.726910773
XLOC_010038	GAD2	ENSG00000136750	9.62E-05	0.056622956	Down-regulated	-1.110694007
XLOC_095431	NA	NA	0.000102259	0.058605337	Up-regulated	1.56811158
XLOC_085336	BECN1P2	ENSG00000219669	0.000108135	0.060383914	Up-regulated	1.591174015
XLOC_083145	GABRB2	ENSG00000145864	0.000119758	0.065202282	Down-regulated	-1.171870096

XLOC_093647	RNY4	ENSG00000252316	0.000143938	0.076455785	Down-regulated	-6.321896963
XLOC_053201	GAD1	ENSG00000128683	0.00016957	0.08790477	Down-regulated	-1.250264578
XLOC_098122	STMN2	ENSG00000104435	0.000173565	0.08790477	Down-regulated	-1.06482101
XLOC_016793	UBASH3B	ENSG00000154127	0.000186436	0.0916026	Down-regulated	-1.056119823
XLOC_099883	NEFL	ENSG00000277586	0.000189279	0.0916026	Down-regulated	-1.074631384
XLOC_083672	NA	NA	0.000197708	0.093601816	Down-regulated	-5.392060033
XLOC_101954	RN7SL5P	ENSG00000265735	0.000208767	0.096734548	Down-regulated	-3.712307174
XLOC_057258	NXPH2	ENSG00000144227	0.000215238	0.097655227	Down-regulated	-1.878291669
XLOC_085339	NA	NA	0.000222662	0.098961889	Up-regulated	1.447579655
XLOC_085334	NA	NA	0.000238182	0.103742409	Up-regulated	1.511850343
XLOC_000018	RP5-857K21.7	ENSG00000229344	0.000244122	0.104244738	Up-regulated	3.74838912
XLOC_101107	NA	NA	0.000270221	0.113170534	Down-regulated	-1.234749542
XLOC_027849	KLHL1	ENSG00000150361	0.000309691	0.127253692	Down-regulated	-1.257486125
XLOC_081587	NA	NA	0.00036654	0.146047371	Up-regulated	1.856757644
XLOC_056461	NA	NA	0.00036884	0.146047371	Up-regulated	2.848759966
XLOC_023215	BCAT1	ENSG00000060982	0.000389113	0.151323331	Down-regulated	-1.084958739
XLOC_032569	NA	NA	0.000413142	0.157849382	Down-regulated	-1.567722066
XLOC_105013	TTC39B	ENSG00000155158	0.000420522	0.157898639	Down-regulated	-1.04227567
XLOC_100969	NCALD	ENSG00000104490	0.000496192	0.181742358	Down-regulated	-1.381908242
XLOC_022451	SRRM4	ENSG00000139767	0.000506042	0.181742358	Down-regulated	-0.994405158
XLOC_076953	GLRA3	ENSG00000145451	0.000509059	0.181742358	Down-regulated	-1.440913983
XLOC_116721	SLITRK4	ENSG00000179542	0.000542266	0.186507729	Down-regulated	-1.154634643
XLOC_078619	GPR98	ENSG00000164199	0.000551259	0.186507729	Up-regulated	0.911430549
XLOC_000233	RNU5E-1	ENSG00000199347	0.00055206	0.186507729	Down-regulated	-2.262738162
XLOC_026536	HS6ST3	ENSG00000185352	0.000556663	0.186507729	Down-regulated	-0.9679695
XLOC_105175	ELAVL2	ENSG00000107105	0.000569812	0.188020762	Down-regulated	-1.256758185
XLOC_095427	NA	NA	0.000637716	0.2072862	Up-regulated	1.673859188

XLOC_101628	CTD-2292P10.4	ENSG00000253741	0.000670206	0.214643193	Down-regulated	-1.175099489
XLOC_079581	MYOZ3	ENSG00000164591	0.000688006	0.217150707	Down-regulated	-1.429668683
XLOC_085340	NA	NA	0.000717198	0.223130564	Up-regulated	1.524412048
XLOC_051739	SNORD94	ENSG00000208772	0.000739701	0.226204476	Down-regulated	-1.447663589
XLOC_006209	RPE65	ENSG00000116745	0.000755565	0.226204476	Down-regulated	-1.884020742
XLOC_056458	NA	NA	0.000758239	0.226204476	Up-regulated	3.076147118
XLOC_090660	RGS17	ENSG00000091844	0.000769487	0.226457814	Down-regulated	-1.200285729
XLOC_057524	KCNH7	ENSG00000184611	0.000811928	0.235762309	Down-regulated	-1.108165759
XLOC_045986	SYT4	ENSG00000132872	0.000828421	0.237386127	Down-regulated	-1.417414391
XLOC_019520	SLC36A4	ENSG00000180773	0.000855389	0.241539864	Down-regulated	-0.975384104
XLOC_062128	bP-21264C1.1	ENSG00000279208	0.000865098	0.241539864	Up-regulated	2.058329242
XLOC_082782	AC005753.1	ENSG00000278925	0.000914056	0.251978624	Down-regulated	-1.05991126
XLOC_105757	NA	NA	0.000980577	0.261527129	Up-regulated	1.199435626
XLOC_072558	PRDM8	ENSG00000152784	0.000982072	0.261527129	Up-regulated	1.396484527
XLOC_023454	SLC2A13	ENSG00000151229	0.00098472	0.261527129	Down-regulated	-1.085889201
XLOC_085348	NA	NA	0.001000292	0.262462079	Up-regulated	1.684375659
XLOC_020448	IQSEC3	ENSG00000120645	0.001022219	0.265022486	Down-regulated	-0.845506416
XLOC_079850	GABRG2	ENSG00000113327	0.001050349	0.267488473	Down-regulated	-1.019639286
XLOC_045085	RAB27B	ENSG00000041353	0.001056296	0.267488473	Down-regulated	-1.400729404
XLOC_076707	RP11-92A5.2	ENSG00000250538	0.001076914	0.269575068	Down-regulated	-2.429111849
XLOC_012605	LRRC37A6P	ENSG00000230445	0.001105186	0.273508384	Up-regulated	1.06986937
XLOC_057567	SCN7A	ENSG00000136546	0.001203473	0.294485778	Down-regulated	-1.267200721
XLOC_037331	NA	NA	0.001240338	0.300134146	Down-regulated	-2.449552143
XLOC_011832	INPP5F	ENSG00000198825	0.00131261	0.314132076	Down-regulated	-1.045507511
XLOC_073155	HSPA4L	ENSG00000164070	0.001359633	0.31796044	Down-regulated	-0.950902258
XLOC_012935	GPRIN2	ENSG00000204175	0.00136696	0.31796044	Down-regulated	-1.314815102
XLOC_085327	NA	NA	0.001372407	0.31796044	Up-regulated	1.372051599

XLOC_066717	RN7SL752P	ENSG00000239437	0.001388713	0.318351513	Down-regulated	-1.720472908
XLOC_096008	NA	NA	0.001411724	0.320255404	Up-regulated	1.068425199
XLOC_075759	NAP1L5	ENSG00000177432	0.001439725	0.323240479	Down-regulated	-1.178269858
XLOC_032567	NA	NA	0.001457481	0.323881144	Down-regulated	-1.061602042
XLOC_045209	CDH7	ENSG00000081138	0.001477366	0.323881144	Down-regulated	-0.973350412
XLOC_072678	RP11-10L7.1	ENSG00000246375	0.001487194	0.323881144	Up-regulated	2.022186333
XLOC_053620	ZNF804A	ENSG00000170396	0.001536347	0.331272891	Down-regulated	-1.12566944
XLOC_034146	NA	NA	0.001556418	0.33231059	Up-regulated	1.286697465
XLOC_083664	NA	NA	0.00158235	0.334567078	Down-regulated	-3.794663611
XLOC_065344	STAC	ENSG00000144681	0.001633744	0.336407836	Down-regulated	-1.572611197
XLOC_096005	NA	NA	0.001638809	0.336407836	Up-regulated	1.318638791
XLOC_008647	NA	NA	0.001649682	0.336407836	Up-regulated	1.404893593
XLOC_085210	NA	NA	0.001652844	0.336407836	Up-regulated	3.707947649
XLOC_095834	RELN	ENSG00000189056	0.001692845	0.337214575	Down-regulated	-1.018026407
XLOC_115661	KIAA2022	ENSG00000050030	0.00169665	0.337214575	Down-regulated	-0.991290899
XLOC_113297	DACH2	ENSG00000126733	0.00170326	0.337214575	Down-regulated	-1.152975074
XLOC_078039	NA	NA	0.00177075	0.34741791	Down-regulated	-1.238851998
XLOC_092223	NA	NA	0.001815122	0.352943913	Up-regulated	2.225180046
XLOC_070680	EIF5A2	ENSG00000163577	0.001871016	0.357531583	Down-regulated	-0.990249756
XLOC_081808	HAPLN1	ENSG00000145681	0.001871549	0.357531583	Down-regulated	-1.570742245
XLOC_013839	MORN4	ENSG00000171160	0.001978848	0.374655127	Down-regulated	-0.911451744
XLOC_053111	CSRNP3	ENSG00000178662	0.001995592	0.374655127	Down-regulated	-0.958988781
XLOC_082781	NA	NA	0.002043907	0.380042993	Down-regulated	-1.162627836
XLOC_096351	CLEC5A	ENSG00000258227	0.002059192	0.380042993	Up-regulated	2.405986285
XLOC_082785	PCDH12	ENSG00000113555	0.002115769	0.385407666	Up-regulated	1.385858638
XLOC_082780	NA	NA	0.002150819	0.385407666	Down-regulated	-1.31792993
XLOC_031591	MAP3K9	ENSG00000006432	0.00215104	0.385407666	Down-regulated	-0.862037018
XLOC_076035	COL25A1	ENSG00000188517	0.002159047	0.385407666	Down-regulated	-1.064914157

XLOC_095429	NA	NA	0.002204264	0.390280249	Up-regulated	1.292848414
XLOC_037575	CALB2	ENSG00000172137	0.002265787	0.397937932	Down-regulated	-1.294298441
XLOC_089421	NA	NA	0.002353549	0.408660227	Up-regulated	1.147812533
XLOC_085337	NA	NA	0.002388218	0.408660227	Up-regulated	1.267209228
XLOC_002210	SLC25A24P1	ENSG00000241361	0.002405857	0.408660227	Up-regulated	2.548527985
XLOC_052143	SLC5A7	ENSG00000115665	0.002407936	0.408660227	Down-regulated	-1.600384435
XLOC_095507	NA	NA	0.002424034	0.408660227	Up-regulated	1.20880326
XLOC_094859	IGFBP3	ENSG00000146674	0.002439426	0.408660227	Up-regulated	1.669956812
XLOC_091415	SNX10	ENSG00000086300	0.002465099	0.409808674	Down-regulated	-1.211160139
XLOC_099292	MAPK15	ENSG00000181085	0.002497206	0.412001077	Up-regulated	1.664396683
XLOC_101972	LURAP1L	ENSG00000153714	0.002549219	0.417420255	Down-regulated	-1.214687379
XLOC_099452	ANGPT2	ENSG00000091879	0.002611552	0.419843797	Up-regulated	1.635967394
XLOC_041280	ABCC3	ENSG00000108846	0.0026318	0.419843797	Up-regulated	2.135997132
XLOC_003208	NA	NA	0.002649179	0.419843797	Down-regulated	-1.261806087
XLOC_084364	NRSN1	ENSG00000152954	0.002653306	0.419843797	Down-regulated	-0.947455239
XLOC_095505	NA	NA	0.002684191	0.419843797	Up-regulated	1.052148743
XLOC_103142	ANXA1	ENSG00000135046	0.0027106	0.419843797	Up-regulated	1.138632293
XLOC_016682	ABCG4	ENSG00000172350	0.002735319	0.419843797	Down-regulated	-1.056969424
XLOC_113853	ARHGAP36	ENSG00000147256	0.00275403	0.419843797	Down-regulated	-1.963026271
XLOC_076459	FREM3	ENSG00000183090	0.002771836	0.419843797	Down-regulated	-2.174047043
XLOC_095510	NA	NA	0.002773952	0.419843797	Up-regulated	1.036268146
XLOC_095428	NA	NA	0.002776082	0.419843797	Up-regulated	1.185776798
XLOC_078279	CARTPT	ENSG00000164326	0.002858151	0.427439811	Down-regulated	-1.402576101
XLOC_103071	PIP5K1B	ENSG00000107242	0.002865562	0.427439811	Down-regulated	-1.194780824
XLOC_008648	NA	NA	0.002915183	0.431883314	Up-regulated	1.556889919
XLOC_056355	REEP1	ENSG00000068615	0.003019712	0.442301521	Down-regulated	-1.001385448
XLOC_060082	FLJ16779	ENSG00000275620	0.003026124	0.442301521	Down-regulated	-0.953910764
XLOC_074425	NA	NA	0.003116797	0.450101347	Up-regulated	1.053320725

XLOC_013587	NA	NA	0.003135204	0.450101347	Up-regulated	2.753989392
XLOC_077495	RP11-143A12.3	ENSG00000250198	0.003141492	0.450101347	Up-regulated	1.209788746
XLOC_112448	LANCL3	ENSG00000147036	0.003189875	0.453699679	Down-regulated	-1.244755014
XLOC_095511	NA	NA	0.003208272	0.453699679	Up-regulated	0.815877135
XLOC_076806	FSTL5	ENSG00000168843	0.003269149	0.45751899	Down-regulated	-1.053534268
XLOC_011528	INA	ENSG00000148798	0.003277296	0.45751899	Down-regulated	-0.832647867
XLOC_083530	RASGEF1C	ENSG00000146090	0.003320585	0.460609587	Up-regulated	1.161121484
XLOC_027197	FRY-AS1	ENSG00000237637	0.003402343	0.468963518	Down-regulated	-1.271687728
XLOC_039916	NA	NA	0.00344742	0.471058843	Up-regulated	1.358612288
XLOC_002678	MLLT11	ENSG00000213190	0.003460805	0.471058843	Down-regulated	-1.179282937
XLOC_095400	NA	NA	0.003499037	0.473304517	Up-regulated	1.376719332
XLOC_010492	CISD1	ENSG00000122873	0.003615145	0.485079216	Down-regulated	-0.88567368
XLOC_010447	CHAT	ENSG00000070748	0.003636521	0.485079216	Down-regulated	-1.406317852
XLOC_087511	NA	NA	0.003652906	0.485079216	Up-regulated	1.050065922
XLOC_095420	NA	NA	0.003703341	0.488796112	Up-regulated	1.462757021
XLOC_075426	EPHA5	ENSG00000145242	0.003739198	0.490555708	Down-regulated	-1.076920865
XLOC_010363	RP11-20J15.5	ENSG00000277288	0.003781671	0.493157067	Down-regulated	-1.385717589
XLOC_111398	AL354822.1	ENSG00000278384	0.00382178	0.495420945	Up-regulated	1.058120268
XLOC_101496	NA	NA	0.00386576	0.498156931	Up-regulated	1.350412339
XLOC_077214	ENPP6	ENSG00000164303	0.003893054	0.498723165	Up-regulated	0.908438944
XLOC_115689	TRAPPC13P1	ENSG00000235447	0.003923953	0.499741778	Down-regulated	-1.27425216
XLOC_095411	AC092013.1	ENSG00000227785	0.003997571	0.506157506	Up-regulated	0.982344214
XLOC_068528	ZNF385D	ENSG00000151789	0.004091514	0.515057705	Down-regulated	-0.882830835
XLOC_058422	SCG2	ENSG00000171951	0.004115787	0.515135658	Down-regulated	-1.128099782
XLOC_081484	SGTB	ENSG00000197860	0.004155149	0.515945243	Down-regulated	-0.913866836
XLOC_095762	ACHE	ENSG00000087085	0.004169637	0.515945243	Down-regulated	-0.81862959
XLOC_014775	SNORA23	ENSG00000201998	0.004209212	0.517899557	Down-regulated	-1.66190084

XLOC_033739	CEMIP	ENSG00000103888	0.00429066	0.524955064	Up-regulated	0.866280112
XLOC_085349	NA	NA	0.004323161	0.525976573	Up-regulated	1.700403307
XLOC_062127	bP-21264C1.3	ENSG00000279718	0.004355685	0.526590447	Up-regulated	1.778907342
XLOC_001080	RIMKLA	ENSG00000177181	0.004377239	0.526590447	Down-regulated	-0.903933894
XLOC_007813	C1orf110	ENSG00000185860	0.004400747	0.526590447	Up-regulated	1.507872716
XLOC_033239	RP11-430B1.2	ENSG00000259577	0.004462017	0.531004403	Down-regulated	-1.616661075
XLOC_027226	DCLK1	ENSG00000133083	0.004531005	0.536128916	Down-regulated	-0.75080532
XLOC_042473	SLC47A2	ENSG00000180638	0.004554314	0.536128916	Up-regulated	2.055976491
XLOC_095506	NA	NA	0.004609951	0.538604745	Up-regulated	1.221679095
XLOC_072196	KIT	ENSG00000157404	0.004624809	0.538604745	Down-regulated	-1.04444092
XLOC_114666	MAP7D2	ENSG00000184368	0.004658039	0.539589273	Down-regulated	-0.932594724
XLOC_024869	PPTC7	ENSG00000196850	0.004723802	0.542601744	Down-regulated	-0.787664545
XLOC_030841	STXBP6	ENSG00000168952	0.004733875	0.542601744	Down-regulated	-0.825206943
XLOC_052919	LYPD6	ENSG00000187123	0.004819117	0.549480303	Down-regulated	-0.944799953
XLOC_011113	SNCG	ENSG00000173267	0.004872988	0.549702606	Down-regulated	-0.928040913
XLOC_064662	SULT4A1	ENSG00000130540	0.004879554	0.549702606	Down-regulated	-0.951236958
XLOC_033720	ANKRD34C	ENSG00000235711	0.004896791	0.549702606	Down-regulated	-1.570603357
XLOC_043954	FADS6	ENSG00000172782	0.005012799	0.559839619	Down-regulated	-0.93318688
XLOC_032808	CHRNA7	ENSG00000175344	0.005065337	0.562820913	Down-regulated	-1.288725396
XLOC_095421	NA	NA	0.005177955	0.572413756	Up-regulated	1.411702769
XLOC_017354	NRIP3	ENSG00000175352	0.005382566	0.592027898	Down-regulated	-1.191258956
XLOC_072477	PARM1	ENSG00000169116	0.005423178	0.593497381	Down-regulated	-0.76836225
XLOC_093015	PRKAR2B	ENSG00000005249	0.00555897	0.600743501	Down-regulated	-0.800946294
XLOC_105171	NA	NA	0.00556103	0.600743501	Down-regulated	-1.140716332
XLOC_045450	RP11-567M16.1	ENSG00000267287	0.005596481	0.600743501	Down-regulated	-1.47080421
XLOC_071350	D4S234E	ENSG00000168824	0.005612019	0.600743501	Down-regulated	-0.956489148

XLOC_033422	RNU5A-1	ENSG00000199568	0.005627315	0.600743501	Down-regulated	-3.256716626
XLOC_026917	WI2-1528O10.1	ENSG00000260615	0.005770202	0.612992529	Down-regulated	-1.356465617
XLOC_052605	GPR17	ENSG00000144230	0.005836537	0.617029575	Up-regulated	1.174860565
XLOC_093415	CHRM2	ENSG00000181072	0.005886553	0.618634211	Down-regulated	-1.060497687
XLOC_047151	CYP4F12	ENSG00000186204	0.005908528	0.618634211	Up-regulated	1.465993168
XLOC_087508	NA	NA	0.005943516	0.61890576	Up-regulated	1.034986228
XLOC_002407	FAM46C	ENSG00000183508	0.005967959	0.61890576	Down-regulated	-1.425145949
XLOC_061074	NA	NA	0.006100393	0.627237753	Down-regulated	-0.832063166
XLOC_004392	NA	NA	0.006105905	0.627237753	Up-regulated	0.78485509
XLOC_011159	NA	NA	0.006186041	0.632486356	Up-regulated	1.654973195
XLOC_015427	LRRC55	ENSG00000183908	0.00623952	0.634973213	Down-regulated	-1.242772075
XLOC_066193	NA	NA	0.006307518	0.638758863	Down-regulated	-1.088710851
XLOC_023385	SYT10	ENSG00000110975	0.006352896	0.638758863	Down-regulated	-1.151035902
XLOC_076709	MAP9	ENSG00000164114	0.006364711	0.638758863	Down-regulated	-0.833231489
XLOC_104494	NA	NA	0.006403694	0.6397232	Down-regulated	-1.415304375
XLOC_033723	KIAA1024	ENSG00000169330	0.00662489	0.658798373	Down-regulated	-1.015951373
XLOC_059763	RP3-461P17.10	ENSG00000269549	0.006687455	0.661865444	Up-regulated	1.209028574
XLOC_025430	ATP8A2	ENSG00000132932	0.006716515	0.661865444	Down-regulated	-0.799039811
XLOC_056050	TACR1	ENSG00000115353	0.006863468	0.671813136	Down-regulated	-1.024636982
XLOC_115906	NAP1L3	ENSG00000186310	0.006879159	0.671813136	Down-regulated	-0.9716626
XLOC_100381	GGH	ENSG00000137563	0.006987297	0.679327482	Down-regulated	-1.171307513
XLOC_058328	NA	NA	0.007223356	0.697141754	Up-regulated	1.367334109
XLOC_050324	AC092687.4	ENSG00000232056	0.00723455	0.697141754	Down-regulated	-1.108418748
XLOC_068527	RP11-180N14.1	ENSG00000272511	0.007362676	0.701058034	Down-regulated	-1.006583378
XLOC_008360	NA	NA	0.007368729	0.701058034	Down-regulated	-1.124759485
XLOC_045446	NA	NA	0.007371765	0.701058034	Up-regulated	0.925290866

XLOC_010325	RET	ENSG00000165731	0.007444226	0.704871071	Down-regulated	-1.30155794
XLOC_045883	B4GALT6	ENSG00000118276	0.007507339	0.707769859	Down-regulated	-1.041293578
XLOC_041664	NA	NA	0.007562839	0.709928937	Up-regulated	0.782589501
XLOC_096032	TSPAN12	ENSG00000106025	0.007662313	0.714523814	Down-regulated	-0.971576081
XLOC_017792	MPPED2	ENSG00000066382	0.007677407	0.714523814	Down-regulated	-0.710258871
XLOC_115994	BEX5	ENSG00000184515	0.007788762	0.72180283	Down-regulated	-1.028093273
XLOC_050643	FAM179A	ENSG00000189350	0.007829542	0.722507501	Up-regulated	1.075448401
XLOC_066198	NA	NA	0.007909649	0.726819966	Down-regulated	-1.401145083
XLOC_081146	PLCXD3	ENSG00000182836	0.007971511	0.729426777	Down-regulated	-1.341486422
XLOC_112449	XK	ENSG00000047597	0.008081149	0.735953712	Down-regulated	-0.991587892
XLOC_073702	GUCY1B3	ENSG00000061918	0.008110428	0.735953712	Down-regulated	-0.908223795
XLOC_091641	NA	NA	0.008218261	0.74101707	Up-regulated	1.219799054
XLOC_086568	NA	NA	0.008261216	0.74101707	Up-regulated	1.404776819
XLOC_075120	NA	NA	0.008271595	0.74101707	Up-regulated	1.570710937
XLOC_036557	VWA3A	ENSG00000175267	0.008334777	0.74101707	Up-regulated	0.904412034
XLOC_106288	NA	NA	0.008336357	0.74101707	Down-regulated	-0.980593394
XLOC_089626	FAXC	ENSG00000146267	0.008407559	0.744308246	Down-regulated	-0.850471731
XLOC_001376	PRKAA2	ENSG00000162409	0.008608313	0.758995278	Down-regulated	-0.754621499
XLOC_077607	RP11-823P9.4	ENSG00000279107	0.008663304	0.760763822	Up-regulated	0.901752321
XLOC_041466	PPM1E	ENSG00000175175	0.008734634	0.763947227	Down-regulated	-1.024834746
XLOC_113536	PAK3	ENSG00000077264	0.008817057	0.768060953	Down-regulated	-0.973765765
XLOC_004436	NA	NA	0.008852204	0.768060953	Up-regulated	1.326306789
XLOC_055800	BCL11A	ENSG00000119866	0.008890399	0.768313967	Down-regulated	-0.701669669
XLOC_004393	NA	NA	0.008959608	0.771234551	Up-regulated	0.760012801
XLOC_113365	TMEM35	ENSG00000126950	0.009073082	0.77737527	Down-regulated	-0.90036541
XLOC_074985	NA	NA	0.009102337	0.77737527	Up-regulated	1.340768914
XLOC_034977	MYO5C	ENSG00000128833	0.009282261	0.785603945	Up-regulated	0.697843498

XLOC_050323	RP11-245G13.2	ENSG00000271952	0.0092942	0.785603945	Down-regulated	-1.200075831
XLOC_084729	HLA-DQA1	ENSG00000196735	0.009306907	0.785603945	Up-regulated	1.456856281
XLOC_060500	NAPB	ENSG00000125814	0.009391415	0.788054098	Down-regulated	-0.917936739
XLOC_081608	NA	NA	0.009426095	0.788054098	Up-regulated	1.394837102
XLOC_072844	NPNT	ENSG00000168743	0.009444491	0.788054098	Down-regulated	-1.090514622
XLOC_020193	CLMP	ENSG00000166250	0.009504271	0.788967899	Down-regulated	-1.321386452
XLOC_007850	RXRG	ENSG00000143171	0.009592086	0.788967899	Down-regulated	-0.79514038
XLOC_001237	ELAVL4	ENSG00000162374	0.009592538	0.788967899	Down-regulated	-1.265437533
XLOC_063944	PI4KAP1	ENSG00000274602	0.009632838	0.788967899	Down-regulated	-1.455732709
XLOC_066458	ATP6V1A	ENSG00000114573	0.009639983	0.788967899	Down-regulated	-0.861810747
XLOC_028560	NA	NA	0.009672809	0.788967899	Up-regulated	3.237224495
XLOC_079728	LSM11	ENSG00000155858	0.009786584	0.791866183	Down-regulated	-0.799032849
XLOC_015005	LUZP2	ENSG00000187398	0.009814484	0.791866183	Down-regulated	-0.855443957
XLOC_045272	DOK6	ENSG00000206052	0.009817424	0.791866183	Down-regulated	-1.093437396
XLOC_105933	TRPM3	ENSG00000083067	0.009985215	0.800282056	Down-regulated	-0.706576052
XLOC_032552	NA	NA	1.45E-07	NA	Down-regulated	-7.428464485
XLOC_032561	NA	NA	6.97E-06	NA	Down-regulated	-6.668449743
XLOC_032550	NA	NA	1.07E-05	NA	Down-regulated	-6.607571822
XLOC_032555	NA	NA	2.07E-05	NA	Down-regulated	-6.090916462
XLOC_032556	NA	NA	5.40E-05	NA	Down-regulated	-5.044168336
XLOC_032554	NA	NA	7.40E-05	NA	Down-regulated	-6.598316094
XLOC_084970	ANKRD66	ENSG00000230062	0.000698072	NA	Up-regulated	4.517253307
XLOC_090915	KIF25-AS1	ENSG00000229921	0.001215806	NA	Down-regulated	-4.984027606
XLOC_032158	NA	NA	0.001279007	NA	Down-regulated	-3.707347047
XLOC_032553	NA	NA	0.001328736	NA	Down-regulated	-4.696930455
XLOC_032557	NA	NA	0.001539365	NA	Down-regulated	-5.739501253
XLOC_032559	NA	NA	0.001920748	NA	Down-regulated	-5.274013656

XLOC_074446	RP11-539L10.2	ENSG00000246526	0.002237735	NA	Up-regulated	2.303984946
XLOC_093003	NA	NA	0.002604924	NA	Up-regulated	2.41216183
XLOC_100601	RP11-653B10.1	ENSG00000253503	0.003292675	NA	Down-regulated	-3.03991699
XLOC_081581	RP11-195E2.1	ENSG00000230847	0.003758559	NA	Up-regulated	4.271242975
XLOC_085209	NA	NA	0.003926874	NA	Up-regulated	4.938222198
XLOC_014758	SNORA45B	ENSG00000212607	0.003965027	NA	Down-regulated	-4.438591897
XLOC_026938	NA	NA	0.004109253	NA	Up-regulated	3.949351513
XLOC_047744	NA	NA	0.004175012	NA	Up-regulated	4.965671471
XLOC_079363	SNORA74	ENSG00000252213	0.004236057	NA	Down-regulated	-3.201521628
XLOC_074490	NA	NA	0.00438701	NA	Up-regulated	4.788973256
XLOC_077752	IL7R	ENSG00000168685	0.004635143	NA	Up-regulated	2.047892435
XLOC_074492	NA	NA	0.004830887	NA	Up-regulated	4.645723948
XLOC_082348	NA	NA	0.00506909	NA	Up-regulated	4.377548454
XLOC_064730	NA	NA	0.005588846	NA	Up-regulated	3.039035464
XLOC_066329	NA	NA	0.005646862	NA	Down-regulated	-2.048183943
XLOC_005768	RNU5D-1	ENSG00000200169	0.005986787	NA	Down-regulated	-3.408267997
XLOC_085216	NA	NA	0.006060999	NA	Up-regulated	3.073180036
XLOC_066065	LINC00960	ENSG00000242516	0.006384965	NA	Up-regulated	3.131227829
XLOC_077166	NA	NA	0.006414684	NA	Down-regulated	-2.11202906
XLOC_085208	NA	NA	0.00667981	NA	Up-regulated	3.548874038
XLOC_052139	RGPD4	ENSG00000196862	0.006853129	NA	Down-regulated	-2.972151516
XLOC_058297	NA	NA	0.007281978	NA	Down-regulated	-3.779581571
XLOC_085219	NA	NA	0.007591608	NA	Up-regulated	5.149667303
XLOC_044491	NA	NA	0.007623288	NA	Up-regulated	1.934045348
XLOC_004009	NA	NA	0.008143536	NA	Up-regulated	3.592080028
XLOC_095254	PMS2L2	ENSG00000278416	0.008471825	NA	Down-regulated	-2.497947256

XLOC_071801	NA	NA	0.008907995	NA	Up-regulated	2.31819805
ID_PT	Gene Symbol	Ensembl Gene	pvalor	padj	Regulação em TOC	Log2FoldChange
XLOC_001742	CYR61	ENSG00000142871	5.67E-12	1.38E-07	Down-regulated	-1.790338673
XLOC_083275	DUSP1	ENSG00000120129	5.52E-11	5.52E-07	Down-regulated	-1.752041024
XLOC_097439	SNORD13	ENSG00000239039	6.81E-11	5.52E-07	Down-regulated	-1.702537254
XLOC_033424	RNU5B-1	ENSG00000200156	1.86E-10	1.13E-06	Down-regulated	-1.255635192
XLOC_033422	RNU5A-1	ENSG00000199568	1.08E-09	5.25E-06	Down-regulated	-1.432774751
XLOC_017176	SNORA54	ENSG00000207008	2.99E-09	1.21E-05	Down-regulated	-1.163498938
XLOC_056458	NA	NA	1.33E-08	4.61E-05	Up-regulated	4.086972731
XLOC_047066	JUNB	ENSG00000171223	1.83E-08	5.56E-05	Down-regulated	-1.553981024
XLOC_047867	FOSB	ENSG00000125740	2.15E-08	5.80E-05	Down-regulated	-1.507284295
XLOC_028493	GPR183	ENSG00000169508	1.14E-07	0.000277937	Down-regulated	-2.914460894
XLOC_084698	HSPA1B	ENSG00000204388	3.91E-07	0.000864278	Down-regulated	-1.165927449
XLOC_003988	ATF3	ENSG00000162772	6.81E-07	0.001379504	Down-regulated	-1.256724724
XLOC_084696	HSPA1A	ENSG00000204389	1.58E-06	0.002962462	Down-regulated	-1.081514483
XLOC_003797	BTG2	ENSG00000159388	1.84E-06	0.00319566	Down-regulated	-1.278541728
XLOC_062157	NA	NA	3.05E-06	0.004935765	Up-regulated	1.273100074
XLOC_006089	JUN	ENSG00000177606	6.19E-06	0.009405901	Down-regulated	-1.112277342
XLOC_080297	RGS14	ENSG00000169220	9.56E-06	0.013333281	Down-regulated	-0.761558296
XLOC_056461	NA	NA	9.87E-06	0.013333281	Up-regulated	3.300094187
XLOC_068052	HES1	ENSG00000114315	1.13E-05	0.013625038	Down-regulated	-1.260154539
XLOC_082780	NA	NA	1.14E-05	0.013625038	Down-regulated	-1.083590061
XLOC_050634	RP11-373D23.2	ENSG00000270640	1.18E-05	0.013625038	Down-regulated	-1.611564668
XLOC_063944	PI4KAP1	ENSG00000274602	1.25E-05	0.013775733	Down-regulated	-1.825532022
XLOC_021304	NR4A1	ENSG00000123358	1.46E-05	0.015472537	Down-regulated	-2.475854419
XLOC_063790	NA	NA	1.61E-05	0.015876811	Down-regulated	-0.853862667
XLOC_002150	NA	NA	1.70E-05	0.015876811	Down-regulated	-1.006524893

XLOC_074238	ANKRD37	ENSG00000186352	1.72E-05	0.015876811	Down-regulated	-1.488025583
XLOC_095996	NA	NA	1.76E-05	0.015876811	Up-regulated	1.748415534
XLOC_096008	NA	NA	1.90E-05	0.01646767	Up-regulated	1.170221003
XLOC_032158	NA	NA	2.07E-05	0.017391249	Down-regulated	-3.923861415
XLOC_038842	HERC2P4	ENSG00000230267	2.42E-05	0.019576543	Up-regulated	2.179642146
XLOC_085210	NA	NA	2.70E-05	0.021182884	Up-regulated	3.254788951
XLOC_047091	IER2	ENSG00000160888	3.14E-05	0.023892497	Down-regulated	-1.130913022
XLOC_082781	NA	NA	3.61E-05	0.026614299	Down-regulated	-0.976627573
XLOC_111684	NA	NA	4.04E-05	0.028907445	Down-regulated	-1.655541303
XLOC_019807	TMPRSS5	ENSG00000166682	4.34E-05	0.030159287	Up-regulated	1.01853569
XLOC_064934	FBLN2	ENSG00000163520	5.14E-05	0.034739602	Down-regulated	-1.097765185
XLOC_062156	NA	NA	6.86E-05	0.045083196	Up-regulated	1.115811699
XLOC_012297	NA	NA	7.15E-05	0.045721664	Up-regulated	1.493711492
XLOC_022958	SLC2A3	ENSG00000059804	8.43E-05	0.052563129	Down-regulated	-0.903647752
XLOC_077557	NA	NA	0.000102558	0.06233494	Up-regulated	1.250330142
XLOC_038483	NPIPA5	ENSG00000183793	0.000111201	0.064567671	Down-regulated	-3.164925851
XLOC_047975	PPP1R15A	ENSG00000087074	0.000111543	0.064567671	Down-regulated	-0.906740437
XLOC_028495	NA	NA	0.000124375	0.068915437	Down-regulated	-3.326182464
XLOC_037319	NA	NA	0.000124724	0.068915437	Down-regulated	-1.108030597
XLOC_022733	SNORA49	ENSG00000208892	0.000145487	0.07860166	Down-regulated	-0.71993892
XLOC_000677	THEMIS2	ENSG00000130775	0.000152394	0.080543423	Down-regulated	-1.073760327
XLOC_106621	KLF4	ENSG00000136826	0.000168456	0.087138556	Down-regulated	-1.478741183
XLOC_102946	NA	NA	0.000193486	0.097556379	Up-regulated	3.143811482
XLOC_032829	CHRM5	ENSG00000184984	0.00019772	0.097556379	Up-regulated	3.503468073
XLOC_015751	NPAS4	ENSG00000174576	0.000200634	0.097556379	Down-regulated	-3.991710584
XLOC_114725	AC004470.1	ENSG00000277735	0.000206734	0.098551509	Down-regulated	-1.251886507
XLOC_033741	MESDC1	ENSG00000140406	0.000215243	0.100634502	Down-regulated	-0.724122571
XLOC_083547	FLT4	ENSG00000037280	0.000222134	0.10182481	Down-regulated	-1.054367325

XLOC_037331	NA	NA	0.000226166	0.10182481	Down-regulated	-1.962102411
XLOC_102947	NA	NA	0.000232644	0.102837238	Up-regulated	3.013634266
XLOC_022445	RPS2P5	ENSG00000240342	0.000238429	0.103512062	Down-regulated	-4.393764243
XLOC_035958	HBA2	ENSG00000188536	0.000264452	0.112795676	Down-regulated	-1.896573708
XLOC_062127	bP-21264C1.3	ENSG00000279718	0.000273262	0.114543828	Up-regulated	2.411597114
XLOC_074333	CPLX1	ENSG00000168993	0.000283816	0.116788394	Down-regulated	-0.591332158
XLOC_112587	NA	NA	0.000288224	0.116788394	Up-regulated	9.189599281
XLOC_002147	NA	NA	0.000293278	0.116887928	Down-regulated	-0.875240781
XLOC_017465	NA	NA	0.000301945	0.118401347	Down-regulated	-2.212689558
XLOC_030056	FOS	ENSG00000170345	0.000313341	0.120919939	Down-regulated	-1.809118766
XLOC_099746	LZTS1	ENSG00000061337	0.000356828	0.135550146	Down-regulated	-0.636673719
XLOC_062062	NA	NA	0.000373269	0.139614115	Down-regulated	-2.268431473
XLOC_095510	NA	NA	0.000406775	0.147793082	Up-regulated	0.692181817
XLOC_090834	RP1-301L19.1	ENSG00000225683	0.000407294	0.147793082	Up-regulated	0.798798329
XLOC_079346	EGR1	ENSG00000120738	0.0004707	0.168288923	Down-regulated	-0.934394942
XLOC_082782	AC005753.1	ENSG00000278925	0.000490177	0.172712961	Down-regulated	-0.906318411
XLOC_080256	CPLX2	ENSG00000145920	0.000523447	0.180245632	Down-regulated	-0.545511434
XLOC_031755	DIO2	ENSG00000211448	0.00053054	0.180245632	Down-regulated	-0.611348024
XLOC_107609	NRARP	ENSG00000198435	0.000536759	0.180245632	Down-regulated	-0.964154837
XLOC_056659	AC092168.4	ENSG00000228488	0.000541211	0.180245632	Down-regulated	-0.848944823
XLOC_017467	LINC00958	ENSG00000251381	0.000571412	0.187731862	Down-regulated	-1.947718629
XLOC_048861	DNAJB1	ENSG00000132002	0.000582814	0.18800005	Down-regulated	-0.73224114
XLOC_013746	PPP1R3C	ENSG00000119938	0.000587693	0.18800005	Down-regulated	-0.591121694
XLOC_028505	NA	NA	0.000609065	0.192306354	Up-regulated	0.832303563
XLOC_085216	NA	NA	0.000654675	0.204057084	Up-regulated	2.844129137
XLOC_094352	NA	NA	0.000675508	0.207885567	Up-regulated	2.52174903
XLOC_087665	SMOC2	ENSG00000112562	0.000692246	0.210373463	Down-regulated	-0.735703025

XLOC_062623	SNORA80A	ENSG00000200792	0.000736778	0.216231716	Down-regulated	-1.393759859
XLOC_055994	PAIP2B	ENSG00000124374	0.000743076	0.216231716	Up-regulated	0.555792605
XLOC_080157	CTC-575D19.1	ENSG00000233913	0.000743364	0.216231716	Down-regulated	-2.954544608
XLOC_014430	LINC01165	ENSG00000229081	0.000747099	0.216231716	Down-regulated	-1.070148464
XLOC_115163	PCSK1N	ENSG00000102109	0.00077945	0.218794233	Down-regulated	-0.943456874
XLOC_117385	MAFIP	ENSG00000278212	0.000779921	0.218794233	Up-regulated	2.820730271
XLOC_100787	RP11-37B2.1	ENSG00000251136	0.000787181	0.218794233	Up-regulated	0.591503948
XLOC_094130	ETV1	ENSG00000006468	0.00079195	0.218794233	Down-regulated	-0.597116758
XLOC_057181	RP11-629P16.1	ENSG00000271179	0.00081829	0.219611258	Up-regulated	1.25972358
XLOC_041663	NA	NA	0.00082024	0.219611258	Up-regulated	0.69507174
XLOC_104448	SLC25A25	ENSG00000148339	0.000825932	0.219611258	Down-regulated	-0.706034918
XLOC_061383	bP-2189O9.2	ENSG00000278931	0.00083104	0.219611258	Up-regulated	1.670557291
XLOC_043147	GFAP	ENSG00000131095	0.000883631	0.230998189	Up-regulated	0.866671617
XLOC_055432	ZFP36L2	ENSG00000152518	0.000897896	0.232230193	Down-regulated	-0.608397321
XLOC_028504	NA	NA	0.00092252	0.23608748	Up-regulated	0.986495169
XLOC_103905	NR4A3	ENSG00000119508	0.000998159	0.252783812	Down-regulated	-2.302858513
XLOC_035959	HBA1	ENSG00000206172	0.001012882	0.253867973	Down-regulated	-1.796352292
XLOC_111440	NA	NA	0.001029205	0.255326759	Up-regulated	2.26182028
XLOC_002097	PALMD	ENSG00000099260	0.001060636	0.256374816	Up-regulated	0.885528533
XLOC_096005	NA	NA	0.001065644	0.256374816	Up-regulated	1.198680757
XLOC_023655	DDN	ENSG00000181418	0.001066996	0.256374816	Down-regulated	-0.53989635
XLOC_056661	NA	NA	0.00107561	0.256374816	Down-regulated	-1.00706332
XLOC_010363	RP11-20J15.5	ENSG00000277288	0.001092915	0.256514491	Down-regulated	-1.110176935
XLOC_022166	NA	NA	0.001101223	0.256514491	Up-regulated	0.780350773
XLOC_087511	NA	NA	0.001107849	0.256514491	Up-regulated	0.894919331
XLOC_019973	SCN4B	ENSG00000177098	0.001139938	0.261305488	Down-regulated	-0.545038549
XLOC_024966	NOS1	ENSG00000089250	0.001150036	0.261305488	Down-regulated	-0.52361713

XLOC_111405	NA	NA	0.001211329	0.270312557	Up-regulated	1.821276804
XLOC_102937	NA	NA	0.001211915	0.270312557	Up-regulated	1.362196059
XLOC_096320	HIPK2	ENSG00000064393	0.001273097	0.281377684	Up-regulated	0.547236082
XLOC_035282	NA	NA	0.001289224	0.281438609	Up-regulated	1.622007434
XLOC_029044	NA	NA	0.001296525	0.281438609	Down-regulated	-0.84748728
XLOC_090921	DACT2	ENSG00000164488	0.00133713	0.286109513	Down-regulated	-0.581621557
XLOC_065855	SYNPR	ENSG00000163630	0.00134158	0.286109513	Down-regulated	-0.691343274
XLOC_079525	SH3RF2	ENSG00000156463	0.00142169	0.300557575	Down-regulated	-0.593092215
XLOC_092926	COL26A1	ENSG00000160963	0.001445733	0.303005687	Down-regulated	-0.973349793
XLOC_002153	NA	NA	0.001479552	0.3066011	Down-regulated	-1.256569772
XLOC_058300	4-Mar	ENSG00000144583	0.00148811	0.3066011	Down-regulated	-0.684477782
XLOC_100805	CALB1	ENSG00000104327	0.001537271	0.314068341	Down-regulated	-0.6745275
XLOC_064817	NA	NA	0.00160658	0.325493155	Down-regulated	-0.800023063
XLOC_021303	GRASP	ENSG00000161835	0.001634217	0.328356139	Down-regulated	-0.593072796
XLOC_038099	FBXL16	ENSG00000127585	0.001710833	0.340932493	Down-regulated	-0.543508836
XLOC_101107	NA	NA	0.001738789	0.3436865	Down-regulated	-0.780768041
XLOC_019683	NA	NA	0.001778259	0.346353735	Up-regulated	0.967018082
XLOC_096578	KCNH2	ENSG00000055118	0.001780776	0.346353735	Down-regulated	-0.632482059
XLOC_096835	GS1-57L11.1	ENSG00000253853	0.001806941	0.34865349	Down-regulated	-1.151329603
XLOC_053942	NA	NA	0.001857209	0.350774501	Up-regulated	1.671269335
XLOC_041024	ARL4D	ENSG00000175906	0.001871005	0.350774501	Down-regulated	-0.951337627
XLOC_111355	NA	NA	0.001888819	0.350774501	Up-regulated	1.101049604
XLOC_000233	RNU5E-1	ENSG00000199347	0.001898175	0.350774501	Down-regulated	-1.274187836
XLOC_037796	NECAB2	ENSG00000103154	0.001905436	0.350774501	Down-regulated	-0.701642783
XLOC_016006	SERPINH1	ENSG00000149257	0.001915011	0.350774501	Down-regulated	-0.928761109
XLOC_048215	PRKCG	ENSG00000126583	0.001918929	0.350774501	Down-regulated	-0.687905078
XLOC_043853	NA	NA	0.001939749	0.35193423	Down-regulated	-0.776347051
XLOC_028123	SLITRK6	ENSG00000184564	0.001958402	0.351971839	Down-regulated	-0.690182192

XLOC_013664	CH25H	ENSG00000138135	0.001968911	0.351971839	Down-regulated	-1.316613974
XLOC_070566	CCNL1	ENSG00000163660	0.002016964	0.357930135	Down-regulated	-0.656884905
XLOC_051731	ATOH8	ENSG00000168874	0.002041914	0.359731958	Up-regulated	0.892513476
XLOC_039552	NA	NA	0.002089721	0.36550573	Up-regulated	0.78696433
XLOC_024995	RNU4-2	ENSG00000202538	0.00212754	0.368642832	Down-regulated	-0.526475161
XLOC_059714	RNU6-1251P	ENSG00000201372	0.002145949	0.368642832	Up-regulated	0.813509206
XLOC_058328	NA	NA	0.002153146	0.368642832	Up-regulated	1.213394437
XLOC_036002	CACNA1H	ENSG00000196557	0.002169644	0.368869814	Down-regulated	-0.531649973
XLOC_034403	RP13-395E19.2	ENSG00000260211	0.002224787	0.374816985	Down-regulated	-2.875982353
XLOC_003465	NA	NA	0.002235458	0.374816985	Down-regulated	-0.823164728
XLOC_023044	CD69	ENSG00000110848	0.002268145	0.377692671	Down-regulated	-2.07910939
XLOC_031874	CCDC88C	ENSG00000015133	0.002411766	0.397056145	Down-regulated	-0.472555997
XLOC_096727	PTPRN2	ENSG00000155093	0.002417091	0.397056145	Down-regulated	-0.482976998
XLOC_022365	RPH3A	ENSG00000089169	0.002447411	0.399338711	Down-regulated	-0.886693186
XLOC_064501	KCNJ4	ENSG00000168135	0.002529259	0.409089782	Down-regulated	-0.606600992
XLOC_096848	NA	NA	0.002559083	0.409089782	Down-regulated	-1.194324897
XLOC_002440	AC253572.1	ENSG00000278882	0.002580616	0.409089782	Up-regulated	1.70109908
XLOC_000034	ISG15	ENSG00000187608	0.00258714	0.409089782	Down-regulated	-1.247685568
XLOC_111339	NA	NA	0.002602931	0.409089782	Down-regulated	-1.662429463
XLOC_031250	NA	NA	0.002608132	0.409089782	Up-regulated	1.059509993
XLOC_023822	PPP1R1A	ENSG00000135447	0.002653203	0.409573822	Down-regulated	-0.54043084
XLOC_095769	VGF	ENSG00000128564	0.002661182	0.409573822	Down-regulated	-0.814243768
XLOC_061320	CH507-42P11.8	ENSG00000275993	0.002661758	0.409573822	Down-regulated	-1.886934775
XLOC_112279	SAT1	ENSG00000130066	0.00267988	0.409685732	Down-regulated	-0.83833618
XLOC_063667	RNU12	ENSG00000270022	0.002696541	0.409685732	Down-regulated	-0.633128426
XLOC_047333	NA	NA	0.002713039	0.409685732	Down-regulated	-0.832510131
XLOC_101623	ARC	ENSG00000198576	0.002779213	0.417087872	Down-regulated	-1.080793234

XLOC_099968	DUSP4	ENSG00000120875	0.002812049	0.419426574	Down-regulated	-1.337257376
XLOC_058375	PTPRN	ENSG00000054356	0.002848864	0.422326783	Down-regulated	-0.64975106
XLOC_061263	HELZ2	ENSG00000130589	0.002960824	0.435817353	Down-regulated	-0.733498807
XLOC_031780	UNGP3	ENSG00000270343	0.002975719	0.435817353	Up-regulated	0.809440268
XLOC_041662	NA	NA	0.003005207	0.436506007	Up-regulated	0.622707148
XLOC_114700	PTCHD1-AS	ENSG00000233067	0.00301633	0.436506007	Down-regulated	-0.536825099
XLOC_092919	AP1S1	ENSG00000106367	0.003049047	0.438629765	Down-regulated	-0.568922425
XLOC_114726	NA	NA	0.003104469	0.441909217	Down-regulated	-1.073695983
XLOC_107348	MIR219A2	ENSG00000207955	0.003108197	0.441909217	Down-regulated	-0.656706804
XLOC_113908	LINC00086	ENSG00000178947	0.003158322	0.442041372	Down-regulated	-0.53448249
XLOC_022780	WASH7P	ENSG00000226210	0.003169919	0.442041372	Up-regulated	0.892504633
XLOC_058544	NGEF	ENSG00000066248	0.003172954	0.442041372	Down-regulated	-0.493058353
XLOC_058327	RPL7L1P9	ENSG00000231035	0.003181854	0.442041372	Up-regulated	1.251626638
XLOC_048878	NOTCH3	ENSG00000074181	0.003206994	0.443002488	Down-regulated	-0.6528247
XLOC_056663	NA	NA	0.003232147	0.443954502	Down-regulated	-0.976760331
XLOC_050970	RP11-477N3.1	ENSG00000272156	0.003374398	0.459397675	Up-regulated	0.777367671
XLOC_096492	RNY1	ENSG00000201098	0.00339822	0.459397675	Down-regulated	-0.584814483
XLOC_038680	IL21R-AS1	ENSG00000259954	0.003401266	0.459397675	Up-regulated	1.490945182
XLOC_103696	MIR3153	ENSG00000265112	0.003489281	0.46786164	Down-regulated	-2.36690996
XLOC_016910	NRGN	ENSG00000154146	0.003502419	0.46786164	Down-regulated	-0.544767109
XLOC_066927	NA	NA	0.003561718	0.473183039	Up-regulated	1.024721015
XLOC_009911	CACNB2	ENSG00000165995	0.003615436	0.476261864	Down-regulated	-0.542668738
XLOC_000852	NCDN	ENSG00000020129	0.003624072	0.476261864	Down-regulated	-0.451141857
XLOC_104204	NA	NA	0.003680094	0.478514423	Up-regulated	1.142780221
XLOC_091426	NA	NA	0.003680577	0.478514423	Up-regulated	0.955359942
XLOC_056047	AC104135.2	ENSG00000236209	0.003706189	0.479281149	Up-regulated	2.108174818
XLOC_076701	DCHS2	ENSG00000197410	0.003779601	0.4861887	Down-regulated	-0.700496431

XLOC_064823	BHLHE40	ENSG00000134107	0.003993753	0.51096134	Down-regulated	-0.707039688
XLOC_111398	AL354822.1	ENSG00000278384	0.004014216	0.51096134	Up-regulated	0.784401004
XLOC_008574	SYT2	ENSG00000143858	0.004067306	0.515022656	Down-regulated	-0.683049391
XLOC_104472	RP11-339B21.8	ENSG00000228510	0.004110208	0.516258835	Up-regulated	1.501143478
XLOC_061107	BCAS1	ENSG00000064787	0.004119538	0.516258835	Up-regulated	0.434609372
XLOC_051739	SNORD94	ENSG00000208772	0.004264964	0.52913512	Down-regulated	-0.601178977
XLOC_074498	NA	NA	0.004265815	0.52913512	Down-regulated	-0.887585761
XLOC_057182	NA	NA	0.00443516	0.544856933	Up-regulated	1.416469915
XLOC_078245	SMN2	ENSG00000205571	0.004459301	0.544856933	Up-regulated	1.832385169
XLOC_013208	TMEM26	ENSG00000196932	0.00446618	0.544856933	Up-regulated	1.765684844
XLOC_070070	SLCO2A1	ENSG00000174640	0.004482206	0.544856933	Up-regulated	2.527845307
XLOC_065685	STAB1	ENSG00000010327	0.004528092	0.547049708	Up-regulated	0.517568538
XLOC_102956	NA	NA	0.004545247	0.547049708	Up-regulated	0.999058346
XLOC_008104	RP11-318C24.2	ENSG00000227740	0.004607958	0.551865411	Up-regulated	1.163867712
XLOC_024403	NA	NA	0.004634933	0.552375013	Down-regulated	-0.710223028
XLOC_019682	NA	NA	0.004697043	0.557046366	Up-regulated	1.47051063
XLOC_028503	NA	NA	0.004784449	0.562073548	Up-regulated	0.657827161
XLOC_061074	NA	NA	0.004785671	0.562073548	Down-regulated	-0.532670752
XLOC_038101	CCDC78	ENSG00000162004	0.004931866	0.574269381	Down-regulated	-0.695147265
XLOC_016004	SNORD15B	ENSG00000207445	0.004936751	0.574269381	Down-regulated	-0.644696615
XLOC_095997	NA	NA	0.005007683	0.578781904	Up-regulated	1.293405893
XLOC_059530	SLC32A1	ENSG00000101438	0.005023157	0.578781904	Down-regulated	-0.466040144
XLOC_017125	SLC25A22	ENSG00000177542	0.005073346	0.581164977	Down-regulated	-0.657680064
XLOC_096004	NA	NA	0.00512539	0.581164977	Up-regulated	1.980803901
XLOC_093343	NA	NA	0.005150634	0.581164977	Up-regulated	1.058413976
XLOC_111404	NA	NA	0.005161667	0.581164977	Up-regulated	1.231867614
XLOC_015726	CCDC85B	ENSG00000175602	0.005206625	0.581164977	Down-regulated	-0.776156782

XLOC_103515	IDNK	ENSG00000148057	0.005243066	0.581164977	Down-regulated	-0.628088305
XLOC_063442	NA	NA	0.005251096	0.581164977	Up-regulated	1.744930177
XLOC_064857	NA	NA	0.005267621	0.581164977	Up-regulated	1.787867475
XLOC_040918	PPP1R1B	ENSG00000131771	0.005281168	0.581164977	Down-regulated	-0.472685965
XLOC_055205	NA	NA	0.005289418	0.581164977	Up-regulated	1.172339294
XLOC_043647	MPO	ENSG00000005381	0.005313044	0.581164977	Down-regulated	-1.533500313
XLOC_030625	CEP170B	ENSG00000099814	0.005330692	0.581164977	Down-regulated	-0.534244072
XLOC_009343	NID1	ENSG00000116962	0.00552717	0.599895312	Down-regulated	-0.678512432
XLOC_035463	CHRNA3	ENSG00000080644	0.005907187	0.636521688	Up-regulated	1.098601955
XLOC_102836	NA	NA	0.005916992	0.636521688	Up-regulated	2.24314945
XLOC_058579	NA	NA	0.005985774	0.638203937	Up-regulated	1.418015033
XLOC_056665	NA	NA	0.006004276	0.638203937	Down-regulated	-0.646869626
XLOC_084772	HMGA1	ENSG00000137309	0.006011381	0.638203937	Down-regulated	-0.558569385
XLOC_077828	C7	ENSG00000112936	0.006041288	0.638590359	Down-regulated	-0.832222119
XLOC_047923	C5AR1	ENSG00000197405	0.006123183	0.644445164	Down-regulated	-1.569772523
XLOC_006453	MCOLN3	ENSG00000055732	0.00625493	0.655473499	Up-regulated	1.588791033
XLOC_064819	NA	NA	0.006364685	0.661629221	Down-regulated	-0.635685908
XLOC_031964	NA	NA	0.0063681	0.661629221	Down-regulated	-0.624902592
XLOC_060632	NA	NA	0.006402038	0.662324925	Up-regulated	1.072435419
XLOC_117396	NA	NA	0.006458858	0.663511751	Up-regulated	1.611938126
XLOC_067852	SNORA63	ENSG00000201229	0.006479037	0.663511751	Down-regulated	-0.896493587
XLOC_098064	NA	NA	0.006495385	0.663511751	Up-regulated	0.826789793
XLOC_092832	NPTX2	ENSG00000106236	0.006543238	0.66560332	Down-regulated	-1.082625089
XLOC_031719	IRF2BPL	ENSG00000119669	0.006597704	0.668347414	Down-regulated	-0.513196194
XLOC_069245	CNTN3	ENSG00000113805	0.006641109	0.669952912	Down-regulated	-0.678586905
XLOC_058581	NA	NA	0.006739006	0.674561372	Up-regulated	1.323269231
XLOC_080288	UNC5A	ENSG00000113763	0.006748841	0.674561372	Down-regulated	-0.548842821
XLOC_017245	HBB	ENSG00000244734	0.00677003	0.674561372	Down-regulated	-2.586801347

XLOC_066707	HMCES	ENSG00000183624	0.006860653	0.678981589	Down-regulated	-0.482959167
XLOC_116110	CHRD1	ENSG00000101938	0.006870248	0.678981589	Down-regulated	-0.640930192
XLOC_084728	HLA-DRA	ENSG00000204287	0.006922719	0.681397337	Down-regulated	-0.707327409
XLOC_103553	NA	NA	0.006982786	0.684538267	Up-regulated	2.029067287
XLOC_067850	B3GNT5	ENSG00000176597	0.007047386	0.688096535	Down-regulated	-0.959511497
XLOC_093341	NA	NA	0.007213648	0.701512868	Up-regulated	1.233725203
XLOC_059524	SNORA60	ENSG00000199266	0.007291593	0.706267778	Down-regulated	-1.207467065
XLOC_026418	SLITRK5	ENSG00000165300	0.007562591	0.728044582	Down-regulated	-0.422662545
XLOC_000782	HPCA	ENSG00000121905	0.007576311	0.728044582	Down-regulated	-0.456677846
XLOC_003239	FMO2	ENSG00000094963	0.007644839	0.731737502	Up-regulated	0.870610439
XLOC_093370	NA	NA	0.00768268	0.732475777	Up-regulated	0.58554654
XLOC_021955	NA	NA	0.007748363	0.735852328	Down-regulated	-0.674051228
XLOC_002266	SLC6A17	ENSG00000197106	0.007809691	0.737024188	Down-regulated	-0.437461713
XLOC_013252	EGR2	ENSG00000122877	0.007841157	0.737024188	Down-regulated	-1.126322164
XLOC_014431	NA	NA	0.007851648	0.737024188	Down-regulated	-0.644782387
XLOC_064095	CHCHD10	ENSG00000250479	0.007906149	0.739285716	Down-regulated	-0.494250969
XLOC_087953	NA	NA	0.007983023	0.740825632	Down-regulated	-1.13129704
XLOC_038456	RP11-65J21.4	ENSG00000263257	0.00798356	0.740825632	Up-regulated	1.57931513
XLOC_033249	UNC13C	ENSG00000137766	0.008237067	0.761443268	Down-regulated	-0.450629397
XLOC_006200	NA	NA	0.008294638	0.762715751	Up-regulated	0.647375202
XLOC_048485	KLF16	ENSG00000129911	0.008320873	0.762715751	Down-regulated	-0.568444748
XLOC_027684	NA	NA	0.00834616	0.762715751	Up-regulated	0.505268444
XLOC_027685	NA	NA	0.008388334	0.762715751	Up-regulated	0.426093332
XLOC_068047	NA	NA	0.008407693	0.762715751	Up-regulated	0.801676501
XLOC_019436	NA	NA	0.008485308	0.766895196	Up-regulated	1.123864649
XLOC_021908	LINC00936	ENSG00000271614	0.008593721	0.773816795	Down-regulated	-0.610995937
XLOC_077607	RP11-823P9.4	ENSG00000279107	0.008794495	0.786105624	Up-regulated	0.809867565

XLOC_054818	FLJ33534	ENSG00000145063	0.008794864	0.786105624	Down-regulated	-0.626058431
XLOC_048751	CDKN2D	ENSG00000129355	0.008829724	0.78633062	Down-regulated	-0.517502025
XLOC_048967	JUND	ENSG00000130522	0.008946399	0.791110603	Down-regulated	-0.465728673
XLOC_016312	MTNR1B	ENSG00000134640	0.00896461	0.791110603	Down-regulated	-1.185648617
XLOC_066389	NA	NA	0.008981019	0.791110603	Up-regulated	1.413930359
XLOC_070313	NA	NA	0.009161195	0.804068522	Down-regulated	-1.152141155
XLOC_048447	LPPR3;	ENSG00000129951	0.009362519	0.812431208	Down-regulated	-0.626950869
XLOC_095507	NA	NA	0.009409027	0.812431208	Up-regulated	0.811288604
XLOC_068726	CSRNP1	ENSG00000144655	0.009451495	0.812431208	Down-regulated	-0.955871742
XLOC_059461	TP53INP2	ENSG00000078804	0.009511298	0.812431208	Up-regulated	0.449581889
XLOC_048503	LINGO3	ENSG00000220008	0.009524544	0.812431208	Down-regulated	-0.522938126
XLOC_035143	CA12	ENSG00000074410	0.009537324	0.812431208	Down-regulated	-0.509514905
XLOC_030931	NA	NA	0.009545985	0.812431208	Down-regulated	-2.19064111
XLOC_102958	NA	NA	0.009554757	0.812431208	Up-regulated	1.010450585
XLOC_002992	HSPA6	ENSG00000173110	0.009587043	0.812431208	Down-regulated	-1.589254593
XLOC_062128	bP- 21264C1.1	ENSG00000279208	0.009590645	0.812431208	Up-regulated	1.581050787
XLOC_046983	ICAM5	ENSG00000105376	0.009767478	0.824537942	Down-regulated	-0.538849617
XLOC_047335	NA	NA	0.009878649	0.831037066	Down-regulated	-1.162965218
XLOC_044754	TTR	ENSG00000118271	0.009988814	0.834064338	Down-regulated	-2.332345726
XLOC_039551	NA	NA	0.009994258	0.834064338	Up-regulated	0.837280212
XLOC_112583	NA	NA	3.35E-05	NA	Up-regulated	5.972626717
XLOC_111688	NA	NA	0.000436447	NA	Down-regulated	-2.981980582
XLOC_063236	DDTL	ENSG00000099974	0.000821933	NA	Down-regulated	-5.15658473
XLOC_099211	NA	NA	0.000858646	NA	Down-regulated	-2.927534825
XLOC_115336	ALAS2	ENSG00000158578	0.002062935	NA	Down-regulated	-3.284799801
XLOC_085208	NA	NA	0.002552688	NA	Up-regulated	2.974217946
XLOC_026608	NA	NA	0.003936267	NA	Down-regulated	-3.863716551

XLOC_112584	NA	NA	0.005751495	NA	Up-regulated	4.786918905
XLOC_020856	NA	NA	0.006171814	NA	Up-regulated	2.008173068
XLOC_028069	NA	NA	0.006977461	NA	Up-regulated	3.372101305
XLOC_111443	NA	NA	0.007676812	NA	Up-regulated	3.338598109
XLOC_085352	NA	NA	0.008422309	NA	Up-regulated	3.327098387
XLOC_044389	NA	NA	0.009546948	NA	Up-regulated	3.327973502
XLOC_084474	NA	NA	0.009578477	NA	Up-regulated	2.246107608
XLOC_060931	NA	NA	0.009701249	NA	Up-regulated	2.892825432

Anexo 4. Análise de enriquecimento dos DEGs para categorias funcionais das regiões estriatais.

Geneset_CN	Description	pvalor	FDR
GO:0006955	immune response	0	0
GO:0002376	immune system process	2.07E-13	7.68E-10
GO:0006952	defense response	3.16E-12	7.8E-09
GO:0002682	regulation of immune system process	1.82E-11	2.92E-08
GO:0006954	inflammatory response	2.17E-11	2.92E-08
GO:0060333	interferon-gamma-mediated signaling pathway	2.37E-11	2.92E-08
GO:0002252	immune effector process	3.19E-11	3.38E-08
GO:0045087	innate immune response	3.7E-11	3.43E-08
GO:0050776	regulation of immune response	6.39E-11	5.26E-08
GO:0065009	regulation of molecular function	2.62E-10	1.79E-07
GO:0050778	positive regulation of immune response	2.65E-10	1.79E-07
GO:0002684	positive regulation of immune system process	3.98E-10	2.46E-07
GO:0071346	cellular response to interferon-gamma	1.98E-09	1.13E-06
GO:0002443	leukocyte mediated immunity	3.1E-09	1.64E-06
GO:0048584	positive regulation of response to stimulus	4.02E-09	1.99E-06
GO:0019221	cytokine-mediated signaling pathway	6.57E-09	3.04E-06
GO:0050790	regulation of catalytic activity	8.16E-09	3.56E-06
GO:0034341	response to interferon-gamma	1.15E-08	4.73E-06
GO:0071345	cellular response to cytokine stimulus	1.33E-08	5.2E-06
GO:0002253	activation of immune response	1.46E-08	5.3E-06
GO:0002274	myeloid leukocyte activation	1.5E-08	5.3E-06
GO:0045576	mast cell activation	1.92E-08	6.45E-06
GO:0002275	myeloid cell activation involved in immune response	2.82E-08	9.08E-06
GO:0034097	response to cytokine	3.38E-08	1.04E-05
GO:0007166	cell surface receptor signaling pathway	3.98E-08	1.18E-05
GO:0002250	adaptive immune response	5.07E-08	1.45E-05
GO:0002279	mast cell activation involved in immune response	7.23E-08	1.92E-05
GO:0043303	mast cell degranulation	7.23E-08	1.92E-05
GO:0043299	leukocyte degranulation	9.24E-08	2.36E-05
GO:0050900	leukocyte migration	9.82E-08	2.43E-05
GO:0002448	mast cell mediated immunity	1.5E-07	3.58E-05
GO:0002526	acute inflammatory response	1.87E-07	4.33E-05
GO:0006959	humoral immune response	3.45E-07	7.74E-05
GO:0045055	regulated exocytosis	4.42E-07	9.63E-05
GO:0032879	regulation of localization	5.13E-07	0.000107
GO:0001775	cell activation	5.19E-07	0.000107
GO:0002444	myeloid leukocyte mediated immunity	5.94E-07	0.000119
GO:0035556	intracellular signal transduction	6.52E-07	0.000127

GO:0002460	adaptive immune response based on somatic recombination of immune receptors built from immunoglobulin superfamily domains	8.2E-07	0.000156
GO:0060627	regulation of vesicle-mediated transport	8.76E-07	0.000162
GO:0001816	cytokine production	9.64E-07	0.000174
GO:0002366	leukocyte activation involved in immune response	1.08E-06	0.00019
GO:0050853	B cell receptor signaling pathway	1.17E-06	0.000199
GO:0031347	regulation of defense response	1.18E-06	0.000199
GO:0002263	cell activation involved in immune response	1.4E-06	0.000227
GO:0007159	leukocyte cell-cell adhesion	1.41E-06	0.000227
GO:0016337	single organismal cell-cell adhesion	1.56E-06	0.000243
GO:0009605	response to external stimulus	1.57E-06	0.000243
GO:0006811	ion transport	1.75E-06	0.000261
GO:0045321	leukocyte activation	1.76E-06	0.000261
GO:0044093	positive regulation of molecular function	2.03E-06	0.000295
GO:0032418	lysosome localization	2.23E-06	0.000318
GO:0002455	humoral immune response mediated by circulating immunoglobulin	2.45E-06	0.000342
GO:0002697	regulation of immune effector process	2.62E-06	0.00036
GO:0016477	cell migration	2.82E-06	0.000381
GO:0098602	single organism cell adhesion	3.09E-06	0.000409
GO:0048870	cell motility	3.35E-06	0.000429
GO:0051674	localization of cell	3.35E-06	0.000429
GO:0006897	endocytosis	3.56E-06	0.000447
GO:0070486	leukocyte aggregation	4.01E-06	0.00049
GO:0043269	regulation of ion transport	4.03E-06	0.00049
GO:0032101	regulation of response to external stimulus	4.16E-06	0.000498
GO:0032103	positive regulation of response to external stimulus	4.94E-06	0.000581
GO:0040011	locomotion	5.35E-06	0.000619
GO:0010562	positive regulation of phosphorus metabolic process	5.73E-06	0.000643
GO:0045937	positive regulation of phosphate metabolic process	5.73E-06	0.000643
GO:0046903	secretion	5.91E-06	0.000653
GO:0002685	regulation of leukocyte migration	6.6E-06	0.00072
GO:0051239	regulation of multicellular organismal process	6.76E-06	0.000726
GO:0006887	exocytosis	7.14E-06	0.000757
GO:0007186	G-protein coupled receptor signaling pathway	7.85E-06	0.00082
GO:0043085	positive regulation of catalytic activity	8.23E-06	0.000848
GO:0019220	regulation of phosphate metabolic process	9.32E-06	0.000947
GO:0032940	secretion by cell	9.76E-06	0.000978
GO:0016192	vesicle-mediated transport	1.02E-05	0.001005

GO:0016310	phosphorylation	1.09E-05	0.00106
GO:0002673	regulation of acute inflammatory response	1.17E-05	0.001126
GO:0002757	immune response-activating signal transduction	1.29E-05	0.001228
GO:0002429	immune response-activating cell surface receptor signaling pathway	1.36E-05	0.001273
GO:0051174	regulation of phosphorus metabolic process	1.39E-05	0.001283
GO:0042110	T cell activation	1.47E-05	0.001326
GO:0070489	T cell aggregation	1.47E-05	0.001326
GO:0071593	lymphocyte aggregation	1.58E-05	0.001409
GO:0002764	immune response-regulating signaling pathway	1.73E-05	0.001527
GO:0002886	regulation of myeloid leukocyte mediated immunity	1.99E-05	0.001725
GO:0051270	regulation of cellular component movement	2E-05	0.001725
GO:0002768	immune response-regulating cell surface receptor signaling pathway	2.06E-05	0.001754
GO:0044765	single-organism transport	2.45E-05	0.002038
GO:0044092	negative regulation of molecular function	2.47E-05	0.002038
GO:0002687	positive regulation of leukocyte migration	2.48E-05	0.002038
GO:0034765	regulation of ion transmembrane transport	2.52E-05	0.002056
GO:0051336	regulation of hydrolase activity	2.65E-05	0.002109
GO:0002920	regulation of humoral immune response	2.65E-05	0.002109
GO:0001819	positive regulation of cytokine production	2.75E-05	0.00217
GO:0006468	protein phosphorylation	2.88E-05	0.002249
GO:0042327	positive regulation of phosphorylation	3.17E-05	0.002446
GO:1903037	regulation of leukocyte cell-cell adhesion	3.49E-05	0.002668
GO:0009966	regulation of signal transduction	3.56E-05	0.00269
GO:0006928	movement of cell or subcellular component	3.63E-05	0.002704
GO:0006956	complement activation	3.65E-05	0.002704
GO:0051049	regulation of transport	3.76E-05	0.00276
GO:0050855	regulation of B cell receptor signaling pathway	4.1E-05	0.002982
GO:0034762	regulation of transmembrane transport	4.48E-05	0.003182
GO:0007268	chemical synaptic transmission	4.59E-05	0.003182
GO:0098916	anterograde trans-synaptic signaling	4.59E-05	0.003182
GO:0099536	synaptic signaling	4.59E-05	0.003182
GO:0099537	trans-synaptic signaling	4.59E-05	0.003182
GO:0046649	lymphocyte activation	5.03E-05	0.003455
GO:0022407	regulation of cell-cell adhesion	5.11E-05	0.003476
GO:0002449	lymphocyte mediated immunity	5.53E-05	0.003727
GO:0050764	regulation of phagocytosis	5.75E-05	0.00383
GO:0072376	protein activation cascade	5.79E-05	0.00383
GO:0030100	regulation of endocytosis	6.11E-05	0.004009
GO:0006812	cation transport	6.21E-05	0.004037
GO:0001817	regulation of cytokine production	6.49E-05	0.004182

GO:0045088	regulation of innate immune response	7.45E-05	0.004759
GO:0071675	regulation of mononuclear cell migration	8.72E-05	0.005496
GO:0043547	positive regulation of GTPase activity	8.75E-05	0.005496
GO:0043087	regulation of GTPase activity	9.02E-05	0.00562
GO:0017157	regulation of exocytosis	9.5E-05	0.005865
GO:0050878	regulation of body fluid levels	9.68E-05	0.005891
GO:0007599	hemostasis	9.76E-05	0.005891
GO:0042325	regulation of phosphorylation	9.78E-05	0.005891
GO:0002888	positive regulation of myeloid leukocyte mediated immunity	0.000103	0.006146
GO:0006909	phagocytosis	0.000106	0.006281
GO:0098542	defense response to other organism	0.000107	0.006321
GO:0033003	regulation of mast cell activation	0.000113	0.006623
GO:0022409	positive regulation of cell-cell adhesion	0.000118	0.006836
GO:0048167	regulation of synaptic plasticity	0.000119	0.006836
GO:0030334	regulation of cell migration	0.000121	0.006917
GO:0002703	regulation of leukocyte mediated immunity	0.00013	0.00734
GO:0050851	antigen receptor-mediated signaling pathway	0.000136	0.007633
GO:0018108	peptidyl-tyrosine phosphorylation	0.000143	0.007976
GO:0030595	leukocyte chemotaxis	0.000148	0.008163
GO:0018212	peptidyl-tyrosine modification	0.000153	0.008407
GO:0098609	cell-cell adhesion	0.000162	0.008825
GO:1903039	positive regulation of leukocyte cell-cell adhesion	0.000164	0.00888
GO:0030335	positive regulation of cell migration	0.00017	0.009148
GO:0051240	positive regulation of multicellular organismal process	0.000178	0.009518
GO:0019882	antigen processing and presentation	0.00018	0.009534
GO:0051707	response to other organism	0.000182	0.009548
GO:0002683	negative regulation of immune system process	0.000188	0.009753
GO:0051272	positive regulation of cellular component movement	0.000188	0.009753
GO:0043207	response to external biotic stimulus	0.00019	0.009804
GO:0001934	positive regulation of protein phosphorylation	0.000196	0.010035
GO:0042742	defense response to bacterium	0.000201	0.010195
GO:0050804	modulation of synaptic transmission	0.000209	0.010558
GO:0007596	blood coagulation	0.000213	0.010685
GO:0030449	regulation of complement activation	0.000218	0.010693
GO:0035587	purinergic receptor signaling pathway	0.000218	0.010693
GO:2000257	regulation of protein activation cascade	0.000218	0.010693
GO:0043549	regulation of kinase activity	0.000221	0.010727
GO:0051345	positive regulation of hydrolase activity	0.000221	0.010727
GO:0045859	regulation of protein kinase activity	0.000225	0.010795
GO:0006958	complement activation, classical pathway	0.000226	0.010795

GO:0031349	positive regulation of defense response	0.000227	0.010795
GO:0050731	positive regulation of peptidyl-tyrosine phosphorylation	0.00023	0.010795
GO:0000160	phosphorelay signal transduction system	0.00023	0.010795
GO:0050730	regulation of peptidyl-tyrosine phosphorylation	0.000236	0.011018
GO:0050817	coagulation	0.000246	0.011352
GO:0030198	extracellular matrix organization	0.000247	0.011352
GO:2000145	regulation of cell motility	0.00025	0.011444
GO:2000147	positive regulation of cell motility	0.000262	0.01191
GO:0043062	extracellular structure organization	0.000264	0.011914
GO:0042060	wound healing	0.000265	0.011914
GO:0002521	leukocyte differentiation	0.000269	0.012008
GO:0006816	calcium ion transport	0.00028	0.01241
GO:0050793	regulation of developmental process	0.000286	0.01262
GO:0034220	ion transmembrane transport	0.000295	0.012928
GO:0002675	positive regulation of acute inflammatory response	0.000304	0.013271
GO:0009607	response to biotic stimulus	0.000308	0.013344
GO:0050773	regulation of dendrite development	0.000322	0.013871
GO:0080134	regulation of response to stress	0.00033	0.014141
GO:0040017	positive regulation of locomotion	0.000339	0.014427
GO:0007264	small GTPase mediated signal transduction	0.000341	0.014434
GO:1903305	regulation of regulated secretory pathway	0.000351	0.014672
GO:0002577	regulation of antigen processing and presentation	0.000352	0.014672
GO:0001932	regulation of protein phosphorylation	0.000352	0.014672
GO:0048168	regulation of neuronal synaptic plasticity	0.000362	0.014985
GO:0060996	dendritic spine development	0.000365	0.015011
GO:0070588	calcium ion transmembrane transport	0.000376	0.015378
GO:0071674	mononuclear cell migration	0.000381	0.015523
GO:0043086	negative regulation of catalytic activity	0.000392	0.01587
GO:0070887	cellular response to chemical stimulus	0.0004	0.016098
GO:0050727	regulation of inflammatory response	0.000437	0.017487
GO:0002863	positive regulation of inflammatory response to antigenic stimulus	0.000441	0.017487
GO:0006957	complement activation, alternative pathway	0.000441	0.017487
GO:0070838	divalent metal ion transport	0.000461	0.018156
GO:0097028	dendritic cell differentiation	0.000472	0.018502
GO:0050729	positive regulation of inflammatory response	0.000502	0.019599
GO:0072511	divalent inorganic cation transport	0.000517	0.020046
GO:0030001	metal ion transport	0.000543	0.020967
GO:0009617	response to bacterium	0.000547	0.020995
GO:0060326	cell chemotaxis	0.00055	0.020995
GO:0033674	positive regulation of kinase activity	0.000573	0.021767

GO:0010033	response to organic substance	0.000576	0.021767
GO:0060997	dendritic spine morphogenesis	0.000594	0.022306
GO:0050863	regulation of T cell activation	0.000596	0.022306
GO:0050777	negative regulation of immune response	0.000616	0.022947
GO:0008284	positive regulation of cell proliferation	0.000638	0.02365
GO:0042108	positive regulation of cytokine biosynthetic process	0.000655	0.024137
GO:0016064	immunoglobulin mediated immune response	0.000669	0.024474
GO:0010951	negative regulation of endopeptidase activity	0.00067	0.024474
GO:0040012	regulation of locomotion	0.000719	0.026119
GO:0002694	regulation of leukocyte activation	0.000723	0.026123
GO:0032722	positive regulation of chemokine production	0.00074	0.026641
GO:0035588	G-protein coupled purinergic receptor signaling pathway	0.000752	0.026733
GO:0023056	positive regulation of signaling	0.000754	0.026733
GO:0060759	regulation of response to cytokine stimulus	0.000758	0.026733
GO:0030155	regulation of cell adhesion	0.000758	0.026733
GO:0033004	negative regulation of mast cell activation	0.000761	0.026733
GO:0007155	cell adhesion	0.000765	0.026733
GO:0019724	B cell mediated immunity	0.000771	0.026826
GO:0016358	dendrite development	0.000778	0.026833
GO:0046578	regulation of Ras protein signal transduction	0.000778	0.026833
GO:0046847	filopodium assembly	0.000786	0.026983
GO:0022610	biological adhesion	0.000807	0.027561
GO:0032943	mononuclear cell proliferation	0.000811	0.027561
GO:0009611	response to wounding	0.000816	0.027616
GO:1902105	regulation of leukocyte differentiation	0.000874	0.029446
GO:0098660	inorganic ion transmembrane transport	0.000881	0.029546
GO:0006953	acute-phase response	0.000947	0.031044
GO:0033006	regulation of mast cell activation involved in immune response	0.000947	0.031044
GO:0043304	regulation of mast cell degranulation	0.000947	0.031044
GO:0098659	inorganic cation import into cell	0.000947	0.031044
GO:0099587	inorganic ion import into cell	0.000947	0.031044
GO:0045807	positive regulation of endocytosis	0.001082	0.035325
GO:0033627	cell adhesion mediated by integrin	0.001114	0.036175
GO:0043300	regulation of leukocyte degranulation	0.001118	0.036175
GO:0010466	negative regulation of peptidase activity	0.001129	0.036237
GO:0050920	regulation of chemotaxis	0.001129	0.036237
GO:0071310	cellular response to organic substance	0.001142	0.036487
GO:0001771	immunological synapse formation	0.001216	0.038697
GO:0071216	cellular response to biotic stimulus	0.001227	0.038751
GO:0097529	myeloid leukocyte migration	0.001229	0.038751

GO:0051056	regulation of small GTPase mediated signal transduction	0.001286	0.04038
GO:1903706	regulation of hemopoiesis	0.001318	0.040848
GO:0002923	regulation of humoral immune response mediated by circulating immunoglobulin	0.001323	0.040848
GO:0050861	positive regulation of B cell receptor signaling pathway	0.001323	0.040848
GO:1904996	positive regulation of leukocyte adhesion to vascular endothelial cell	0.001323	0.040848
GO:2000026	regulation of multicellular organismal development	0.001343	0.041293
GO:0048002	antigen processing and presentation of peptide antigen	0.001353	0.041371
GO:0009967	positive regulation of signal transduction	0.001356	0.041371
GO:0048661	positive regulation of smooth muscle cell proliferation	0.001362	0.041377
GO:0018149	peptide cross-linking	0.001419	0.042766
GO:0048169	regulation of long-term neuronal synaptic plasticity	0.001419	0.042766
GO:0070661	leukocyte proliferation	0.001449	0.04347
GO:0071222	cellular response to lipopolysaccharide	0.001476	0.044103
GO:0010469	regulation of receptor activity	0.001508	0.04488
GO:0010647	positive regulation of cell communication	0.001556	0.04613
GO:0038083	peptidyl-tyrosine autophosphorylation	0.001631	0.047786
GO:0045123	cellular extravasation	0.001631	0.047786
GO:0097061	dendritic spine organization	0.001631	0.047786
Geneset_NAC	Description	PValue	FDR
GO:0042136	neurotransmitter biosynthetic process	5.84E-08	0.000434
GO:0007268	chemical synaptic transmission	8.86E-07	0.001318
GO:0098916	anterograde trans-synaptic signaling	8.86E-07	0.001318
GO:0099536	synaptic signaling	8.86E-07	0.001318
GO:0099537	trans-synaptic signaling	8.86E-07	0.001318
GO:0042133	neurotransmitter metabolic process	2.47E-06	0.00306
GO:0071420	cellular response to histamine	1.72E-05	0.018227
GO:0051932	synaptic transmission, GABAergic	3.21E-05	0.029839
GO:0001505	regulation of neurotransmitter levels	5.22E-05	0.03569
GO:0007270	neuron-neuron synaptic transmission	5.48E-05	0.03569
GO:0034776	response to histamine	5.90E-05	0.03569
GO:0060052	neurofilament cytoskeleton organization	5.90E-05	0.03569
GO:0099531	presynaptic process involved in chemical synaptic transmission	6.24E-05	0.03569
GO:0003008	system process	8.75E-05	0.046503
Geneset_PT	Description	PValue	FDR
GO:0007268	chemical synaptic transmission	3.42E-10	6.32E-07

GO:0098916	anterograde trans-synaptic signaling	3.42E-10	6.32E-07
GO:0099536	synaptic signaling	3.42E-10	6.32E-07
GO:0099537	trans-synaptic signaling	3.42E-10	6.32E-07
GO:0048167	regulation of synaptic plasticity	6.84E-09	1.01E-05
GO:0044708	single-organism behavior	1.31E-08	1.61E-05
GO:0007267	cell-cell signaling	5.51E-08	5.81E-05
GO:0007610	behavior	1.34E-07	0.000124
GO:0051254	positive regulation of RNA metabolic process	3.10E-07	0.000255
GO:0045944	positive regulation of transcription from RNA polymerase II promoter	6.23E-07	0.000444
GO:0050890	cognition	6.60E-07	0.000444
GO:0045935	positive regulation of nucleobase-containing compound metabolic process	9.25E-07	0.000569
GO:0007611	learning or memory	1.10E-06	0.000625
GO:0051173	positive regulation of nitrogen compound metabolic process	1.22E-06	0.000646
GO:0006836	neurotransmitter transport	1.43E-06	0.000707
GO:0050804	modulation of synaptic transmission	1.72E-06	0.000797
GO:0051591	response to cAMP	2.41E-06	0.001045
GO:0045893	positive regulation of transcription, DNA-templated	3.33E-06	0.001295
GO:1903508	positive regulation of nucleic acid-templated transcription	3.33E-06	0.001295
GO:0007612	learning	4.38E-06	0.001618
GO:1902680	positive regulation of RNA biosynthetic process	4.79E-06	0.001685
GO:0009628	response to abiotic stimulus	5.33E-06	0.00179
GO:0070371	ERK1 and ERK2 cascade	5.81E-06	0.001866
GO:0001505	regulation of neurotransmitter levels	9.11E-06	0.002805
GO:0046683	response to organophosphorus	1.44E-05	0.004258
GO:0070372	regulation of ERK1 and ERK2 cascade	1.98E-05	0.005453
GO:0010033	response to organic substance	1.99E-05	0.005453
GO:0007399	nervous system development	2.92E-05	0.007699
GO:0014074	response to purine-containing compound	3.12E-05	0.00795
GO:0003008	system process	3.40E-05	0.008376
GO:0009719	response to endogenous stimulus	3.67E-05	0.008751
GO:0007269	neurotransmitter secretion	4.14E-05	0.00928
GO:0099643	signal release from synapse	4.14E-05	0.00928
GO:0031328	positive regulation of cellular biosynthetic process	4.31E-05	0.009362
GO:0008306	associative learning	4.50E-05	0.0095
GO:0048646	anatomical structure formation involved in morphogenesis	4.66E-05	0.009561
GO:0031324	negative regulation of cellular metabolic process	5.09E-05	0.010168

GO:0006357	regulation of transcription from RNA polymerase II promoter	5.44E-05	0.01043
GO:0009891	positive regulation of biosynthetic process	5.50E-05	0.01043
GO:0009612	response to mechanical stimulus	6.67E-05	0.011994
GO:0010243	response to organonitrogen compound	6.81E-05	0.011994
GO:0099531	presynaptic process involved in chemical synaptic transmission	7.05E-05	0.011994
GO:0010628	positive regulation of gene expression	7.05E-05	0.011994
GO:0010557	positive regulation of macromolecule biosynthetic process	7.14E-05	0.011994
GO:0070373	negative regulation of ERK1 and ERK2 cascade	8.43E-05	0.013845
GO:0071277	cellular response to calcium ion	9.61E-05	0.015443
GO:0061469	regulation of type B pancreatic cell proliferation	9.85E-05	0.015482
GO:0009605	response to external stimulus	0.000102	0.015706
GO:1901698	response to nitrogen compound	0.000107	0.01618
GO:0000302	response to reactive oxygen species	0.000124	0.018335
GO:0006366	transcription from RNA polymerase II promoter	0.000145	0.021028
GO:0000122	negative regulation of transcription from RNA polymerase II promoter	0.000163	0.023105
GO:0050877	neurological system process	0.000186	0.025944
GO:0035914	skeletal muscle cell differentiation	0.000196	0.026826
GO:0031327	negative regulation of cellular biosynthetic process	0.000235	0.031182
GO:0009892	negative regulation of metabolic process	0.000236	0.031182
GO:0048511	rhythmic process	0.000266	0.034058
GO:0014070	response to organic cyclic compound	0.000267	0.034058
GO:0072358	cardiovascular system development	0.000287	0.035583
GO:0009890	negative regulation of biosynthetic process	0.000289	0.035583
GO:0048514	blood vessel morphogenesis	0.000328	0.03979
GO:0051592	response to calcium ion	0.00034	0.040323
GO:0007178	transmembrane receptor protein serine/threonine kinase signaling pathway	0.000346	0.040323
GO:2000113	negative regulation of cellular macromolecule biosynthetic process	0.000349	0.040323
GO:0002021	response to dietary excess	0.000373	0.042413
GO:0070887	cellular response to chemical stimulus	0.000379	0.042446
GO:0043620	regulation of DNA-templated transcription in response to stress	0.000434	0.047312
GO:0050679	positive regulation of epithelial cell proliferation	0.000435	0.047312

Anexo 5. Análise de enriquecimento dos DEGs e WGCNA para Síndrome de Tourette (TS), CNVs, SNVs *de novo*, GWAS, para cada área.

Ensembl_gene	gene_name	DEG_CN	DEG_NAC	DEG_PT	WGCNA_CN	WGCNA_NAC	WGCNA_PT	TS	CNVs	<i>de novo</i> SNVs	GWAS
ENSG00000008311	AASS	---	---	---	---	---	Yes	---	---	---	---
ENSG00000275700	AATF	---	---	---	---	Yes	---	---	Yes	---	---
ENSG00000107331	ABCA2	Yes	---	---	---	---	---	---	Yes	---	---
ENSG00000108846	ABCC3	Yes	Yes	---	---	---	---	Yes	---	---	---
ENSG00000125257	ABCC4	Yes	---	---	---	---	---	Yes	---	---	---
ENSG00000006071	ABCC8	---	---	---	---	---	Yes	---	---	---	---
ENSG00000143921	ABCG8	---	---	---	---	---	Yes	---	Yes	---	---
ENSG00000144476	ACKR3	---	---	---	---	---	Yes	---	---	---	---
ENSG00000197142	ACSL5	Yes	---	---	---	---	---	Yes	---	---	---
ENSG00000139567	ACVRL1	---	---	---	---	Yes	---	Yes	---	---	---
ENSG00000121281	ADCY7	Yes	---	---	---	---	---	---	---	---	---
ENSG00000196616	ADH1B	Yes	---	---	---	---	Yes	Yes	---	---	---
ENSG00000135439	AGAP2	Yes	---	---	---	---	---	---	---	---	---
ENSG00000162688	AGL	---	---	---	---	Yes	---	Yes	---	---	---
ENSG00000106546	AHR	---	---	---	Yes	---	---	---	Yes	---	---
ENSG00000158578	ALAS2	Yes	---	Yes	---	---	---	Yes	---	---	---
ENSG00000128918	ALDH1A2	---	---	---	---	---	Yes	---	---	---	---
ENSG00000119523	ALG2	---	---	---	---	Yes	---	---	Yes	---	---
ENSG00000179593	ALOX15B	Yes	---	---	---	---	---	Yes	---	---	---
ENSG00000091879	ANGPT2	Yes	Yes	---	---	---	---	Yes	---	---	---
ENSG00000152766	ANKRD22	Yes	---	---	---	---	---	Yes	---	---	---
ENSG00000272031	ANKRD34A	Yes	---	---	---	---	Yes	---	---	---	---
ENSG00000230062	ANKRD66	---	Yes	---	---	---	---	---	---	---	---
ENSG00000135046	ANXA1	---	Yes	---	---	---	---	---	---	---	---
ENSG00000182718	ANXA2	Yes	---	---	---	---	---	Yes	---	---	---
ENSG00000134817	APLN	Yes	---	---	---	---	---	Yes	---	---	---

ENSG00000100342	APOL1	Yes	---	---	---	---	---	Yes	---	---	---
ENSG00000100336	APOL4	Yes	---	---	---	---	---	Yes	---	---	---
ENSG00000161798	AQP5	---	---	---	Yes	---	---	---	---	---	Yes
ENSG00000198576	ARC	Yes	---	Yes	---	---	---	---	---	---	---
ENSG00000075884	ARHGAP15	Yes	---	---	---	---	---	---	---	---	Yes
ENSG00000163219	ARHGAP25	Yes	---	---	---	---	---	---	---	---	---
ENSG00000186517	ARHGAP30	Yes	---	---	---	---	---	Yes	---	---	---
ENSG00000147256	ARHGAP36	---	Yes	---	---	---	---	---	---	---	---
ENSG00000111348	ARHGDIB	Yes	---	---	---	---	---	Yes	---	---	---
ENSG00000175906	ARL4D	Yes	---	Yes	---	---	---	---	---	---	---
ENSG00000108381	ASPA	Yes	---	---	---	---	---	---	---	---	---
ENSG00000174939	ASPHD1	Yes	---	---	---	---	---	---	Yes	---	---
ENSG00000162772	ATF3	---	---	Yes	---	---	---	---	---	---	---
ENSG00000168874	ATOH8	---	---	Yes	---	---	Yes	Yes	---	---	---
ENSG00000118322	ATP10B	---	---	---	Yes	---	---	---	---	---	---
ENSG00000104043	ATP8B4	Yes	---	---	---	---	---	---	---	---	---
ENSG00000172232	AZU1	---	---	---	---	---	Yes	Yes	---	---	---
ENSG00000166710	B2M	Yes	---	---	---	---	---	---	---	---	---
ENSG00000064787	BCAS1	Yes	---	Yes	---	---	---	---	---	---	---
ENSG00000119866	BCL11A	Yes	Yes	---	---	---	Yes	---	Yes	---	---
ENSG00000140379	BCL2A1	Yes	---	---	---	---	---	Yes	---	---	---
ENSG00000183092	BEGAIN	Yes	---	---	---	---	---	---	---	---	---
ENSG00000151917	BEND6	Yes	---	---	---	---	---	---	---	---	---
ENSG00000095585	BLNK	Yes	---	---	---	Yes	---	---	---	---	---
ENSG00000125378	BMP4	---	---	---	---	Yes	---	---	---	---	---
ENSG00000164061	BSN	Yes	---	---	---	---	---	---	---	---	---
ENSG00000204347	BTBD17	---	---	---	Yes	---	---	Yes	Yes	---	---
ENSG00000159388	BTG2	---	---	Yes	---	---	---	Yes	---	---	---
ENSG00000010671	BTK	Yes	---	---	---	---	---	Yes	---	---	---
ENSG00000107738	C10orf54	Yes	---	---	---	---	---	Yes	---	---	---
ENSG00000166323	C11orf65	---	---	---	Yes	---	Yes	---	---	---	---
ENSG00000185905	C16orf54	---	---	---	---	Yes	---	Yes	Yes	---	---

ENSG00000185860	C1orf110	---	Yes	---	---	---	---	---	---	---	---
ENSG00000162913	C1orf145	Yes	---	---	---	---	---	Yes	---	---	---
ENSG00000162598	C1orf87	Yes	---	---	---	---	---	Yes	---	---	---
ENSG00000173369	C1QB	Yes	---	---	---	---	---	Yes	---	---	---
ENSG00000205502	C2CD4B	---	---	---	---	Yes	---	Yes	---	---	---
ENSG00000125730	C3	Yes	---	---	---	---	---	Yes	---	---	---
ENSG00000171860	C3AR1	Yes	---	---	---	---	---	Yes	---	---	---
ENSG00000224389	C4B	Yes	---	---	---	---	---	Yes	---	---	---
ENSG00000197405	C5AR1	---	---	Yes	---	---	---	Yes	---	---	---
ENSG00000176919	C8G	---	---	---	---	---	Yes	---	Yes	---	---
ENSG00000154975	CA10	Yes	---	---	---	---	---	---	---	---	---
ENSG00000063180	CA11	Yes	---	---	---	---	---	---	---	---	Yes
ENSG00000074410	CA12	---	---	Yes	---	---	---	---	---	---	---
ENSG00000100346	CACNA1I	Yes	---	---	---	---	Yes	---	---	---	---
ENSG00000151062	CACNA2D4	---	---	---	---	---	Yes	---	Yes	---	---
ENSG00000006116	CACNG3	Yes	---	---	---	---	---	---	---	---	---
ENSG00000175161	CADM2	Yes	---	---	---	---	---	---	Yes	---	---
ENSG00000081803	CADPS2	---	---	---	---	Yes	---	---	---	---	---
ENSG00000104327	CALB1	---	---	Yes	---	---	---	---	---	---	---
ENSG00000172137	CALB2	---	Yes	---	---	---	---	---	---	---	---
ENSG00000122786	CALD1	---	---	---	Yes	---	---	---	---	---	---
ENSG00000070808	CAMK2A	Yes	---	---	---	---	---	---	---	---	---
ENSG00000058404	CAMK2B	Yes	---	---	---	---	Yes	---	---	---	---
ENSG00000163888	CAMK2N2	---	---	---	Yes	---	---	---	---	---	---
ENSG00000164326	CARTPT	---	Yes	---	---	---	---	---	Yes	---	---
ENSG00000137812	CASC5	Yes	---	---	---	---	---	Yes	---	---	---
ENSG00000196954	CASP4	Yes	---	---	---	---	---	Yes	Yes	---	---
ENSG00000118729	CASQ2	---	---	---	---	Yes	---	Yes	---	---	---
ENSG00000160200	CBS	---	---	---	---	---	Yes	---	---	---	---
ENSG00000181378	CCDC108	---	---	---	---	---	Yes	---	---	Yes	---
ENSG00000005059	CCDC109B	Yes	---	---	---	---	---	---	---	---	---
ENSG00000271503	CCL5	---	---	---	---	Yes	---	---	---	---	---

ENSG00000121807	CCR2	---	---	---	---	Yes	---	Yes	---	---	---
ENSG00000160791	CCR5	Yes	---	---	---	---	---	Yes	---	---	---
ENSG00000167851	CD300A	Yes	---	---	---	---	---	Yes	Yes	---	---
ENSG00000161649	CD300LG	---	---	---	---	Yes	---	---	---	---	---
ENSG00000105383	CD33	Yes	---	---	---	---	---	---	---	---	---
ENSG00000026508	CD44	Yes	---	---	---	---	---	Yes	---	---	---
ENSG00000143119	CD53	Yes	---	---	---	---	---	Yes	---	---	---
ENSG00000110848	CD69	---	---	Yes	---	---	---	---	---	---	---
ENSG00000019582	CD74	Yes	---	---	---	---	---	Yes	---	---	---
ENSG00000153283	CD96	---	---	---	---	Yes	---	Yes	Yes	---	---
ENSG00000039068	CDH1	Yes	---	---	---	---	---	Yes	---	---	---
ENSG00000179776	CDH5	---	---	---	---	Yes	---	---	---	---	---
ENSG00000117266	CDK18	Yes	---	---	---	---	---	---	---	---	---
ENSG00000171450	CDK5R2	Yes	---	---	---	---	---	---	---	---	---
ENSG00000100490	CDKL1	---	---	---	---	Yes	---	---	---	---	---
ENSG00000129355	CDKN2D	Yes	---	Yes	---	---	---	---	---	---	---
ENSG00000245848	CEBPA	---	---	---	Yes	---	---	---	---	---	---
ENSG00000159409	CELF3	Yes	---	---	---	---	---	---	---	---	---
ENSG00000161082	CELF5	---	---	---	---	---	Yes	---	---	---	---
ENSG00000138180	CEP55	Yes	---	---	---	---	---	Yes	---	---	---
ENSG00000000971	CFH	Yes	---	---	---	---	---	Yes	---	---	---
ENSG00000205403	CFI	Yes	---	---	---	---	---	Yes	---	---	---
ENSG00000138135	CH25H	---	---	Yes	---	---	---	Yes	---	---	---
ENSG00000070748	CHAT	---	Yes	---	---	---	---	Yes	---	---	---
ENSG00000133048	CHI3L1	Yes	---	---	---	---	---	Yes	---	---	---
ENSG00000101938	CHRD1	Yes	---	Yes	---	---	---	Yes	---	---	---
ENSG00000168539	CHRM1	---	---	---	---	---	Yes	---	---	---	---
ENSG00000181072	CHRM2	---	Yes	---	---	---	---	Yes	---	---	---
ENSG00000184984	CHRM5	Yes	---	Yes	---	---	---	---	Yes	---	---
ENSG00000160716	CHRN2	---	---	---	---	---	Yes	---	---	---	---
ENSG00000175264	CHST1	Yes	---	---	---	---	---	---	---	---	---
ENSG00000122873	CISD1	---	Yes	---	---	---	---	---	Yes	---	---

ENSG00000164007	CLDN19	---	---	---	---	Yes	---	---	---	---	---
ENSG00000189143	CLDN4	---	---	---	---	Yes	---	---	Yes	---	---
ENSG00000258227	CLEC5A	---	Yes	---	---	---	---	Yes	---	---	---
ENSG00000106665	CLIP2	Yes	---	---	---	---	---	---	Yes	---	---
ENSG00000166250	CLMP	---	Yes	---	---	---	---	---	---	---	---
ENSG00000170293	CMTM8	---	---	---	---	Yes	---	Yes	Yes	---	---
ENSG00000174871	CNIH2	Yes	---	---	---	---	---	---	---	---	---
ENSG00000119946	CNNM1	---	---	---	---	---	Yes	---	Yes	---	---
ENSG00000118432	CNR1	Yes	---	---	---	---	---	---	---	---	---
ENSG00000082438	COBLL1	---	---	---	---	Yes	---	---	---	---	---
ENSG00000101203	COL20A1	Yes	---	---	---	---	---	Yes	---	---	---
ENSG00000049089	COL9A2	Yes	---	---	---	---	---	---	---	---	---
ENSG00000014919	COX15	---	---	---	---	---	Yes	---	Yes	---	---
ENSG00000047457	CP	Yes	---	---	---	---	---	Yes	---	---	---
ENSG00000168993	CPLX1	Yes	---	Yes	---	---	---	---	---	---	---
ENSG00000145920	CPLX2	Yes	---	Yes	---	---	---	---	---	---	---
ENSG00000100884	CPNE6	---	---	---	---	---	Yes	---	---	---	---
ENSG00000203710	CR1	Yes	---	---	---	---	---	---	---	Yes	---
ENSG00000099942	CRKL	---	---	---	---	---	Yes	---	Yes	---	---
ENSG00000176390	CRLF3	---	---	---	---	Yes	---	---	Yes	---	---
ENSG00000184371	CSF1	Yes	---	---	---	---	---	Yes	---	---	---
ENSG00000178662	CSRNP3	---	Yes	---	---	---	---	---	---	---	---
ENSG00000121552	CSTA	Yes	---	---	---	---	---	Yes	---	---	---
ENSG00000183230	CTNNA3	Yes	---	---	---	---	---	---	Yes	---	---
ENSG00000109861	CTSC	Yes	---	---	---	---	---	Yes	---	---	---
ENSG00000205279	CTXN3	---	Yes	---	---	---	---	Yes	---	---	---
ENSG00000111249	CUX2	---	---	---	Yes	---	---	---	---	---	---
ENSG00000168329	CX3CR1	---	---	---	Yes	---	---	Yes	---	---	---
ENSG00000120280	CXorf21	Yes	---	---	---	---	---	Yes	---	---	---
ENSG00000051523	CYBA	Yes	---	---	---	---	---	Yes	---	---	---
ENSG00000165168	CYBB	Yes	---	---	---	---	---	Yes	---	---	---
ENSG00000273749	CYFIP1	Yes	---	---	---	---	---	---	Yes	---	---

ENSG00000078401	EDN1	---	---	---	---	Yes	---	Yes	---	---	---
ENSG00000101210	EEF1A2	Yes	---	---	---	---	---	---	---	---	---
ENSG00000096093	EFHC1	---	---	---	---	---	Yes	---	---	---	---
ENSG00000024422	EHD2	Yes	---	---	---	---	---	---	---	---	---
ENSG00000113790	EHHADH	---	---	---	---	---	Yes	---	---	---	---
ENSG00000107105	ELAVL2	---	Yes	---	---	---	---	Yes	---	---	---
ENSG00000162374	ELAVL4	---	Yes	---	---	---	---	---	---	---	---
ENSG00000197977	ELOVL2	---	---	---	Yes	---	---	---	---	---	---
ENSG00000151023	ENKUR	---	---	---	Yes	Yes	---	---	---	---	---
ENSG00000164303	ENPP6	---	Yes	---	---	---	---	---	---	---	---
ENSG00000145242	EPHA5	---	Yes	---	Yes	---	---	---	---	---	---
ENSG00000154928	EPHB1	Yes	---	---	---	---	---	---	---	---	---
ENSG00000157554	ERG	---	---	---	---	Yes	---	Yes	---	---	---
ENSG00000174371	EXO1	---	---	---	---	Yes	---	---	Yes	---	---
ENSG00000124491	F13A1	Yes	---	---	---	---	---	Yes	---	---	---
ENSG00000103089	FA2H	Yes	---	---	---	---	---	---	---	---	---
ENSG00000121769	FABP3	---	---	---	Yes	---	---	---	---	---	---
ENSG00000170323	FABP4	---	---	---	---	Yes	---	---	---	---	---
ENSG00000168309	FAM107A	---	---	---	---	---	Yes	---	---	---	---
ENSG00000189057	FAM111B	Yes	---	---	---	---	---	Yes	---	---	---
ENSG00000135842	FAM129A	Yes	---	---	---	---	---	---	---	---	---
ENSG00000189350	FAM179A	---	Yes	---	---	---	---	---	---	---	---
ENSG00000108950	FAM20A	Yes	---	---	---	---	---	---	---	---	---
ENSG00000178033	FAM26E	---	---	---	---	---	Yes	---	---	---	---
ENSG00000105523	FAM83E	---	---	---	---	Yes	---	---	---	---	Yes
ENSG00000275395	FCGBP	Yes	---	---	---	---	---	Yes	---	---	---
ENSG00000150337	FCGR1A	Yes	---	---	---	---	---	Yes	---	---	---
ENSG00000198019	FCGR1B	Yes	---	---	---	---	---	Yes	---	---	---
ENSG00000203747	FCGR3A	Yes	---	---	---	---	---	Yes	---	---	---
ENSG00000162747	FCGR3B	Yes	---	---	---	---	Yes	---	---	---	---
ENSG00000149781	FERMT3	Yes	---	---	---	---	---	Yes	---	---	---
ENSG00000146192	FGD2	Yes	---	---	---	---	---	Yes	---	---	---

ENSG00000066468	FGFR2	---	---	---	---	---	Yes	---	Yes	---	---
ENSG00000000938	FGR	Yes	---	---	---	---	---	Yes	---	---	---
ENSG00000130720	FIBCD1	Yes	---	---	---	---	---	---	---	---	---
ENSG00000151702	FLI1	Yes	---	---	---	---	---	Yes	---	---	---
ENSG00000037280	FLT4	Yes	---	Yes	---	---	---	Yes	---	---	---
ENSG00000170345	FOS	---	---	Yes	---	---	---	Yes	---	---	---
ENSG00000125740	FOSB	---	---	Yes	---	---	---	---	---	---	---
ENSG00000251493	FOXD1	---	---	---	Yes	---	---	---	---	---	---
ENSG00000204060	FOXO6	Yes	---	---	---	---	---	---	---	---	---
ENSG00000168843	FSTL5	---	Yes	---	---	---	---	---	Yes	---	---
ENSG00000180340	FZD2	Yes	---	---	---	---	---	---	---	---	---
ENSG00000164930	FZD6	---	---	---	Yes	---	---	---	Yes	---	---
ENSG00000022355	GABRA1	---	Yes	---	---	---	---	Yes	---	---	---
ENSG00000145864	GABRB2	---	Yes	---	---	---	---	---	---	---	---
ENSG00000187730	GABRD	Yes	---	---	---	---	---	---	---	---	---
ENSG00000113327	GABRG2	---	Yes	---	---	---	---	Yes	---	---	---
ENSG00000128683	GAD1	---	Yes	---	---	---	---	Yes	---	---	---
ENSG00000136750	GAD2	---	Yes	---	---	---	---	---	---	---	---
ENSG00000197093	GAL3ST4	---	---	---	Yes	---	---	---	---	---	---
ENSG00000154451	GBP5	Yes	---	---	---	---	---	Yes	---	---	---
ENSG00000130513	GDF15	---	---	---	---	Yes	Yes	Yes	---	---	---
ENSG00000125965	GDF5	---	---	---	---	Yes	---	---	---	---	---
ENSG00000131095	GFAP	Yes	---	Yes	---	---	---	Yes	---	---	---
ENSG00000099998	GGT5	Yes	---	---	---	---	---	Yes	---	---	---
ENSG00000106560	GIMAP2	Yes	---	---	---	---	---	---	Yes	---	---
ENSG00000133574	GIMAP4	Yes	---	---	---	---	---	---	Yes	---	---
ENSG00000121743	GJA3	Yes	---	---	---	---	---	---	Yes	---	---
ENSG00000265107	GJA5	---	---	---	---	Yes	---	Yes	---	---	---
ENSG00000111087	GLI1	---	---	---	Yes	---	---	Yes	---	---	---
ENSG00000137198	GMPR	Yes	---	---	---	---	---	Yes	---	---	---
ENSG00000127928	GNGT1	---	---	---	---	Yes	---	---	Yes	---	---
ENSG00000136235	GPNMB	---	---	---	Yes	---	---	Yes	---	---	---

ENSG00000144230	GPR17	---	Yes	---	---	---	---	---	---	---	---
ENSG00000277399	GPR179	---	---	---	---	---	Yes	---	---	---	---
ENSG00000169508	GPR183	---	---	Yes	---	---	---	---	---	---	---
ENSG00000140030	GPR65	Yes	---	---	---	---	---	Yes	---	---	---
ENSG00000121957	GPSM2	Yes	---	---	---	---	---	---	Yes	---	---
ENSG00000169181	GSG1L	---	---	---	---	---	Yes	---	---	---	---
ENSG00000263001	GTF2I	---	---	---	Yes	---	---	---	Yes	---	---
ENSG00000061918	GUCY1B3	---	Yes	---	---	---	---	---	---	---	---
ENSG00000105697	HAMP	Yes	---	---	---	---	---	Yes	---	---	---
ENSG00000145681	HAPLN1	Yes	Yes	---	---	---	---	---	---	---	---
ENSG00000140511	HAPLN3	---	---	---	---	Yes	---	Yes	---	---	---
ENSG00000206172	HBA1	Yes	---	Yes	---	---	---	Yes	---	---	---
ENSG00000188536	HBA2	Yes	---	Yes	---	---	---	Yes	---	---	---
ENSG00000244734	HBB	---	Yes	Yes	---	---	---	Yes	---	---	---
ENSG00000086506	HBQ1	---	---	---	---	Yes	---	---	---	---	---
ENSG00000101336	HCK	Yes	---	---	---	---	---	Yes	---	---	---
ENSG00000180353	HCLS1	Yes	---	---	---	---	---	Yes	---	---	---
ENSG00000143630	HCN3	---	---	---	---	---	Yes	---	---	---	---
ENSG00000140287	HDC	---	---	---	Yes	Yes	---	---	---	---	---
ENSG00000130589	HELZ2	---	---	Yes	---	---	---	---	---	---	---
ENSG00000276550	HERC2P2	---	---	---	Yes	---	---	---	Yes	---	---
ENSG00000114315	HES1	---	---	Yes	---	---	---	Yes	---	---	---
ENSG00000010704	HFE	Yes	---	---	Yes	---	---	---	---	---	---
ENSG00000149929	HIRIP3	---	---	---	---	Yes	---	---	Yes	---	---
ENSG00000274267	HIST1H3B	Yes	---	---	---	---	---	---	---	---	---
ENSG00000160883	HK3	Yes	---	---	---	---	---	---	---	---	---
ENSG00000204252	HLA-DOA	Yes	---	---	---	---	---	Yes	---	---	---
ENSG00000231389	HLA-DPA1	Yes	---	---	---	---	---	Yes	---	---	Yes
ENSG00000196735	HLA-DQA1	Yes	Yes	---	---	---	---	Yes	---	---	---
ENSG00000179344	HLA-DQB1	Yes	Yes	---	---	---	---	Yes	---	---	---
ENSG00000204287	HLA-DRA	Yes	---	Yes	---	---	---	Yes	---	---	---
ENSG00000100292	HMOX1	Yes	---	---	---	---	---	Yes	---	---	---

ENSG00000121905	HPCA	Yes	---	Yes	---	---	---	---	---	---	---
ENSG00000163755	HPS3	---	---	---	Yes	---	---	Yes	---	---	---
ENSG00000173110	HSPA6	---	---	Yes	---	---	---	Yes	---	---	---
ENSG00000158748	HTR6	Yes	---	---	---	---	---	Yes	---	---	---
ENSG00000090339	ICAM1	Yes	---	---	---	---	---	Yes	---	---	---
ENSG00000105376	ICAM5	Yes	---	Yes	---	---	---	Yes	---	---	---
ENSG00000188676	IDO2	---	---	---	---	Yes	---	---	---	---	Yes
ENSG00000160888	IER2	---	---	Yes	---	---	---	Yes	---	---	---
ENSG00000163565	IFI16	Yes	---	---	---	---	---	Yes	---	---	---
ENSG00000027697	IFNGR1	Yes	---	---	---	---	---	Yes	---	---	---
ENSG00000115457	IGFBP2	Yes	---	---	---	---	---	Yes	---	---	---
ENSG00000146674	IGFBP3	Yes	Yes	---	---	---	---	Yes	---	---	---
ENSG00000095574	IKZF5	---	---	---	---	---	Yes	---	Yes	---	---
ENSG00000131724	IL13RA1	Yes	---	---	---	---	---	Yes	---	---	---
ENSG00000150782	IL18	Yes	---	---	---	---	---	Yes	---	---	---
ENSG00000115594	IL1R1	Yes	---	---	---	---	---	---	Yes	---	---
ENSG00000160712	IL6R	Yes	---	---	---	---	---	Yes	---	---	---
ENSG00000168685	IL7R	---	Yes	---	---	---	---	---	---	---	---
ENSG00000148798	INA	---	Yes	---	---	---	---	---	---	---	---
ENSG00000027644	INSRR	---	---	---	Yes	---	---	Yes	---	---	---
ENSG00000120645	IQSEC3	---	Yes	---	---	---	---	---	---	---	---
ENSG00000128604	IRF5	Yes	---	---	---	---	---	Yes	---	---	---
ENSG00000140968	IRF8	---	---	---	Yes	---	---	Yes	---	---	---
ENSG00000187608	ISG15	---	---	Yes	---	---	---	---	---	---	---
ENSG00000005844	ITGAL	Yes	---	---	Yes	---	---	Yes	---	---	---
ENSG00000169896	ITGAM	Yes	---	---	---	---	---	Yes	---	---	---
ENSG00000138448	ITGAV	---	---	---	---	---	Yes	---	Yes	---	---
ENSG00000137825	ITPKA	Yes	---	---	---	---	---	---	---	---	---
ENSG00000198885	ITPRIPL1	---	---	---	Yes	---	---	---	Yes	---	---
ENSG00000154721	JAM2	---	---	---	Yes	---	---	---	---	---	---
ENSG00000175538	KCNE3	Yes	---	---	Yes	---	---	---	---	---	---
ENSG00000055118	KCNH2	Yes	---	Yes	---	---	---	---	Yes	---	---

ENSG00000135519	KCNH3	Yes	---	---	---	---	---	---	---	---	---
ENSG00000089558	KCNH4	Yes	---	---	---	---	---	---	---	---	---
ENSG00000168135	KCNJ4	Yes	---	Yes	---	---	---	---	---	---	---
ENSG00000099337	KCNK6	Yes	---	---	---	---	---	---	---	---	---
ENSG00000173338	KCNK7	---	---	---	---	Yes	---	---	---	---	---
ENSG00000075043	KCNQ2	Yes	---	---	---	---	---	---	---	---	---
ENSG00000184156	KCNQ3	Yes	---	---	---	---	---	---	---	---	---
ENSG00000235750	KIAA0040	Yes	---	---	---	---	---	---	---	---	---
ENSG00000169330	KIAA1024	Yes	Yes	---	---	---	---	---	---	---	---
ENSG00000122733	KIAA1045	---	---	---	---	---	Yes	Yes	---	---	---
ENSG00000050030	KIAA2022	---	Yes	---	---	---	---	---	---	---	---
ENSG00000165115	KIF27	---	---	---	---	---	Yes	---	---	---	---
ENSG00000088727	KIF9	---	---	---	---	---	Yes	---	---	---	---
ENSG00000167702	KIFC2	Yes	---	---	---	---	---	---	---	---	---
ENSG00000157404	KIT	---	Yes	---	---	---	---	Yes	---	---	Yes
ENSG00000104892	KLC3	---	---	---	---	---	Yes	---	---	---	---
ENSG00000163884	KLF15	---	---	---	---	---	Yes	Yes	---	---	---
ENSG00000136826	KLF4	---	---	Yes	---	---	---	Yes	---	---	---
ENSG00000150361	KLHL1	---	Yes	---	---	---	---	---	---	---	---
ENSG00000129451	KLK10	---	---	---	Yes	---	---	---	---	---	---
ENSG00000171798	KNDC1	Yes	---	---	---	---	---	---	Yes	---	---
ENSG00000002549	LAP3	Yes	---	---	---	---	---	---	Yes	---	---
ENSG00000086730	LAT2	Yes	---	---	---	---	---	Yes	Yes	---	---
ENSG00000136167	LCP1	Yes	---	---	---	---	---	Yes	---	---	---
ENSG00000043462	LCP2	Yes	---	---	---	---	---	Yes	---	---	---
ENSG00000131981	LGALS3	Yes	---	---	---	---	---	---	---	---	---
ENSG00000133067	LGR6	---	---	---	---	---	Yes	Yes	---	---	---
ENSG00000145685	LHFPL2	Yes	---	---	---	---	---	Yes	---	---	---
ENSG00000107798	LIPA	---	---	---	Yes	---	---	---	---	---	---
ENSG00000114988	LMAN2L	---	---	---	Yes	---	---	---	Yes	---	---
ENSG00000135363	LMO2	---	---	---	---	Yes	---	---	---	---	---
ENSG00000184574	LPAR5	---	---	---	Yes	---	---	Yes	---	---	---

ENSG00000176454	LPCAT4	---	---	---	---	---	Yes	---	Yes	---	---
ENSG00000183908	LRRC55	---	Yes	---	---	---	---	---	---	---	---
ENSG00000227507	LTB	---	---	---	Yes	---	---	---	---	---	---
ENSG00000112799	LY86	Yes	---	---	---	---	---	Yes	---	---	---
ENSG00000122224	LY9	---	---	---	Yes	---	---	---	---	---	---
ENSG00000154589	LY96	Yes	---	---	---	---	---	Yes	---	---	---
ENSG00000104903	LYL1	---	---	---	Yes	---	---	---	---	---	---
ENSG00000254087	LYN	Yes	---	---	---	---	---	Yes	---	---	---
ENSG00000090382	LYZ	Yes	---	---	---	---	---	Yes	---	---	---
ENSG00000204103	MAFB	Yes	---	---	---	---	---	Yes	---	---	---
ENSG00000069535	MAOB	Yes	---	---	---	---	---	---	---	---	---
ENSG00000197769	MAP1LC3C	---	---	---	Yes	---	---	---	Yes	---	---
ENSG00000006432	MAP3K9	---	Yes	---	---	---	---	---	---	---	---
ENSG00000164114	MAP9	---	Yes	---	---	---	---	---	---	---	---
ENSG00000181085	MAPK15	---	Yes	---	---	---	---	---	---	---	---
ENSG00000183654	MARCH11	---	---	---	Yes	---	---	---	---	---	---
ENSG00000144583	MARCH4	Yes	---	Yes	---	---	---	---	---	---	---
ENSG00000007264	MATK	Yes	---	---	---	---	Yes	---	---	---	---
ENSG00000132031	MATN3	---	---	---	---	---	Yes	Yes	---	---	---
ENSG00000100060	MFNG	Yes	---	---	---	---	---	Yes	---	---	---
ENSG00000167889	MGAT5B	Yes	---	---	---	---	---	---	---	---	---
ENSG00000111341	MGP	Yes	---	---	---	---	---	Yes	---	---	---
ENSG00000008394	MGST1	Yes	---	---	---	---	---	---	---	---	---
ENSG00000271605	MILR1	Yes	---	---	---	---	---	---	---	---	---
ENSG00000148773	MKI67	Yes	---	---	---	---	---	Yes	---	---	---
ENSG00000120215	MLANA	---	---	---	Yes	---	---	---	Yes	---	---
ENSG00000009950	MLXIPL	Yes	---	---	---	---	---	---	Yes	---	---
ENSG00000169184	MN1	Yes	---	---	---	---	Yes	---	---	---	---
ENSG00000138587	MNS1	---	---	---	Yes	---	---	---	---	---	---
ENSG00000168314	MOBP	Yes	---	---	---	---	---	---	---	---	---
ENSG00000178802	MPI	---	---	---	Yes	---	---	---	Yes	---	---
ENSG00000149573	MPZL2	Yes	---	---	---	---	---	Yes	---	---	---

ENSG00000179826	MRGPRX3	---	---	---	Yes	---	---	---	---	---	Yes
ENSG00000110077	MS4A6A	Yes	---	---	---	---	---	Yes	---	---	---
ENSG00000145113	MUC4	---	---	---	---	Yes	---	---	Yes	---	---
ENSG00000180209	MYLPF	---	---	---	Yes	---	---	---	---	---	---
ENSG00000142347	MYO1F	Yes	---	---	---	---	---	Yes	---	---	---
ENSG00000249437	NAIP	Yes	---	---	Yes	---	---	---	---	---	---
ENSG00000125814	NAPB	---	Yes	---	---	---	---	Yes	Yes	---	---
ENSG00000100365	NCF4	Yes	---	---	---	---	---	Yes	---	---	---
ENSG00000277586	NEFL	---	Yes	---	---	---	---	---	---	---	---
ENSG00000163121	NEURL3	---	---	---	---	Yes	---	---	Yes	---	---
ENSG00000066248	NGEF	Yes	---	Yes	---	---	Yes	---	---	---	---
ENSG00000140853	NLRC5	Yes	---	---	---	---	---	Yes	---	---	---
ENSG00000123609	NMI	Yes	---	---	---	---	---	---	---	---	---
ENSG00000053438	NNAT	---	---	---	Yes	---	---	Yes	---	---	---
ENSG00000089250	NOS1	---	---	Yes	---	---	---	Yes	---	---	---
ENSG00000163072	NOSTRIN	Yes	---	---	---	---	---	---	---	---	---
ENSG00000136999	NOV	Yes	---	---	---	---	---	---	---	---	---
ENSG00000170485	NPAS2	---	---	---	---	---	Yes	---	---	---	---
ENSG00000174576	NPAS4	Yes	Yes	Yes	---	---	---	Yes	---	---	---
ENSG00000135838	NPL	Yes	---	---	---	---	---	Yes	---	---	---
ENSG00000237187	NR2F1-AS1	---	---	---	---	Yes	---	---	Yes	---	---
ENSG00000123358	NR4A1	---	---	Yes	---	---	---	Yes	---	---	---
ENSG00000119508	NR4A3	---	---	Yes	---	---	---	---	Yes	---	---
ENSG00000198435	NRARP	Yes	---	Yes	---	---	---	---	Yes	---	---
ENSG00000154146	NRGN	Yes	---	Yes	---	---	---	---	---	---	---
ENSG00000175352	NRIP3	---	Yes	---	---	Yes	---	---	---	---	---
ENSG00000152954	NRSN1	---	Yes	---	---	---	---	---	---	---	---
ENSG00000148053	NTRK2	---	---	---	---	Yes	---	---	Yes	---	---
ENSG00000133636	NTS	---	Yes	---	---	---	---	---	---	---	---
ENSG00000170584	NUDCD2	---	---	---	Yes	---	---	---	Yes	---	---
ENSG00000144227	NXPH2	---	Yes	---	---	---	---	---	---	---	---
ENSG00000125510	OPRL1	---	---	---	---	---	Yes	---	---	---	---

ENSG00000168124	OR1F1	---	---	---	Yes	---	---	---	Yes	---	---
ENSG00000187080	OR2AK2	---	---	---	Yes	---	---	---	Yes	---	---
ENSG00000196071	OR2L13	---	---	---	---	Yes	---	---	Yes	---	---
ENSG00000198601	OR2M2	---	---	---	---	Yes	---	---	Yes	---	---
ENSG00000162727	OR2M5	---	---	---	---	Yes	---	---	Yes	---	---
ENSG00000188269	OR7A5	Yes	---	---	---	---	---	Yes	---	---	---
ENSG00000145623	OSMR	Yes	---	---	---	---	---	---	---	---	---
ENSG00000174944	P2RY14	---	---	---	---	---	Yes	---	---	---	---
ENSG00000171631	P2RY6	Yes	---	---	---	---	---	---	---	---	---
ENSG00000254535	PABPC4L	---	---	---	---	Yes	---	---	---	---	---
ENSG00000124507	PACSIN1	Yes	---	---	---	---	Yes	---	---	---	---
ENSG00000099260	PALMD	---	---	Yes	---	---	---	---	---	---	---
ENSG00000073150	PANX2	Yes	---	---	---	---	---	---	---	---	---
ENSG00000198682	PAPSS2	Yes	---	---	---	---	Yes	Yes	---	---	---
ENSG00000160781	PAQR6	Yes	---	---	---	---	---	---	---	---	---
ENSG00000116117	PARD3B	---	---	---	Yes	---	---	---	Yes	---	---
ENSG00000178685	PARP10	---	---	---	Yes	---	---	---	---	---	---
ENSG00000138496	PARP9	Yes	---	---	---	---	---	---	---	---	---
ENSG00000177425	PAWR	---	---	---	Yes	Yes	---	---	---	---	---
ENSG00000135903	PAX3	---	---	---	Yes	---	---	---	---	---	---
ENSG00000186642	PDE2A	Yes	---	---	---	---	Yes	---	---	---	---
ENSG00000113721	PDGFRB	---	---	---	---	Yes	---	---	---	---	---
ENSG00000004799	PDK4	---	---	---	---	---	Yes	---	Yes	---	---
ENSG00000162493	PDPN	Yes	---	---	---	---	---	---	---	---	---
ENSG00000261371	PECAM1	Yes	---	---	---	---	---	---	---	---	---
ENSG00000010318	PHF7	---	---	---	---	Yes	---	---	Yes	---	---
ENSG00000164776	PHKG1	Yes	---	---	---	---	---	---	---	---	---
ENSG00000274602	PI4KAP1	---	Yes	Yes	---	---	---	---	Yes	---	---
ENSG00000105851	PIK3CG	Yes	---	---	---	---	---	Yes	---	---	---
ENSG00000141506	PIK3R5	Yes	---	---	Yes	---	---	Yes	---	---	---
ENSG00000167103	PIP5KL1	---	---	---	---	Yes	---	---	---	---	---
ENSG00000107593	PKD2L1	---	---	---	Yes	---	---	---	Yes	---	---

ENSG00000144837	PLA1A	Yes	---	---	---	---	---	Yes	---	---	---
ENSG00000145287	PLAC8	Yes	---	---	---	---	---	Yes	---	---	---
ENSG00000115556	PLCD4	---	---	---	---	Yes	---	---	---	---	---
ENSG00000138193	PLCE1	Yes	---	---	---	---	---	---	---	---	---
ENSG00000182836	PLCXD3	---	Yes	---	---	---	---	---	---	---	---
ENSG00000105559	PLEKHA4	Yes	---	---	---	---	---	Yes	---	---	Yes
ENSG00000166289	PLEKHF1	---	---	---	Yes	---	---	---	---	---	---
ENSG00000168081	PNOC	---	---	---	---	Yes	---	Yes	---	---	---
ENSG00000174348	PODN	Yes	---	---	---	---	---	Yes	---	---	---
ENSG00000013503	POLR3B	---	---	---	Yes	---	---	---	---	---	Yes
ENSG00000105852	PON3	Yes	---	---	---	---	---	---	Yes	---	---
ENSG00000204531	POU5F1	---	---	---	---	---	Yes	---	---	---	---
ENSG00000167641	PPP1R14A	Yes	---	---	---	---	---	---	---	---	---
ENSG00000087074	PPP1R15A	---	---	Yes	Yes	---	---	---	---	---	Yes
ENSG00000101445	PPP1R16B	Yes	---	---	---	---	---	---	---	---	---
ENSG00000131771	PPP1R1B	Yes	---	Yes	---	---	---	---	---	---	---
ENSG00000119938	PPP1R3C	Yes	---	Yes	---	---	---	---	---	---	---
ENSG00000108819	PPP1R9B	Yes	---	---	---	---	---	---	---	---	Yes
ENSG00000138738	PRDM5	---	---	---	Yes	---	---	---	---	---	---
ENSG00000152784	PRDM8	---	Yes	---	---	---	---	---	---	---	---
ENSG00000188783	PRELP	Yes	---	---	---	---	---	---	---	---	---
ENSG00000167157	PRRX2	---	---	---	Yes	---	---	---	---	---	---
ENSG00000166450	PRTG	---	---	---	---	Yes	---	---	---	---	---
ENSG00000146005	PSD2	---	---	---	---	Yes	---	---	---	---	---
ENSG00000125637	PSD4	Yes	---	---	---	---	---	---	---	---	---
ENSG00000169403	PTAFR	Yes	---	---	---	---	---	Yes	---	---	---
ENSG00000188647	PTAR1	---	---	---	---	---	Yes	---	---	---	---
ENSG00000160951	PTGER1	---	---	---	---	Yes	---	---	---	---	---
ENSG00000188921	PTPLAD2	Yes	---	---	---	---	---	---	---	---	---
ENSG00000111679	PTPN6	Yes	---	---	---	---	---	Yes	---	---	---
ENSG00000143851	PTPN7	Yes	---	---	---	---	---	---	---	---	---
ENSG00000155093	PTPRN2	---	---	Yes	---	---	---	---	---	---	---

ENSG00000171813	PWWP2B	Yes	---	---	Yes	---	---	---	Yes	---	---
ENSG00000103490	PYCARD	Yes	---	---	---	---	---	Yes	---	---	---
ENSG00000100504	PYGL	Yes	---	---	---	---	---	---	---	---	---
ENSG00000041353	RAB27B	---	Yes	---	---	---	---	Yes	---	---	---
ENSG00000118508	RAB32	---	---	---	---	---	Yes	---	---	---	---
ENSG00000152932	RAB3C	---	Yes	---	---	---	---	---	---	---	---
ENSG00000122679	RAMP3	Yes	---	---	---	---	---	Yes	---	---	---
ENSG00000133321	RARRES3	Yes	---	---	---	---	---	Yes	---	---	---
ENSG00000100302	RASD2	Yes	---	---	---	---	---	---	---	---	---
ENSG00000068831	RASGRP2	Yes	---	---	---	---	Yes	---	---	---	---
ENSG00000107551	RASSF4	---	---	---	---	---	Yes	Yes	---	---	---
ENSG00000167281	RBFOX3	Yes	---	---	---	---	---	---	---	---	---
ENSG00000151962	RBM46	---	---	---	---	Yes	---	---	---	---	---
ENSG00000163694	RBM47	Yes	---	---	---	---	---	Yes	---	---	---
ENSG00000076067	RBMS2	---	---	---	Yes	---	---	Yes	---	---	---
ENSG00000181826	RELL1	Yes	---	---	---	---	---	Yes	---	---	---
ENSG00000189056	RELN	---	Yes	---	---	---	---	---	---	---	---
ENSG00000088320	REM1	---	---	---	---	Yes	---	---	---	---	---
ENSG00000182698	RESP18	---	---	---	Yes	---	---	Yes	---	---	---
ENSG00000169220	RGS14	Yes	---	Yes	---	---	---	---	---	---	---
ENSG00000186479	RGS7BP	Yes	---	---	---	---	---	---	---	---	---
ENSG00000173156	RHOD	---	---	---	Yes	---	---	Yes	---	---	---
ENSG00000168421	RHOH	---	---	---	Yes	---	---	---	---	---	---
ENSG00000169385	RNASE2	Yes	---	---	---	---	---	Yes	---	---	---
ENSG00000246375	RP11-10L7.1	---	Yes	---	---	---	---	---	---	---	---
ENSG00000189332	RP11-113D6.10	---	---	---	---	Yes	---	---	---	---	Yes
ENSG00000089169	RPH3A	---	---	Yes	---	---	Yes	Yes	---	---	---
ENSG00000124782	RREB1	Yes	---	---	---	---	---	---	---	---	---
ENSG00000101282	RSPO4	---	---	---	Yes	---	---	---	---	---	Yes
ENSG00000182010	RTKN2	Yes	---	---	---	---	---	---	---	---	Yes
ENSG00000130347	RTN4IP1	---	---	---	---	Yes	---	---	Yes	---	---
ENSG00000159216	RUNX1	Yes	---	---	---	---	---	Yes	---	---	---

ENSG00000111832	RWDD1	Yes	---	---	---	---	---	---	---	---	Yes
ENSG00000143171	RXRG	---	Yes	---	---	---	---	---	---	---	---
ENSG00000163191	S100A11	Yes	---	---	---	---	---	Yes	---	---	---
ENSG00000189334	S100A14	---	---	---	---	Yes	---	---	---	---	---
ENSG00000180739	S1PR5	Yes	---	---	---	---	---	---	---	---	---
ENSG00000177409	SAMD9L	Yes	---	---	---	---	---	---	---	---	---
ENSG00000101347	SAMHD1	Yes	---	---	---	---	---	Yes	---	---	---
ENSG00000171951	SCG2	---	Yes	---	---	---	---	---	---	---	---
ENSG00000136546	SCN7A	---	Yes	---	---	---	---	Yes	---	---	---
ENSG00000261678	SCRT1	Yes	---	---	---	Yes	---	---	---	---	---
ENSG00000197249	SERPINA1	Yes	---	---	---	---	---	Yes	---	---	---
ENSG00000149131	SERPING1	Yes	---	---	---	---	---	Yes	---	---	---
ENSG00000149257	SERPINH1	---	---	Yes	---	---	---	Yes	---	---	---
ENSG00000063015	SEZ6	---	---	---	---	---	Yes	Yes	---	---	---
ENSG00000108823	SGCA	---	---	---	Yes	---	---	---	---	---	Yes
ENSG00000154447	SH3RF1	Yes	---	---	---	---	---	---	---	---	Yes
ENSG00000156463	SH3RF2	---	---	Yes	---	---	---	Yes	---	---	---
ENSG00000169375	SIN3A	---	---	---	---	Yes	---	---	Yes	---	---
ENSG00000155926	SLA	Yes	---	---	---	---	---	Yes	---	---	---
ENSG00000026751	SLAMF7	---	---	---	Yes	---	---	---	---	---	---
ENSG00000158714	SLAMF8	Yes	---	---	---	---	---	---	---	---	---
ENSG00000145283	SLC10A6	---	---	---	---	---	Yes	---	Yes	---	---
ENSG00000164707	SLC13A4	---	---	---	Yes	---	---	---	---	---	---
ENSG00000141469	SLC14A1	---	---	---	---	---	Yes	Yes	---	---	---
ENSG00000079215	SLC1A3	---	---	---	---	Yes	---	---	---	---	---
ENSG00000162383	SLC1A7	---	---	---	---	Yes	---	Yes	---	---	---
ENSG00000110628	SLC22A18	---	---	---	Yes	---	---	---	---	---	---
ENSG00000164638	SLC29A4	---	---	---	Yes	---	---	---	---	---	---
ENSG00000151229	SLC2A13	---	Yes	---	---	---	---	---	Yes	---	---
ENSG00000059804	SLC2A3	---	---	Yes	---	---	---	Yes	---	---	---
ENSG00000101438	SLC32A1	---	---	Yes	---	---	---	---	---	---	---
ENSG00000164175	SLC45A2	---	---	---	Yes	---	---	---	Yes	---	---

ENSG00000115665	SLC5A7	---	Yes	---	---	---	---	Yes	Yes	---	---
ENSG00000197106	SLC6A17	---	---	Yes	---	---	---	---	---	---	---
ENSG00000131389	SLC6A6	---	---	---	---	Yes	---	---	Yes	---	---
ENSG00000011083	SLC6A7	---	---	---	Yes	---	Yes	---	---	---	---
ENSG00000155465	SLC7A7	Yes	---	---	---	---	---	Yes	---	---	---
ENSG00000181804	SLC9A9	Yes	---	---	Yes	---	---	---	Yes	---	---
ENSG00000084453	SLCO1A2	Yes	---	---	---	---	---	---	---	---	---
ENSG00000174640	SLCO2A1	Yes	---	Yes	---	---	---	Yes	---	---	---
ENSG00000137491	SLCO2B1	Yes	---	---	---	---	---	---	---	---	---
ENSG00000172716	SLFN11	Yes	---	---	---	---	---	---	---	---	---
ENSG00000179542	SLITRK4	---	Yes	---	---	---	---	---	---	---	---
ENSG00000165300	SLITRK5	---	---	Yes	---	---	---	Yes	---	---	---
ENSG00000120693	SMAD9	---	---	---	Yes	---	---	---	---	---	---
ENSG00000201998	SNORA23	Yes	Yes	---	---	---	---	---	---	---	---
ENSG00000201943	SNORD115-10	---	---	---	---	Yes	---	---	Yes	---	---
ENSG00000207174	SNORD116-15	Yes	---	---	---	---	---	---	Yes	---	---
ENSG00000207263	SNORD116-16	Yes	---	---	---	---	---	---	Yes	---	---
ENSG00000207375	SNORD116-23	Yes	---	---	---	---	---	---	Yes	---	---
ENSG00000207093	SNORD116-8	Yes	---	---	---	---	---	---	Yes	---	---
ENSG00000207445	SNORD15B	---	---	Yes	---	---	---	---	---	---	---
ENSG00000071189	SNX13	---	---	---	---	---	Yes	---	Yes	---	---
ENSG00000167208	SNX20	Yes	---	---	---	---	---	Yes	---	---	---
ENSG00000198944	SOWAHA	Yes	---	---	---	---	---	---	---	---	---
ENSG00000100146	SOX10	Yes	---	---	---	---	---	---	---	---	---
ENSG00000185404	SP140L	Yes	---	---	---	---	---	---	---	---	---
ENSG00000153820	SPHKAP	---	Yes	---	---	---	---	Yes	---	---	---
ENSG00000066336	SPI1	Yes	---	---	---	---	---	Yes	---	---	---
ENSG00000118785	SPP1	Yes	---	---	---	---	---	---	---	---	---
ENSG00000173898	SPTBN2	Yes	---	---	---	---	---	---	---	---	---
ENSG00000139767	SRRM4	---	Yes	---	---	---	---	---	---	---	---
ENSG00000149418	ST14	Yes	---	---	---	---	---	Yes	---	---	---
ENSG00000073849	ST6GAL1	Yes	---	---	---	---	---	Yes	---	---	---

ENSG00000010327	STAB1	Yes	---	Yes	Yes	---	---	Yes	Yes	---	---
ENSG000000144681	STAC	---	Yes	---	---	---	---	---	Yes	---	---
ENSG000000104435	STMN2	---	Yes	---	---	---	---	---	---	---	---
ENSG000000197457	STMN3	Yes	---	---	---	---	---	---	---	---	---
ENSG000000140022	STON2	---	---	---	---	Yes	---	---	---	---	---
ENSG000000198075	SULT1C4	---	---	---	---	---	Yes	---	Yes	---	---
ENSG000000130540	SULT4A1	---	Yes	---	---	---	---	---	---	---	---
ENSG000000157303	SUSD3	---	---	---	Yes	---	---	Yes	---	---	---
ENSG000000178691	SUZ12	---	---	---	Yes	---	---	---	Yes	---	---
ENSG000000197321	SVIL	Yes	---	---	---	---	---	---	---	---	Yes
ENSG000000224597	SVIL-AS1	---	---	---	---	Yes	---	---	---	---	Yes
ENSG000000165025	SYK	Yes	---	---	---	---	---	Yes	---	---	---
ENSG000000183379	SYNDIG1L	Yes	---	---	---	---	---	---	---	---	---
ENSG000000163630	SYNPR	---	---	Yes	---	---	---	---	---	---	Yes
ENSG000000110975	SYT10	---	Yes	---	---	---	---	---	---	---	---
ENSG000000019505	SYT13	---	---	---	---	---	Yes	Yes	---	---	---
ENSG000000143858	SYT2	---	---	Yes	---	---	---	Yes	---	---	---
ENSG000000132872	SYT4	---	Yes	---	---	---	---	---	---	---	---
ENSG000000115353	TACR1	---	Yes	---	---	---	---	Yes	---	---	---
ENSG000000158710	TAGLN2	Yes	---	---	---	---	---	Yes	---	---	---
ENSG000000162367	TAL1	Yes	---	---	---	---	---	Yes	---	---	---
ENSG000000149922	TBX6	---	---	---	---	---	Yes	---	Yes	---	---
ENSG000000059377	TBXAS1	Yes	---	---	---	---	---	---	---	---	---
ENSG000000135269	TES	Yes	---	---	---	---	---	Yes	Yes	---	---
ENSG000000163513	TGFBR2	Yes	---	---	---	---	---	---	Yes	---	---
ENSG000000102265	TIMP1	Yes	---	---	---	---	---	Yes	---	---	---
ENSG000000187554	TLR5	Yes	---	---	---	---	---	Yes	---	---	---
ENSG000000169908	TM4SF1	Yes	---	---	---	---	Yes	Yes	---	---	---
ENSG000000002933	TMEM176A	Yes	---	---	---	---	---	---	Yes	---	---
ENSG000000106565	TMEM176B	Yes	---	---	---	---	---	---	Yes	---	---
ENSG000000196932	TMEM26	---	---	Yes	---	---	---	---	---	---	---
ENSG000000105696	TMEM59L	---	---	---	---	---	Yes	---	---	---	---

ENSG00000006042	TMEM98	Yes	---	---	---	---	---	---	---	---	---
ENSG00000167664	TMIGD2	---	---	---	---	Yes	---	Yes	---	---	---
ENSG00000128872	TMOD2	Yes	---	---	---	---	---	---	Yes	---	---
ENSG00000160183	TMPRSS3	Yes	---	---	---	---	---	Yes	---	---	---
ENSG00000166682	TMPRSS5	Yes	Yes	Yes	---	---	---	Yes	---	---	---
ENSG00000232810	TNF	Yes	---	---	---	---	---	Yes	---	---	---
ENSG00000145779	TNFAIP8	Yes	---	---	---	---	---	---	---	---	---
ENSG00000173530	TNFRSF10D	Yes	---	---	---	---	---	Yes	---	---	---
ENSG00000159958	TNFRSF13C	---	---	---	Yes	---	---	---	---	---	---
ENSG00000067182	TNFRSF1A	Yes	---	---	---	---	---	Yes	---	---	---
ENSG00000131747	TOP2A	Yes	---	---	---	---	---	Yes	---	---	---
ENSG00000056972	TRAF3IP2	Yes	---	---	---	---	---	---	---	---	---
ENSG00000009790	TRAF3IP3	Yes	---	---	---	---	---	---	---	---	---
ENSG00000163462	TRIM46	---	---	---	---	---	Yes	---	---	---	---
ENSG00000135451	TROAP	---	---	---	Yes	---	---	Yes	---	---	---
ENSG00000138741	TRPC3	---	---	---	---	Yes	---	Yes	---	---	---
ENSG00000102904	TSNAXIP1	---	---	---	Yes	---	---	---	---	---	---
ENSG00000118271	TTR	---	---	Yes	Yes	---	---	Yes	---	---	---
ENSG00000167553	TUBA1C	Yes	---	---	---	---	---	Yes	---	---	---
ENSG00000275835	TUBGCP5	---	---	---	Yes	---	---	---	Yes	---	---
ENSG00000107165	TYRP1	---	---	---	Yes	---	---	---	Yes	---	---
ENSG00000163960	UBXN7	---	---	---	---	---	Yes	---	Yes	---	---
ENSG00000175567	UCP2	Yes	---	---	---	---	---	Yes	---	---	---
ENSG00000174607	UGT8	Yes	---	---	---	---	---	---	---	---	---
ENSG00000168038	ULK4	---	---	---	Yes	---	---	---	Yes	---	---
ENSG00000113763	UNC5A	---	---	Yes	---	---	---	---	---	---	---
ENSG00000118640	VAMP8	Yes	---	---	---	---	---	Yes	---	---	---
ENSG00000171724	VAT1L	---	Yes	---	---	---	---	---	Yes	---	---
ENSG00000128564	VGF	---	---	Yes	---	---	---	Yes	---	---	---
ENSG00000155659	VSIG4	Yes	---	---	---	---	---	Yes	---	---	---
ENSG00000132821	VSTM2L	Yes	---	---	---	---	---	---	---	---	---
ENSG00000175267	VWA3A	---	Yes	---	---	---	---	---	Yes	---	---

ENSG00000145198	VWA5B2	Yes	---	---	---	---	---	---	---	---	---
ENSG00000015285	WAS	Yes	---	---	---	---	---	Yes	---	---	---
ENSG00000128815	WDFY4	Yes	---	---	---	---	---	Yes	---	---	---
ENSG00000101443	WFDC2	Yes	---	---	---	---	---	---	---	---	---
ENSG00000123124	WWP1	---	---	---	---	Yes	---	---	---	Yes	---
ENSG00000168334	XIRP1	---	---	---	---	Yes	---	Yes	---	---	---
ENSG00000175155	YPEL2	---	---	---	---	Yes	---	---	---	---	---
ENSG00000105939	ZC3HAV1	Yes	---	---	---	---	---	---	---	---	---
ENSG00000099904	ZDHC8	Yes	---	---	---	---	---	---	Yes	---	---
ENSG00000144331	ZNF385B	Yes	---	---	---	---	---	---	---	---	---
ENSG00000181444	ZNF467	Yes	---	---	---	---	---	---	Yes	---	---
ENSG00000180938	ZNF572	---	---	---	---	---	Yes	---	Yes	---	---
ENSG00000196172	ZNF681	---	---	---	---	---	Yes	---	Yes	---	---
ENSG00000170396	ZNF804A	---	Yes	---	---	---	---	---	---	---	---

Anexo 6. Módulos de WGCNA para cada região estriatal. Na coluna HUB são os genes *hubs* que estão presentes em casos ou controles (ou nos dois). Na coluna DEGs são os genes encontrados no módulo e que também são diferencialmente expressos na região, (CN, n=762 genes), (NAC, n=877 genes), (PT, n=522 genes).

Ensembl_gene (CN)	gene_name	módulo WGCNA	HUB	DEGs
ENSG00000002745	WNT16	Tan	--	--
ENSG00000004948	CALCR	Tan	--	--
ENSG00000005436	GCFC2	Tan	--	--
ENSG00000005483	KMT2E	Tan	--	--
ENSG00000005844	ITGAL	Tan	--	SIM
ENSG00000007080	CCDC124	Tan	--	--
ENSG00000007952	NOX1	Tan	--	--
ENSG00000010327	STAB1	Tan	--	SIM
ENSG00000010704	HFE	Tan	--	SIM
ENSG00000011083	SLC6A7	Tan	TOC	--
ENSG00000012223	LTF	Tan	--	--
ENSG00000013503	POLR3B	Tan	TOC	--
ENSG00000015520	NPC1L1	Tan	--	--
ENSG00000026751	SLAMF7	Tan	Controle	--
ENSG00000027644	INSRR	Tan	--	--
ENSG00000036473	OTC	Tan	--	--
ENSG00000042429	MED17	Tan	--	--
ENSG00000046604	DSG2	Tan	--	--
ENSG00000047634	SCML1	Tan	Controle	--
ENSG00000048828	FAM120A	Tan	--	--
ENSG00000053438	NNAT	Tan	Controle / TOC	--
ENSG00000054654	SYNE2	Tan	TOC	--
ENSG00000064201	TSPAN32	Tan	--	--
ENSG00000064309	CDON	Tan	--	--
ENSG00000064545	TMEM161A	Tan	--	--
ENSG00000064961	HMG20B	Tan	TOC	--
ENSG00000065057	NTHL1	Tan	--	SIM
ENSG00000072501	SMC1A	Tan	--	--
ENSG00000073282	TP63	Tan	--	--
ENSG00000074527	NTN4	Tan	--	--
ENSG00000075188	NUP37	Tan	--	--
ENSG00000076067	RBMS2	Tan	--	--
ENSG00000077943	ITGA8	Tan	TOC	--
ENSG00000080189	SLC35C2	Tan	Controle	--
ENSG00000082781	ITGB5	Tan	--	--
ENSG00000083067	TRPM3	Tan	TOC	--
ENSG00000084628	NKAIN1	Tan	--	--
ENSG00000086717	PPEF1	Tan	--	--
ENSG00000087074	PPP1R15A	Tan	--	--
ENSG00000087299	L2HGDH	Tan	--	--
ENSG00000088340	FER1L4	Tan	--	--

ENSG00000089053	ANAPC5	Tan	--	--
ENSG00000089163	SIRT4	Tan	--	--
ENSG00000089775	ZBTB25	Tan	--	--
ENSG00000090006	LTBP4	Tan	--	--
ENSG00000092853	CLSPN	Tan	--	--
ENSG00000100105	PATZ1	Tan	TOC	--
ENSG00000100294	MCAT	Tan	TOC	--
ENSG00000100373	UPK3A	Tan	Controle	--
ENSG00000100479	POLE2	Tan	--	--
ENSG00000100697	DICER1	Tan	--	--
ENSG00000100726	TELO2	Tan	--	--
ENSG00000101216	GMEB2	Tan	--	--
ENSG00000101282	RSPO4	Tan	--	--
ENSG00000101812	H2BFM	Tan	--	--
ENSG00000102316	MAGED2	Tan	--	--
ENSG00000102904	TSNAXIP1	Tan	--	--
ENSG00000103254	FAM173A	Tan	--	--
ENSG00000103275	UBE2I	Tan	TOC	--
ENSG00000104613	INTS10	Tan	TOC	--
ENSG00000104848	KCNA7	Tan	--	--
ENSG00000104903	LYL1	Tan	--	--
ENSG00000105135	ILVBL	Tan	--	--
ENSG00000105146	AURKC	Tan	--	--
ENSG00000105341	ATP5SL	Tan	--	--
ENSG00000105509	HAS1	Tan	--	--
ENSG00000105671	DDX49	Tan	--	--
ENSG00000105866	SP4	Tan	--	--
ENSG00000106462	EZH2	Tan	--	--
ENSG00000106546	AHR	Tan	--	--
ENSG00000107165	TYRP1	Tan	--	--
ENSG00000107593	PKD2L1	Tan	--	--
ENSG00000107798	LIPA	Tan	--	--
ENSG00000107984	DKK1	Tan	--	--
ENSG00000108021	FAM208B	Tan	--	--
ENSG00000108187	PBLD	Tan	--	--
ENSG00000108823	SGCA	Tan	--	--
ENSG00000109265	KIAA1211	Tan	--	--
ENSG00000110628	SLC22A18	Tan	--	--
ENSG00000110887	DAO	Tan	Controle / TOC	--
ENSG00000110925	CSRNP2	Tan	TOC	--
ENSG00000111087	GLI1	Tan	--	--
ENSG00000111249	CUX2	Tan	--	--
ENSG00000111405	ENDOU	Tan	--	--
ENSG00000111845	PAK1IP1	Tan	--	--
ENSG00000112218	GPR63	Tan	--	SIM
ENSG00000112282	MED23	Tan	Controle	--
ENSG00000112655	PTK7	Tan	--	--
ENSG00000112715	VEGFA	Tan	--	--
ENSG00000112742	TTK	Tan	--	--
ENSG00000112818	MEP1A	Tan	--	--

ENSG00000114124	GRK7	Tan	--	--
ENSG00000114988	LMAN2L	Tan	--	--
ENSG00000115020	PIKFYVE	Tan	--	--
ENSG00000115318	LOXL3	Tan	--	SIM
ENSG00000115738	ID2	Tan	--	--
ENSG00000116014	KISS1R	Tan	--	--
ENSG00000116117	PARD3B	Tan	--	--
ENSG00000116641	DOCK7	Tan	--	--
ENSG00000116774	OLFML3	Tan	--	--
ENSG00000116824	CD2	Tan	--	--
ENSG00000116991	SIPA1L2	Tan	--	--
ENSG00000117115	PADI2	Tan	--	--
ENSG00000118271	TTR	Tan	--	--
ENSG00000118322	ATP10B	Tan	--	--
ENSG00000118922	KLF12	Tan	--	--
ENSG00000119431	HDHD3	Tan	--	--
ENSG00000119574	ZBTB45	Tan	--	--
ENSG00000120008	WDR11	Tan	--	--
ENSG00000120215	MLANA	Tan	--	--
ENSG00000120457	KCNJ5	Tan	--	--
ENSG00000120693	SMAD9	Tan	--	--
ENSG00000121769	FABP3	Tan	--	--
ENSG00000122224	LY9	Tan	--	--
ENSG00000122735	DNAI1	Tan	--	--
ENSG00000122786	CALD1	Tan	--	--
ENSG00000123080	CDKN2C	Tan	--	--
ENSG00000123201	GUCY1B2	Tan	--	--
ENSG00000123473	STIL	Tan	--	--
ENSG00000124253	PCK1	Tan	--	--
ENSG00000124257	NEURL2	Tan	--	--
ENSG00000124523	SIRT5	Tan	--	--
ENSG00000125534	PPDPF	Tan	--	--
ENSG00000127241	MASP1	Tan	--	--
ENSG00000127311	HELB	Tan	--	--
ENSG00000127564	PKMYT1	Tan	--	--
ENSG00000127947	PTPN12	Tan	--	--
ENSG00000128891	C15orf57	Tan	--	--
ENSG00000129451	KLK10	Tan	--	--
ENSG00000129534	MIS18BP1	Tan	--	--
ENSG00000129932	DOHH	Tan	TOC	--
ENSG00000129968	ABHD17A	Tan	--	SIM
ENSG00000130649	CYP2E1	Tan	--	--
ENSG00000130812	ANGPTL6	Tan	TOC	--
ENSG00000131094	C1QL1	Tan	TOC	--
ENSG00000131188	PRR7	Tan	--	SIM
ENSG00000131558	EXOC4	Tan	--	--
ENSG00000131831	RAI2	Tan	--	--
ENSG00000132436	FIGNL1	Tan	--	--
ENSG00000133063	CHIT1	Tan	--	--
ENSG00000133116	KL	Tan	TOC	--

ENSG00000134480	CCNH	Tan	TOC	--
ENSG00000134594	RAB33A	Tan	--	--
ENSG00000134762	DSC3	Tan	--	--
ENSG00000134779	TPGS2	Tan	Controle	--
ENSG00000135063	FAM189A2	Tan	--	--
ENSG00000135100	HNF1A	Tan	--	--
ENSG00000135451	TROAP	Tan	--	--
ENSG00000135763	URB2	Tan	--	--
ENSG00000135903	PAX3	Tan	--	--
ENSG00000135953	MFSD9	Tan	--	--
ENSG00000136051	KIAA1033	Tan	--	--
ENSG00000136161	RCBTB2	Tan	--	--
ENSG00000136235	GPNMB	Tan	--	--
ENSG00000136383	ALPK3	Tan	--	--
ENSG00000136731	UGGT1	Tan	Controle	--
ENSG00000136866	ZFP37	Tan	--	--
ENSG00000137413	TAF8	Tan	Controle	--
ENSG00000137809	ITGA11	Tan	--	--
ENSG00000137875	BCL2L10	Tan	--	--
ENSG00000137962	ARHGAP29	Tan	--	--
ENSG00000138587	MNS1	Tan	--	--
ENSG00000138738	PRDM5	Tan	--	--
ENSG00000138829	FBN2	Tan	--	--
ENSG00000139372	TDG	Tan	--	--
ENSG00000139915	MDGA2	Tan	--	--
ENSG00000140015	KCNH5	Tan	--	--
ENSG00000140287	HDC	Tan	--	--
ENSG00000140968	IRF8	Tan	--	--
ENSG00000141446	ESCO1	Tan	--	--
ENSG00000141458	NPC1	Tan	--	--
ENSG00000141506	PIK3R5	Tan	Controle	SIM
ENSG00000141560	FN3KRP	Tan	--	--
ENSG00000141682	PMAIP1	Tan	--	--
ENSG00000142528	ZNF473	Tan	--	--
ENSG00000142698	C1orf94	Tan	--	--
ENSG00000143067	ZNF697	Tan	--	--
ENSG00000144893	MED12L	Tan	--	--
ENSG00000145242	EPHA5	Tan	--	--
ENSG00000145649	GZMA	Tan	TOC	--
ENSG00000145832	SLC25A48	Tan	--	--
ENSG00000146090	RASGEF1C	Tan	--	--
ENSG00000146350	TBC1D32	Tan	--	--
ENSG00000146374	RSPO3	Tan	--	--
ENSG00000148136	OR13C4	Tan	--	--
ENSG00000148300	REXO4	Tan	--	--
ENSG00000148803	FUOM	Tan	--	--
ENSG00000149531	FRG1B	Tan	--	--
ENSG00000149548	CCDC15	Tan	--	--
ENSG00000150045	KLRF1	Tan	--	--
ENSG00000150630	VEGFC	Tan	--	--

ENSG00000151023	ENKUR	Tan	--	--
ENSG00000151117	TMEM86A	Tan	--	--
ENSG00000151287	TEX30	Tan	--	--
ENSG00000152454	ZNF256	Tan	--	--
ENSG00000153790	C7orf31	Tan	--	--
ENSG00000153922	CHD1	Tan	--	--
ENSG00000154096	THY1	Tan	TOC	--
ENSG00000154721	JAM2	Tan	--	--
ENSG00000155849	ELMO1	Tan	--	--
ENSG00000157240	FZD1	Tan	--	--
ENSG00000157303	SUSD3	Tan	--	--
ENSG00000157927	RADIL	Tan	--	--
ENSG00000157999	ANKRD61	Tan	--	--
ENSG00000158955	WNT9B	Tan	TOC	--
ENSG00000159579	RSPRY1	Tan	--	--
ENSG00000159714	ZDHHC1	Tan	--	--
ENSG00000159958	TNFRSF13C	Tan	--	--
ENSG00000160703	NLRX1	Tan	--	--
ENSG00000160999	SH2B2	Tan	--	--
ENSG00000161040	FBXL13	Tan	--	--
ENSG00000161652	IZUMO2	Tan	Controle	--
ENSG00000161714	PLCD3	Tan	TOC	--
ENSG00000161798	AQP5	Tan	--	--
ENSG00000162804	SNED1	Tan	--	--
ENSG00000163508	EOMES	Tan	Controle	--
ENSG00000163516	ANKZF1	Tan	--	--
ENSG00000163660	CCNL1	Tan	--	--
ENSG00000163755	HPS3	Tan	--	--
ENSG00000163888	CAMK2N2	Tan	--	--
ENSG00000163958	ZDHHC19	Tan	--	--
ENSG00000164010	ERMAP	Tan	--	--
ENSG00000164045	CDC25A	Tan	--	--
ENSG00000164118	CEP44	Tan	--	--
ENSG00000164167	LSM6	Tan	--	--
ENSG00000164175	SLC45A2	Tan	--	--
ENSG00000164197	RNF180	Tan	--	--
ENSG00000164220	F2RL2	Tan	--	--
ENSG00000164296	TIGD6	Tan	Controle	--
ENSG00000164530	PI16	Tan	--	--
ENSG00000164543	STK17A	Tan	--	--
ENSG00000164638	SLC29A4	Tan	--	--
ENSG00000164669	INTS4P1	Tan	--	--
ENSG00000164707	SLC13A4	Tan	--	--
ENSG00000164749	HNF4G	Tan	Controle	--
ENSG00000164930	FZD6	Tan	--	--
ENSG00000164967	RPP25L	Tan	--	--
ENSG00000165646	SLC18A2	Tan	--	--
ENSG00000165914	TTC7B	Tan	TOC	--
ENSG00000166025	AMOTL1	Tan	TOC	--
ENSG00000166289	PLEKHF1	Tan	TOC	--

ENSG00000166323	C11orf65	Tan	--	--
ENSG00000167157	PRRX2	Tan	--	--
ENSG00000167333	TRIM68	Tan	Controle	--
ENSG00000167700	MFSD3	Tan	--	SIM
ENSG00000168038	ULK4	Tan	--	--
ENSG00000168124	OR1F1	Tan	--	--
ENSG00000168282	MGAT2	Tan	--	--
ENSG00000168329	CX3CR1	Tan	--	--
ENSG00000168421	RHOH	Tan	--	--
ENSG00000168769	TET2	Tan	--	--
ENSG00000168811	IL12A	Tan	--	--
ENSG00000169299	PGM2	Tan	--	--
ENSG00000169495	HTRA4	Tan	--	--
ENSG00000170092	SPDYE5	Tan	--	--
ENSG00000170275	CRTAP	Tan	--	--
ENSG00000170468	C14orf169	Tan	--	--
ENSG00000170584	NUDCD2	Tan	--	--
ENSG00000170961	HAS2	Tan	--	--
ENSG00000171444	MCC	Tan	--	--
ENSG00000171453	POLR1C	Tan	--	--
ENSG00000171813	PWWP2B	Tan	--	SIM
ENSG00000172531	PPP1CA	Tan	TOC	--
ENSG00000172673	THEMIS	Tan	--	--
ENSG00000173156	RHOD	Tan	--	--
ENSG00000173230	GOLGB1	Tan	--	--
ENSG00000173801	JUP	Tan	TOC	--
ENSG00000173805	HAP1	Tan	--	SIM
ENSG00000174579	MSL2	Tan	--	--
ENSG00000174744	BRMS1	Tan	Controle	--
ENSG00000175463	TBC1D10C	Tan	--	--
ENSG00000175538	KCNE3	Tan	--	SIM
ENSG00000175595	ERCC4	Tan	--	--
ENSG00000175697	GPR156	Tan	--	--
ENSG00000175766	EIF4E1B	Tan	--	--
ENSG00000175898	CTD-2369P2.2	Tan	--	--
ENSG00000175985	PLEKHD1	Tan	--	--
ENSG00000176826	FKBP9P1	Tan	--	--
ENSG00000176998	HCG4	Tan	--	--
ENSG00000177138	FAM9B	Tan	--	--
ENSG00000177425	PAWR	Tan	--	--
ENSG00000177669	MBOAT4	Tan	TOC	--
ENSG00000178301	AQP11	Tan	--	--
ENSG00000178531	CTXN1	Tan	--	SIM
ENSG00000178685	PARP10	Tan	--	--
ENSG00000178691	SUZ12	Tan	--	--
ENSG00000178802	MPI	Tan	--	--
ENSG00000179588	ZFPM1	Tan	--	--
ENSG00000179826	MRGPRX3	Tan	--	--
ENSG00000179886	TIGD5	Tan	--	--
ENSG00000179978	RP11-1319K7.1	Tan	Controle	SIM

ENSG00000180209	MYLPF	Tan	--	--
ENSG00000180264	GPR144	Tan	--	--
ENSG00000180720	CHRM4	Tan	--	--
ENSG00000180815	MAP3K15	Tan	--	--
ENSG00000180979	LRRC57	Tan	--	--
ENSG00000181472	ZBTB2	Tan	--	--
ENSG00000181804	SLC9A9	Tan	--	SIM
ENSG00000182154	MRPL41	Tan	--	--
ENSG00000182698	RESP18	Tan	--	--
ENSG00000183018	SPNS2	Tan	--	--
ENSG00000183090	FREM3	Tan	TOC	--
ENSG00000183654	March11	Tan	Controle	--
ENSG00000183918	SH2D1A	Tan	Controle	--
ENSG00000184110	EIF3C	Tan	--	--
ENSG00000184163	FAM132A	Tan	--	--
ENSG00000184363	PKP3	Tan	--	--
ENSG00000184574	LPAR5	Tan	--	--
ENSG00000184828	ZBTB7C	Tan	--	--
ENSG00000184867	ARMCX2	Tan	TOC	--
ENSG00000184911	DMRTC1B	Tan	Controle	--
ENSG00000184990	SIVA1	Tan	--	--
ENSG00000185038	MROH2A	Tan	--	--
ENSG00000185065	AC000068.5	Tan	TOC	--
ENSG00000185187	SIGIRR	Tan	--	--
ENSG00000185614	FAM212A	Tan	Controle	--
ENSG00000185630	PBX1	Tan	--	--
ENSG00000185641	CTD-2287O16.1	Tan	--	--
ENSG00000185989	RASA3	Tan	--	--
ENSG00000186564	FOXD2	Tan	TOC	--
ENSG00000186603	HPDL	Tan	--	--
ENSG00000186806	VSIG10L	Tan	--	--
ENSG00000186854	TRABD2A	Tan	--	--
ENSG00000187080	OR2AK2	Tan	--	--
ENSG00000187268	FAM9C	Tan	--	--
ENSG00000187474	FPR3	Tan	--	--
ENSG00000188610	FAM72B	Tan	--	--
ENSG00000188636	LDOC1L	Tan	--	--
ENSG00000188643	S100A16	Tan	--	--
ENSG00000188690	UROS	Tan	--	SIM
ENSG00000188848	BEND4	Tan	--	--
ENSG00000188916	FAM196A	Tan	TOC	--
ENSG00000188994	ZNF292	Tan	--	--
ENSG00000196388	INCA1	Tan	--	--
ENSG00000196436	NPIP15	Tan	--	--
ENSG00000196544	C17orf59	Tan	--	--
ENSG00000196550	FAM72A	Tan	--	--
ENSG00000196754	S100A2	Tan	--	--
ENSG00000196796	CTB-134H23.2	Tan	--	--
ENSG00000196935	SRGAP1	Tan	--	--
ENSG00000197093	GAL3ST4	Tan	--	--

ENSG00000197284	RP11-589F5.3	Tan	Controle	--
ENSG00000197461	PDGFA	Tan	TOC	--
ENSG00000197462	AC005276.1	Tan	--	--
ENSG00000197548	ATG7	Tan	--	--
ENSG00000197582	GPX1P1	Tan	--	--
ENSG00000197769	MAP1LC3C	Tan	--	--
ENSG00000197965	MPZL1	Tan	--	--
ENSG00000197977	ELOVL2	Tan	--	--
ENSG00000197982	C1orf122	Tan	--	--
ENSG00000198155	ZNF876P	Tan	--	--
ENSG00000198156	NPIPB6	Tan	--	--
ENSG00000198824	CHAMP1	Tan	--	--
ENSG00000198846	TOX	Tan	--	--
ENSG00000198885	ITPRIPL1	Tan	--	--
ENSG00000200312	RN7SKP255	Tan	Controle	--
ENSG00000200314	Y_RNA	Tan	--	--
ENSG00000200488	RN7SKP203	Tan	--	--
ENSG00000202354	RNY3	Tan	--	SIM
ENSG00000203589	RP5-886K2.1	Tan	--	--
ENSG00000204052	LRRC73	Tan	--	SIM
ENSG00000204290	BTNL2	Tan	Controle	--
ENSG00000204347	BTBD17	Tan	--	--
ENSG00000204380	AC005042.4	Tan	Controle	--
ENSG00000204952	FBXO47	Tan	--	--
ENSG00000205413	SAMD9	Tan	TOC	--
ENSG00000207631	MIR641	Tan	--	--
ENSG00000213078	RP5-933K21.2	Tan	--	--
ENSG00000213089	PDCL3P5	Tan	--	--
ENSG00000213214	ARHGEF35	Tan	--	--
ENSG00000213492	NT5C3AP1	Tan	Controle	--
ENSG00000213509	PPIAP16	Tan	--	--
ENSG00000213885	RPL13AP7	Tan	--	--
ENSG00000213959	RP5-1100H13.3	Tan	--	--
ENSG00000214027	ARPC3P5	Tan	--	SIM
ENSG00000214043	RP5-944M2.3	Tan	--	--
ENSG00000214160	ALG3	Tan	--	--
ENSG00000214198	GNN	Tan	--	--
ENSG00000214210	RP11-208P4.1	Tan	--	--
ENSG00000214646	RP11-114H24.4	Tan	--	--
ENSG00000214787	MS4A4E	Tan	--	SIM
ENSG00000214826	DDX12P	Tan	--	--
ENSG00000215841	RP11-800A3.2	Tan	--	--
ENSG00000219507	FTH1P8	Tan	--	--
ENSG00000220749	RPL21P28	Tan	--	--
ENSG00000221843	C2orf16	Tan	--	--
ENSG00000222078	RN7SKP110	Tan	--	--
ENSG00000223318	RNA5SP111	Tan	--	--
ENSG00000223518	CSNK1A1P1	Tan	--	--
ENSG00000223776	LGALS8-AS1	Tan	--	--
ENSG00000223799	IL10RB-AS1	Tan	--	--

ENSG00000223861	RP11-74C1.2	Tan	--	--
ENSG00000223874	AC007557.1	Tan	--	--
ENSG00000223947	AC016738.4	Tan	--	--
ENSG00000224157	HCG14	Tan	Controle	--
ENSG00000224307	RP11-344B5.2	Tan	--	--
ENSG00000224418	STK24-AS1	Tan	--	--
ENSG00000224511	LINC00365	Tan	Controle	--
ENSG00000224553	AC008065.1	Tan	--	--
ENSG00000224715	CITF22-49D8.1	Tan	--	--
ENSG00000224895	VPS26BP1	Tan	--	--
ENSG00000224956	RP11-206L10.1	Tan	--	--
ENSG00000225154	RP11-184J23.2	Tan	--	--
ENSG00000225549	RP11-210H10__A.1	Tan	--	--
ENSG00000225662	RP11-1036F1.1	Tan	--	--
ENSG00000225681	AC005730.2	Tan	--	--
ENSG00000225779	RP4-603I14.3	Tan	--	--
ENSG00000225792	AC004540.4	Tan	TOC	--
ENSG00000225986	UBXN10-AS1	Tan	--	--
ENSG00000226015	CCT8P1	Tan	--	--
ENSG00000226031	FGF13-AS1	Tan	--	--
ENSG00000226137	BAIAP2-AS1	Tan	TOC	SIM
ENSG00000226203	RP4-760C5.5	Tan	Controle	--
ENSG00000226904	RP11-561O23.8	Tan	--	--
ENSG00000227097	RPS28P7	Tan	--	--
ENSG00000227203	SUB1P1	Tan	--	--
ENSG00000227218	RP11-203J24.8	Tan	--	--
ENSG00000227256	MIS18A-AS1	Tan	--	--
ENSG00000227262	HCG4B	Tan	--	--
ENSG00000227463	RP11-158D2.2	Tan	--	--
ENSG00000227502	LINC01268	Tan	--	--
ENSG00000227507	LTB	Tan	--	--
ENSG00000227766	HCG4P5	Tan	--	--
ENSG00000227962	RP11-382D8.3	Tan	--	--
ENSG00000228961	AP000282.3	Tan	--	--
ENSG00000228971	RP11-286B14.1	Tan	Controle	--
ENSG00000228989	AC133528.2	Tan	--	--
ENSG00000229156	RP11-250H24.2	Tan	--	--
ENSG00000229388	RP11-442N24__B.1	Tan	--	--
ENSG00000229403	RP4-718N17.2	Tan	TOC	--
ENSG00000229589	ACVR2B-AS1	Tan	--	--
ENSG00000229727	AC013460.1	Tan	--	--
ENSG00000229775	RP11-298H24.1	Tan	--	--
ENSG00000229820	RP1-308E4.1	Tan	--	--
ENSG00000229912	AC128709.4	Tan	--	--
ENSG00000229957	RP5-998H6.2	Tan	--	--
ENSG00000230131	RP11-282I1.1	Tan	--	--
ENSG00000230444	TFAMP1	Tan	--	--
ENSG00000230635	CYP4F60P	Tan	Controle	--
ENSG00000230650	AC112229.1	Tan	--	--

ENSG00000231066	NPM1P9	Tan	--	--
ENSG00000231205	ZNF826P	Tan	--	--
ENSG00000231217	RP11-1M18.1	Tan	Controle	--
ENSG00000231434	RP11-144L1.8	Tan	--	--
ENSG00000231527	RP11-374M1.2	Tan	--	--
ENSG00000231918	AC007682.1	Tan	--	--
ENSG00000232057	AC093390.1	Tan	Controle	--
ENSG00000232150	ST13P4	Tan	--	--
ENSG00000232166	RP4-799P18.5	Tan	--	--
ENSG00000232237	ASCL5	Tan	--	--
ENSG00000232320	AC009299.5	Tan	--	--
ENSG00000232437	RP11-487I5.4	Tan	--	--
ENSG00000232788	AC078883.3	Tan	--	--
ENSG00000232872	CTAGE3P	Tan	--	--
ENSG00000232987	LINC01219	Tan	--	--
ENSG00000233013	FAM157B	Tan	--	--
ENSG00000233038	AC011899.9	Tan	--	--
ENSG00000233220	LINC00167	Tan	--	--
ENSG00000233684	AC079779.6	Tan	--	--
ENSG00000233725	LINC00284	Tan	--	--
ENSG00000233797	UFL1-AS1	Tan	--	--
ENSG00000234071	RP11-420H19.1	Tan	--	--
ENSG00000234233	KCNH1-IT1	Tan	--	--
ENSG00000234323	RP11-308N19.1	Tan	--	--
ENSG00000234498	RPL13AP20	Tan	--	--
ENSG00000234709	UPF3AP3	Tan	--	--
ENSG00000234737	KRT18P15	Tan	--	--
ENSG00000234999	SNRPCP19	Tan	--	--
ENSG00000235119	RP11-9M16.2	Tan	--	--
ENSG00000235450	RP11-142A5.1	Tan	--	--
ENSG00000235652	RP11-545I5.3	Tan	--	--
ENSG00000235711	ANKRD34C	Tan	--	--
ENSG00000235875	ARHGEF7-AS2	Tan	--	--
ENSG00000236120	RP11-733O18.1	Tan	--	--
ENSG00000236377	AC084809.3	Tan	--	--
ENSG00000236383	LINC00854	Tan	--	--
ENSG00000236427	RP11-107M16.2	Tan	TOC	--
ENSG00000236432	AC097662.2	Tan	TOC	--
ENSG00000236437	AP001891.1	Tan	--	--
ENSG00000236489	RP11-537I16.2	Tan	Controle	--
ENSG00000236646	LAMTOR5P1	Tan	--	--
ENSG00000236924	RP11-390F4.6	Tan	--	--
ENSG00000237264	FTH1P11	Tan	--	--
ENSG00000237273	RSL24D1P8	Tan	--	--
ENSG00000237356	AL163953.3	Tan	--	--
ENSG00000237451	CDK2AP2P2	Tan	--	--
ENSG00000237557	YWHABP1	Tan	Controle	--
ENSG00000237594	AP000251.3	Tan	Controle	--
ENSG00000237640	RP4-604G5.1	Tan	--	--
ENSG00000237649	KIFC1	Tan	--	--

ENSG00000237773	AC003075.4	Tan	--	--
ENSG00000238113	LINC01410	Tan	--	SIM
ENSG00000238819	SNORD11	Tan	--	--
ENSG00000239205	RP11-747D18.1	Tan	Controle	--
ENSG00000239470	RP11-16F15.2	Tan	--	--
ENSG00000239705	RP11-65N13.8	Tan	--	--
ENSG00000239899	RN7SL674P	Tan	--	SIM
ENSG00000240183	RN7SL297P	Tan	Controle	--
ENSG00000240912	RP11-274J15.2	Tan	--	--
ENSG00000240964	RN7SL751P	Tan	--	--
ENSG00000241223	RN7SL39P	Tan	Controle	--
ENSG00000241462	RP11-579O24.1	Tan	--	--
ENSG00000241535	CBX5P1	Tan	--	--
ENSG00000241684	ADAMTS9-AS2	Tan	Controle	--
ENSG00000241770	RP11-555M1.3	Tan	--	--
ENSG00000242436	RN7SL789P	Tan	Controle / TOC	--
ENSG00000242445	RPL7AP11	Tan	--	--
ENSG00000242650	RN7SL292P	Tan	--	--
ENSG00000243199	RP11-408P14.1	Tan	TOC	--
ENSG00000243295	CTD-2185K10.1	Tan	TOC	--
ENSG00000243661	WBP1LP1	Tan	--	--
ENSG00000244237	RP11-1046B16.1	Tan	--	--
ENSG00000244300	GATA2-AS1	Tan	TOC	--
ENSG00000244306	LINC01296	Tan	--	--
ENSG00000244389	RN7SL242P	Tan	--	--
ENSG00000244427	RP11-52B19.1	Tan	--	--
ENSG00000244582	RPL21P120	Tan	--	--
ENSG00000245498	RP11-677M14.7	Tan	--	--
ENSG00000245848	CEBPA	Tan	Controle	--
ENSG00000246084	CTD-2506J14.1	Tan	Controle	--
ENSG00000246308	RP11-685M7.3	Tan	--	--
ENSG00000246548	RP11-7F17.5	Tan	--	--
ENSG00000246774	AC004051.2	Tan	--	--
ENSG00000247315	ZCCHC3	Tan	--	--
ENSG00000248265	FLJ12825	Tan	--	--
ENSG00000248455	RP11-321E2.3	Tan	--	--
ENSG00000248510	RP11-145G20.1	Tan	--	--
ENSG00000248544	CTB-47B11.3	Tan	--	--
ENSG00000248697	TOX4P1	Tan	--	--
ENSG00000248724	NPHP3-AS1	Tan	Controle	--
ENSG00000248773	RP11-231L11.3	Tan	--	--
ENSG00000249203	RP11-473L15.3	Tan	--	--
ENSG00000249241	AC195454.1	Tan	Controle / TOC	--
ENSG00000249346	LINC01016	Tan	--	--
ENSG00000249437	NAIP	Tan	--	SIM
ENSG00000249494	CTB-161M19.4	Tan	--	--
ENSG00000249693	THEGL	Tan	--	--
ENSG00000249736	RP11-83M16.5	Tan	--	--
ENSG00000249855	EEF1A1P19	Tan	Controle	--
ENSG00000249996	RP11-359P5.1	Tan	--	--

ENSG00000250039	RP11-17E2.2	Tan	Controle	--
ENSG00000250189	RP11-362F19.2	Tan	--	--
ENSG00000250357	RP11-503L19.1	Tan	--	--
ENSG00000250410	RP11-714G18.1	Tan	--	--
ENSG00000250418	RP11-503D12.1	Tan	--	--
ENSG00000250446	LINC01332	Tan	--	--
ENSG00000250486	FAM218A	Tan	--	--
ENSG00000250497	AC007126.1	Tan	Controle	--
ENSG00000251002	AE000661.37	Tan	--	--
ENSG00000251003	ZFPM2-AS1	Tan	--	--
ENSG00000251369	ZNF550	Tan	--	--
ENSG00000251456	RP11-436H11.5	Tan	--	--
ENSG00000251493	FOXD1	Tan	TOC	--
ENSG00000251568	ALG3P1	Tan	--	--
ENSG00000253297	CTB-160O22.1	Tan	--	--
ENSG00000253468	KB-1517D11.2	Tan	--	--
ENSG00000253503	RP11-653B10.1	Tan	--	--
ENSG00000253520	RP11-798K23.5	Tan	--	--
ENSG00000253661	ZFHX4-AS1	Tan	--	SIM
ENSG00000253829	RP11-723D22.3	Tan	--	--
ENSG00000253868	FER1L6-AS2	Tan	--	--
ENSG00000253891	RP11-203E8.1	Tan	--	--
ENSG00000253988	RP11-489O18.1	Tan	--	SIM
ENSG00000254039	RP11-304F15.6	Tan	--	--
ENSG00000254275	LINC00824	Tan	--	--
ENSG00000254286	RP11-89K10.1	Tan	--	--
ENSG00000254465	PRKRIRP4	Tan	--	--
ENSG00000254507	RP11-481A20.10	Tan	--	--
ENSG00000254531	FLJ20021	Tan	--	--
ENSG00000254610	RP5-903G2.2	Tan	--	--
ENSG00000254781	GVINP2	Tan	--	--
ENSG00000254968	RP11-65M17.3	Tan	--	--
ENSG00000255020	AF131216.5	Tan	--	--
ENSG00000255021	RP11-536I6.2	Tan	Controle	--
ENSG00000255129	RP11-839D17.3	Tan	--	--
ENSG00000255231	MRPS36P4	Tan	--	--
ENSG00000255435	RP11-770J1.3	Tan	--	--
ENSG00000255438	CTD-2653D5.1	Tan	Controle	--
ENSG00000255441	CTD-2616J11.2	Tan	--	--
ENSG00000255459	RP11-52B19.10	Tan	--	--
ENSG00000255465	RP11-264E20.1	Tan	--	--
ENSG00000255650	FAM222A-AS1	Tan	--	--
ENSG00000255670	RP11-253I19.3	Tan	--	--
ENSG00000255857	PXN-AS1	Tan	TOC	--
ENSG00000255980	AP000439.1	Tan	--	--
ENSG00000256092	MIR8072	Tan	--	--
ENSG00000256379	TRAV8-5	Tan	--	--
ENSG00000256538	RP11-847H18.3	Tan	--	--
ENSG00000256576	RP13-977J11.2	Tan	--	--
ENSG00000256618	MTRNR2L1	Tan	Controle	--

ENSG00000256690	RP11-727F15.9	Tan	--	--
ENSG00000257017	HP	Tan	--	--
ENSG00000257056	RP11-966I7.2	Tan	--	--
ENSG00000257243	RP11-133N21.7	Tan	--	--
ENSG00000257443	RP11-150C16.1	Tan	--	--
ENSG00000257509	RP11-762I7.4	Tan	--	--
ENSG00000257809	RP11-603J24.14	Tan	--	--
ENSG00000258408	NT5CP2	Tan	--	--
ENSG00000258702	RP11-433J8.1	Tan	--	--
ENSG00000258824	CTD-2555O16.2	Tan	--	--
ENSG00000258896	SCOCP1	Tan	Controle / TOC	--
ENSG00000259198	RP11-133K1.6	Tan	--	--
ENSG00000259280	RP11-122D10.1	Tan	--	--
ENSG00000259349	RP11-15E18.1	Tan	--	--
ENSG00000259459	RP11-321G12.1	Tan	--	--
ENSG00000259467	NDUFAF4P1	Tan	--	--
ENSG00000259498	RP11-244F12.3	Tan	--	--
ENSG00000259687	LINC01220	Tan	--	--
ENSG00000259780	RP11-304L19.12	Tan	TOC	--
ENSG00000259924	RP11-16E23.4	Tan	--	--
ENSG00000260011	RP13-20L14.1	Tan	--	--
ENSG00000260369	CTD-2526A2.2	Tan	--	--
ENSG00000260455	CASC14	Tan	--	--
ENSG00000260465	RP11-63M22.2	Tan	--	--
ENSG00000260470	RP11-834C11.11	Tan	--	--
ENSG00000260493	RP11-219B4.7	Tan	--	--
ENSG00000260510	AC004381.7	Tan	--	--
ENSG00000260581	CTB-113P19.4	Tan	--	--
ENSG00000260601	RP11-552C15.1	Tan	--	--
ENSG00000260655	CTA-250D10.23	Tan	--	--
ENSG00000260806	RP11-872J21.3	Tan	--	--
ENSG00000260830	RP11-524O1.4	Tan	--	--
ENSG00000260997	RP4-647J21.1	Tan	--	--
ENSG00000261043	MIR4313	Tan	--	--
ENSG00000261093	CTD-3126B10.1	Tan	--	--
ENSG00000261295	RP11-524D16__A.3	Tan	--	--
ENSG00000261335	RP11-318A15.2	Tan	--	--
ENSG00000261349	RP3-465N24.5	Tan	--	--
ENSG00000261402	RP11-378I6.1	Tan	--	--
ENSG00000261568	RP11-524C21.2	Tan	--	--
ENSG00000261616	RP11-6O2.3	Tan	--	--
ENSG00000261653	RP11-21L1.1	Tan	Controle	--
ENSG00000261693	RP13-467H17.1	Tan	--	--
ENSG00000261701	HPR	Tan	--	--
ENSG00000261766	RP11-22P6.2	Tan	--	--
ENSG00000261780	CTD-2354A18.1	Tan	--	--
ENSG00000261790	AC005606.14	Tan	--	--
ENSG00000261848	CTD-2309O5.3	Tan	--	--
ENSG00000262265	RP5-867C24.4	Tan	--	--

ENSG00000262488	RP11-876N24.1	Tan	--	--
ENSG00000262879	RP11-156P1.3	Tan	--	--
ENSG00000263001	GTF2I	Tan	--	--
ENSG00000263063	RP11-388C12.1	Tan	--	--
ENSG00000263531	RP13-753N3.1	Tan	--	--
ENSG00000263727	RP11-806L2.5	Tan	--	--
ENSG00000263878	DLGAP1-AS4	Tan	Controle	--
ENSG00000264449	RP11-945C19.4	Tan	--	--
ENSG00000264707	L3MBTL4-AS1	Tan	--	--
ENSG00000264840	RN7SL404P	Tan	--	--
ENSG00000264880	RP11-805F19.1	Tan	--	--
ENSG00000265078	RN7SL664P	Tan	--	--
ENSG00000265106	Z93241.1	Tan	--	--
ENSG00000265194	RP11-70L8.4	Tan	--	--
ENSG00000265533	RP11-638L3.1	Tan	--	--
ENSG00000265587	AC068580.1	Tan	--	--
ENSG00000267082	CTC-510F12.2	Tan	--	--
ENSG00000267221	CTD-2132N18.2	Tan	--	--
ENSG00000267284	RP11-397A16.1	Tan	--	--
ENSG00000267493	CIRBP-AS1	Tan	--	--
ENSG00000267655	CTD-2286N8.2	Tan	--	--
ENSG00000267717	SRSF10P1	Tan	Controle / TOC	--
ENSG00000267750	RUNDC3A-AS1	Tan	--	--
ENSG00000268218	AC137932.4	Tan	--	--
ENSG00000268297	CLEC4GP1	Tan	--	--
ENSG00000268536	AC005523.3	Tan	--	--
ENSG00000268555	RP11-678G14.3	Tan	--	--
ENSG00000269019	AC005932.1	Tan	--	--
ENSG00000269053	CTD-2521M24.8	Tan	--	--
ENSG00000269194	AC006942.4	Tan	--	--
ENSG00000269271	CTB-83J4.2	Tan	--	--
ENSG00000269604	AC005523.2	Tan	--	--
ENSG00000269842	MIR519A2	Tan	--	--
ENSG00000270071	AP001172.2	Tan	--	--
ENSG00000270265	RP11-731D1.4	Tan	Controle	--
ENSG00000270574	RP11-171I2.2	Tan	--	--
ENSG00000270681	RP11-372K14.2	Tan	--	--
ENSG00000270953	RP11-2E11.9	Tan	TOC	--
ENSG00000270964	RP11-502I4.3	Tan	--	--
ENSG00000270969	CTD-2355J17.2	Tan	--	--
ENSG00000271040	RP5-933K21.3	Tan	--	--
ENSG00000271141	RP11-171I2.4	Tan	--	--
ENSG00000271200	RP11-430G17.3	Tan	--	--
ENSG00000271394	7SK	Tan	--	--
ENSG00000271440	RP11-373N24.2	Tan	--	--
ENSG00000271811	RP1-79C4.4	Tan	--	--
ENSG00000272002	RP11-557L19.1	Tan	--	--
ENSG00000272004	RP11-345P4.10	Tan	TOC	--
ENSG00000272081	CTD-2376I4.2	Tan	--	--
ENSG00000272150	NBPF25P	Tan	--	--

ENSG00000272201	U47924.30	Tan	--	--
ENSG00000272255	CTD-3224K15.3	Tan	--	--
ENSG00000272265	CTD-2287O16.4	Tan	Controle	--
ENSG00000272269	RP11-500C11.3	Tan	--	--
ENSG00000272379	RP1-257A7.5	Tan	--	--
ENSG00000272631	RP11-359E3.4	Tan	--	--
ENSG00000272662	RP11-190C22.8	Tan	--	--
ENSG00000272733	KB-208E9.1	Tan	--	--
ENSG00000272851	RP11-801F7.1	Tan	Controle	--
ENSG00000272870	RP11-798M19.6	Tan	--	--
ENSG00000272909	CTD-2555O16.4	Tan	TOC	--
ENSG00000272927	RP11-1191J2.5	Tan	--	--
ENSG00000272950	RP11-307C18.1	Tan	--	--
ENSG00000272966	RP11-686O6.1	Tan	--	--
ENSG00000273096	RP3-508I15.20	Tan	--	--
ENSG00000273248	RP11-399K21.13	Tan	--	--
ENSG00000273559	CWC25	Tan	--	--
ENSG00000273573	Metazoa_SRP	Tan	--	--
ENSG00000273723	RP11-93H24.3	Tan	--	--
ENSG00000273920	RP11-761I4.5	Tan	--	--
ENSG00000274667	RP11-31H5.3	Tan	--	--
ENSG00000274825	RP4-616B8.5	Tan	--	--
ENSG00000274885	RP11-268P4.6	Tan	--	--
ENSG00000274922	RP11-88E10.5	Tan	--	--
ENSG00000274976	RP11-8P13.5	Tan	Controle	--
ENSG00000275014	Metazoa_SRP	Tan	--	--
ENSG00000275056	RP11-127I20.8	Tan	--	--
ENSG00000275119	RP11-711K1.8	Tan	--	--
ENSG00000275202	RP11-156K23.3	Tan	--	--
ENSG00000275228	RP11-370I10.10	Tan	--	--
ENSG00000275297	RP11-292F9.1	Tan	--	--
ENSG00000275467	RP11-240G22.4	Tan	Controle	--
ENSG00000275560	RP11-180M15.7	Tan	--	--
ENSG00000275763	C18orf65	Tan	--	--
ENSG00000275835	TUBGCP5	Tan	--	--
ENSG00000276101	RP11-455O6.8	Tan	--	--
ENSG00000276408	RP11-490B18.5	Tan	--	--
ENSG00000276476	LINC00540	Tan	TOC	--
ENSG00000276550	HERC2P2	Tan	--	--
ENSG00000276814	RP1-228P16.8	Tan	--	--
ENSG00000276842	RP11-713N11.6	Tan	--	--
ENSG00000276855	CTD-3157E16.2	Tan	--	--
ENSG00000276963	RP11-318K12.1	Tan	--	--
ENSG00000277087	RP5-1116H23.6	Tan	--	--
ENSG00000277687	RP11-427L15.2	Tan	Controle	--
ENSG00000277900	Metazoa_SRP	Tan	--	--
ENSG00000277958	Metazoa_SRP	Tan	--	--
ENSG00000278133	RP11-196G11.5	Tan	--	--
ENSG00000278238	RP11-245D16.4	Tan	--	--
ENSG00000278341	RP5-1142A6.10	Tan	Controle	--

ENSG00000278600	RP11-81A1.6	Tan	--	--
ENSG00000278765	RP5-890E16.5	Tan	--	--
ENSG00000278882	AC253572.1	Tan	--	--
ENSG00000278914	KB-1517D11.3	Tan	--	--
ENSG00000278982	RP5-1031D4.3	Tan	--	--
ENSG00000279026	RP3-414A15.12	Tan	--	--
ENSG00000279123	RP11-424M24.3	Tan	--	--
ENSG00000279134	RP11-489P6.1	Tan	--	--
ENSG00000279212	RP13-16H11.8	Tan	--	--
ENSG00000279337	CTD-2349P21.7	Tan	--	--
ENSG00000279366	RP11-380M21.3	Tan	--	--
ENSG00000279393	RP11-95G6.1	Tan	Controle	--
ENSG00000279474	CTD-2286N8.1	Tan	--	--
ENSG00000279485	RP11-391A7.1	Tan	--	--
ENSG00000279507	RP11-723O4.7	Tan	--	--
ENSG00000279561	AL845472.1	Tan	--	--
ENSG00000279584	AC005593.2	Tan	--	--
ENSG00000279770	LINC00552	Tan	--	--
ENSG00000280011	RP4-671O14.7	Tan	--	--
ENSG00000280076	RP11-326A13.2	Tan	--	--
ENSG00000280077	RP11-87H9.4	Tan	--	--
ENSG00000280151	FKSG59	Tan	--	--
ENSG00000280180	RP11-244B22.10	Tan	--	--
Ensembl_gene (NAC)	gene_name	módulo WGCNA	HUB	DEGs
ENSG00000005889	ZFX	Purple	--	--
ENSG00000010165	METTL13	Purple	TOC	--
ENSG00000010318	PHF7	Purple	--	--
ENSG00000018625	ATP1A2	Purple	--	--
ENSG00000041988	THAP3	Purple	--	--
ENSG00000042088	TDP1	Purple	--	--
ENSG00000048342	CC2D2A	Purple	--	--
ENSG00000051620	HEBP2	Purple	--	--
ENSG00000052344	PRSS8	Purple	--	--
ENSG00000063761	ADCK1	Purple	--	--
ENSG00000065833	ME1	Purple	--	--
ENSG00000065970	FOXJ2	Purple	--	--
ENSG00000068078	FGFR3	Purple	--	--
ENSG00000071243	ING3	Purple	--	--
ENSG00000076924	XAB2	Purple	--	--
ENSG00000077312	SNRPA	Purple	--	--
ENSG00000078401	EDN1	Purple	--	--
ENSG00000079215	SLC1A3	Purple	--	--
ENSG00000081052	COL4A4	Purple	--	--
ENSG00000081320	STK17B	Purple	--	--
ENSG00000081803	CADPS2	Purple	--	--
ENSG00000082438	COBLL1	Purple	--	--
ENSG00000084674	APOB	Purple	--	--
ENSG00000085563	ABCB1	Purple	--	--
ENSG00000086506	HBQ1	Purple	--	--

ENSG00000087008	ACOX3	Purple	--	--
ENSG00000087365	SF3B2	Purple	--	--
ENSG00000087510	TFAP2C	Purple	--	--
ENSG00000088320	REM1	Purple	--	--
ENSG00000088340	FER1L4	Purple	--	--
ENSG00000088926	F11	Purple	--	--
ENSG00000089012	SIRPG	Purple	--	--
ENSG00000090520	DNAJB11	Purple	--	--
ENSG00000092148	HECTD1	Purple	TOC	--
ENSG00000094963	FMO2	Purple	--	--
ENSG00000095585	BLNK	Purple	--	--
ENSG00000099812	MISP	Purple	--	--
ENSG00000100156	SLC16A8	Purple	--	--
ENSG00000100490	CDKL1	Purple	--	--
ENSG00000100557	C14orf105	Purple	--	--
ENSG00000100982	PCIF1	Purple	--	--
ENSG00000101194	SLC17A9	Purple	--	--
ENSG00000101407	TTI1	Purple	--	--
ENSG00000101452	DHX35	Purple	--	--
ENSG00000101812	H2BFM	Purple	--	--
ENSG00000101935	AMMECR1	Purple	--	--
ENSG00000102854	MSLN	Purple	--	--
ENSG00000103037	SETD6	Purple	--	--
ENSG00000103932	RPAP1	Purple	--	--
ENSG00000104356	POP1	Purple	TOC	--
ENSG00000105131	EPHX3	Purple	--	--
ENSG00000105248	CCDC94	Purple	--	--
ENSG00000105290	APLP1	Purple	--	--
ENSG00000105523	FAM83E	Purple	--	--
ENSG00000106327	TFR2	Purple	--	--
ENSG00000107779	BMPR1A	Purple	TOC	--
ENSG00000110090	CPT1A	Purple	--	--
ENSG00000111412	C12orf49	Purple	--	--
ENSG00000111666	CHPT1	Purple	TOC	--
ENSG00000111788	RP11-22B23.1	Purple	TOC	--
ENSG00000111962	UST	Purple	--	--
ENSG00000111981	ULBP1	Purple	--	--
ENSG00000112624	GLTSCR1L	Purple	--	--
ENSG00000113249	HAVCR1	Purple	--	--
ENSG00000113721	PDGFRB	Purple	--	--
ENSG00000114200	BCHE	Purple	--	--
ENSG00000115556	PLCD4	Purple	--	--
ENSG00000115641	FHL2	Purple	--	--
ENSG00000115677	HDLBP	Purple	--	--
ENSG00000116754	SRSF11	Purple	--	--
ENSG00000116981	NT5C1A	Purple	--	--
ENSG00000116985	BMP8B	Purple	--	--
ENSG00000117036	ETV3	Purple	--	--
ENSG00000117472	TSPAN1	Purple	--	--
ENSG00000117877	CD3EAP	Purple	--	--

ENSG00000118729	CASQ2	Purple	--	--
ENSG00000119523	ALG2	Purple	--	--
ENSG00000119614	VSX2	Purple	--	--
ENSG00000119977	TCTN3	Purple	TOC	--
ENSG00000120664	SPG20-AS1	Purple	--	--
ENSG00000121570	DPPA4	Purple	--	--
ENSG00000121764	HCRTR1	Purple	--	--
ENSG00000121807	CCR2	Purple	--	--
ENSG00000121900	TMEM54	Purple	--	--
ENSG00000122432	SPATA1	Purple	--	--
ENSG00000123124	WWP1	Purple	--	--
ENSG00000124134	KCNS1	Purple	--	--
ENSG00000124253	PCK1	Purple	--	--
ENSG00000124279	FASTKD3	Purple	--	--
ENSG00000124383	MPHOSPH10	Purple	--	--
ENSG00000124688	MAD2L1BP	Purple	TOC	--
ENSG00000124785	NRN1	Purple	--	--
ENSG00000125378	BMP4	Purple	--	--
ENSG00000125447	GGA3	Purple	--	--
ENSG00000125965	GDF5	Purple	--	--
ENSG00000127530	OR7C1	Purple	--	--
ENSG00000127838	PNKD	Purple	--	--
ENSG00000127928	GNGT1	Purple	--	--
ENSG00000128641	MYO1B	Purple	--	--
ENSG00000128928	IVD	Purple	--	--
ENSG00000129810	SGOL1	Purple	--	--
ENSG00000130347	RTN4IP1	Purple	--	--
ENSG00000130513	GDF15	Purple	--	--
ENSG00000130528	HRC	Purple	--	--
ENSG00000131389	SLC6A6	Purple	--	--
ENSG00000131477	RAMP2	Purple	--	--
ENSG00000131773	KHDRBS3	Purple	--	--
ENSG00000132837	DMGDH	Purple	--	--
ENSG00000133884	DPF2	Purple	--	--
ENSG00000134551	PRH2	Purple	--	--
ENSG00000134668	SPOCD1	Purple	--	--
ENSG00000134762	DSC3	Purple	--	--
ENSG00000134882	UBAC2	Purple	--	--
ENSG00000135248	FAM71F1	Purple	--	--
ENSG00000135363	LMO2	Purple	--	--
ENSG00000135502	SLC26A10	Purple	--	--
ENSG00000136158	SPRY2	Purple	--	--
ENSG00000136731	UGGT1	Purple	--	--
ENSG00000136839	OR13C9	Purple	--	--
ENSG00000136866	ZFP37	Purple	--	--
ENSG00000136895	GARNL3	Purple	--	--
ENSG00000136932	C9orf156	Purple	--	--
ENSG00000137364	TPMT	Purple	--	--
ENSG00000137449	CPEB2	Purple	--	--
ENSG00000137699	TRIM29	Purple	--	--

ENSG00000137700	SLC37A4	Purple	--	--
ENSG00000138411	HECW2	Purple	--	--
ENSG00000138735	PDE5A	Purple	--	--
ENSG00000138741	TRPC3	Purple	--	--
ENSG00000139144	PIK3C2G	Purple	--	--
ENSG00000139540	SLC39A5	Purple	Controle	--
ENSG00000139567	ACVRL1	Purple	--	--
ENSG00000140022	STON2	Purple	--	--
ENSG00000140287	HDC	Purple	--	--
ENSG00000140511	HAPLN3	Purple	--	--
ENSG00000141219	C17orf80	Purple	TOC	--
ENSG00000141499	WRAP53	Purple	--	--
ENSG00000141627	DYM	Purple	TOC	--
ENSG00000143368	SF3B4	Purple	--	--
ENSG00000143486	EIF2D	Purple	--	--
ENSG00000144031	ANKRD53	Purple	--	--
ENSG00000144057	ST6GAL2	Purple	--	--
ENSG00000144488	ESPNL	Purple	Controle	--
ENSG00000145113	MUC4	Purple	--	--
ENSG00000145192	AHSG	Purple	--	--
ENSG00000145692	BHMT	Purple	--	--
ENSG00000145863	GABRA6	Purple	--	--
ENSG00000146005	PSD2	Purple	--	--
ENSG00000146918	NCAPG2	Purple	--	--
ENSG00000147119	CHST7	Purple	--	--
ENSG00000147162	OGT	Purple	--	--
ENSG00000148053	NTRK2	Purple	--	--
ENSG00000148288	GBGT1	Purple	TOC	--
ENSG00000148300	REXO4	Purple	--	--
ENSG00000148488	ST8SIA6	Purple	--	--
ENSG00000148942	SLC5A12	Purple	--	--
ENSG00000149305	HTR3B	Purple	--	--
ENSG00000149929	HIRIP3	Purple	--	--
ENSG00000150455	TIRAP	Purple	--	--
ENSG00000150630	VEGFC	Purple	--	--
ENSG00000150977	RILPL2	Purple	--	--
ENSG00000151023	ENKUR	Purple	--	--
ENSG00000151233	GXYLT1	Purple	--	--
ENSG00000151962	RBM46	Purple	--	--
ENSG00000152454	ZNF256	Purple	--	--
ENSG00000153283	CD96	Purple	--	--
ENSG00000153291	SLC25A27	Purple	--	--
ENSG00000154222	CC2D1B	Purple	--	--
ENSG00000155011	DKK2	Purple	--	--
ENSG00000155016	CYP2U1	Purple	--	--
ENSG00000155026	RSPH10B	Purple	--	--
ENSG00000155428	TRIM74	Purple	Controle	--
ENSG00000155719	OTOA	Purple	--	--
ENSG00000156232	WHAMM	Purple	--	--
ENSG00000156509	FBXO43	Purple	--	--

ENSG00000156689	GLYATL2	Purple	--	--
ENSG00000156697	UTP14A	Purple	--	--
ENSG00000156711	MAPK13	Purple	--	--
ENSG00000157119	KLHL40	Purple	--	--
ENSG00000157554	ERG	Purple	--	--
ENSG00000157637	SLC38A10	Purple	--	--
ENSG00000158164	TMSB15A	Purple	--	--
ENSG00000158467	AHCYL2	Purple	--	--
ENSG00000159650	UROC1	Purple	--	--
ENSG00000160087	UBE2J2	Purple	--	--
ENSG00000160951	PTGER1	Purple	TOC	--
ENSG00000161533	ACOX1	Purple	--	--
ENSG00000161643	SIGLEC16	Purple	--	--
ENSG00000161649	CD300LG	Purple	--	--
ENSG00000162069	CCDC64B	Purple	--	--
ENSG00000162383	SLC1A7	Purple	--	--
ENSG00000162407	PPAP2B	Purple	--	--
ENSG00000162688	AGL	Purple	TOC	--
ENSG00000162727	OR2M5	Purple	--	--
ENSG00000162877	PM20D1	Purple	--	--
ENSG00000162894	FAIM3	Purple	--	--
ENSG00000162896	PIGR	Purple	--	--
ENSG00000163121	NEURL3	Purple	--	--
ENSG00000163380	LMOD3	Purple	--	--
ENSG00000163499	CRYBA2	Purple	--	--
ENSG00000163623	NKX6-1	Purple	--	--
ENSG00000164007	CLDN19	Purple	--	--
ENSG00000164404	GDF9	Purple	--	--
ENSG00000164556	FAM183B	Purple	--	--
ENSG00000164845	FAM86FP	Purple	--	--
ENSG00000165621	OXGR1	Purple	--	--
ENSG00000166326	TRIM44	Purple	--	--
ENSG00000166450	PRTG	Purple	--	--
ENSG00000166510	CCDC68	Purple	--	--
ENSG00000166529	ZSCAN21	Purple	--	--
ENSG00000167103	PIP5KL1	Purple	--	--
ENSG00000167257	RNF214	Purple	--	--
ENSG00000167664	TMIGD2	Purple	--	--
ENSG00000167769	ACER1	Purple	--	--
ENSG00000168078	PBK	Purple	--	--
ENSG00000168081	PNOC	Purple	--	--
ENSG00000168229	PTGDR	Purple	--	--
ENSG00000168334	XIRP1	Purple	--	--
ENSG00000168356	SCN11A	Purple	--	--
ENSG00000169375	SIN3A	Purple	--	--
ENSG00000170037	CNTROB	Purple	TOC	--
ENSG00000170293	CMTM8	Purple	--	--
ENSG00000170323	FABP4	Purple	TOC	--
ENSG00000170468	C14orf169	Purple	--	--
ENSG00000170801	HTRA3	Purple	--	--

ENSG00000171824	EXOSC10	Purple	--	--
ENSG00000172269	DPAGT1	Purple	--	--
ENSG00000172432	GTPBP2	Purple	TOC	--
ENSG00000172638	EFEMP2	Purple	--	--
ENSG00000172671	ZFAND4	Purple	--	--
ENSG00000172900	FLJ42102	Purple	--	--
ENSG00000173273	TNKS	Purple	Controle	--
ENSG00000173338	KCNK7	Purple	--	--
ENSG00000174371	EXO1	Purple	--	--
ENSG00000174498	IGDCC3	Purple	--	--
ENSG00000175155	YPEL2	Purple	--	--
ENSG00000175294	CATSPER1	Purple	TOC	--
ENSG00000175352	NRIP3	Purple	--	SIM
ENSG00000175518	UBQLNL	Purple	--	--
ENSG00000175556	LONRF3	Purple	--	--
ENSG00000175895	PLEKHF2	Purple	--	--
ENSG00000175985	PLEKHD1	Purple	--	--
ENSG00000176153	GPX2	Purple	TOC	--
ENSG00000176390	CRLF3	Purple	--	--
ENSG00000176728	TTY14	Purple	Controle	--
ENSG00000176871	WSB2	Purple	--	--
ENSG00000177233	OR2M1P	Purple	--	--
ENSG00000177275	OR2AJ1	Purple	--	--
ENSG00000177425	PAWR	Purple	--	--
ENSG00000177602	GSG2	Purple	--	--
ENSG00000178150	ZNF114	Purple	--	--
ENSG00000178429	RPS3AP5	Purple	--	--
ENSG00000179477	ALOX12B	Purple	--	--
ENSG00000179776	CDH5	Purple	TOC	--
ENSG00000180015	RP11-756P10.3	Purple	--	--
ENSG00000180081	CTC-451A6.4	Purple	--	--
ENSG00000180210	F2	Purple	--	--
ENSG00000180712	RP11-290F5.2	Purple	--	--
ENSG00000181577	C6orf223	Purple	--	--
ENSG00000181649	PHLDA2	Purple	--	--
ENSG00000181847	TIGIT	Purple	--	--
ENSG00000182040	USH1G	Purple	--	--
ENSG00000182544	MFSD5	Purple	--	--
ENSG00000183060	LYSMD4	Purple	--	--
ENSG00000183530	PRR14L	Purple	--	--
ENSG00000183604	SMG1P5	Purple	--	--
ENSG00000183605	SFXN4	Purple	--	--
ENSG00000184292	TACSTD2	Purple	--	--
ENSG00000184708	EIF4ENIF1	Purple	--	--
ENSG00000184939	ZFP90	Purple	--	--
ENSG00000185156	MFSD6L	Purple	TOC	--
ENSG00000185480	PARPBP	Purple	--	--
ENSG00000185607	ACTBP7	Purple	--	--
ENSG00000185905	C16orf54	Purple	--	--
ENSG00000186132	C2orf76	Purple	--	--

ENSG00000186204	CYP4F12	Purple	--	SIM
ENSG00000186265	BTLA	Purple	--	--
ENSG00000186466	AQP7P1	Purple	--	--
ENSG00000186470	BTN3A2	Purple	--	--
ENSG00000186564	FOXD2	Purple	--	--
ENSG00000186765	FSCN2	Purple	--	--
ENSG00000187048	CYP4A11	Purple	--	--
ENSG00000187553	CYP26C1	Purple	--	--
ENSG00000187742	SECISBP2	Purple	--	--
ENSG00000187790	FANCM	Purple	--	--
ENSG00000187952	HS6ST1P1	Purple	TOC	--
ENSG00000187987	ZSCAN23	Purple	--	--
ENSG00000187997	C17orf99	Purple	--	--
ENSG00000188000	OR7D2	Purple	Controle	--
ENSG00000188306	LRRIQ4	Purple	--	--
ENSG00000188676	IDO2	Purple	--	--
ENSG00000189143	CLDN4	Purple	TOC	--
ENSG00000189320	FAM180A	Purple	Controle	--
ENSG00000189332	RP11-113D6.10	Purple	--	--
ENSG00000189334	S100A14	Purple	--	--
ENSG00000196071	OR2L13	Purple	--	--
ENSG00000197021	CXorf40B	Purple	--	--
ENSG00000198358	RP11-544M22.1	Purple	TOC	--
ENSG00000198417	MT1F	Purple	--	--
ENSG00000198453	ZNF568	Purple	--	--
ENSG00000198523	PLN	Purple	--	--
ENSG00000198535	C2CD4A	Purple	--	--
ENSG00000198601	OR2M2	Purple	--	--
ENSG00000198900	TOP1	Purple	--	--
ENSG00000198937	CCDC167	Purple	--	--
ENSG00000199377	RNU5F-1	Purple	--	--
ENSG00000200674	RN7SKP160	Purple	--	--
ENSG00000201435	RNU4-24P	Purple	Controle	--
ENSG00000201943	SNORD115-10	Purple	--	--
ENSG00000203441	LINC00449	Purple	--	--
ENSG00000203489	HMGB1P39	Purple	--	--
ENSG00000203593	RP5-1096D14.6	Purple	--	--
ENSG00000203808	BVES-AS1	Purple	--	--
ENSG00000204177	BMS1P1	Purple	--	--
ENSG00000204237	OXL1	Purple	--	--
ENSG00000204352	C9orf129	Purple	--	--
ENSG00000204390	HSPA1L	Purple	--	--
ENSG00000204560	DHX16	Purple	--	--
ENSG00000204588	LINC01123	Purple	--	--
ENSG00000204959	ARHGEF34P	Purple	--	--
ENSG00000205022	PABPN1L	Purple	--	--
ENSG00000205456	TP53TG3D	Purple	--	--
ENSG00000205502	C2CD4B	Purple	TOC	--
ENSG00000205622	AF064858.6	Purple	--	--
ENSG00000205642	VCX3B	Purple	--	--

ENSG00000205882	DEFB134	Purple	--	--
ENSG00000206028	CTA-373H7.7	Purple	--	--
ENSG00000206159	GYG2P1	Purple	--	--
ENSG00000207217	SNORA42	Purple	--	--
ENSG00000207631	MIR641	Purple	--	--
ENSG00000208037	MIR320A	Purple	--	--
ENSG00000212101	AL080276.1	Purple	--	--
ENSG00000213149	CNN2P9	Purple	--	--
ENSG00000213335	CLNS1AP1	Purple	--	--
ENSG00000213373	LINC00671	Purple	--	--
ENSG00000213777	CTD-2224J9.8	Purple	--	--
ENSG00000213973	ZNF99	Purple	--	--
ENSG00000214110	LDHAP4	Purple	--	--
ENSG00000214223	HNRNPA1P10	Purple	--	--
ENSG00000214559	RP11-323J4.1	Purple	Controle	--
ENSG00000214708	AC090616.2	Purple	--	--
ENSG00000214832	UPF3AP2	Purple	--	--
ENSG00000214992	AKAP17BP	Purple	--	--
ENSG00000215297	RP11-62E14.2	Purple	--	--
ENSG00000215311	NPM1P12	Purple	Controle	--
ENSG00000216285	RP11-490H24.5	Purple	--	--
ENSG00000216621	RP11-244K5.6	Purple	--	--
ENSG00000217512	RP11-477E3.2	Purple	--	--
ENSG00000217527	RPS16P5	Purple	--	--
ENSG00000217702	RP11-287D1.4	Purple	--	--
ENSG00000219928	RP11-40C6.2	Purple	--	--
ENSG00000220161	FLJ35934	Purple	--	--
ENSG00000220600	RP3-509I19.6	Purple	--	--
ENSG00000221491	SNORA34	Purple	--	--
ENSG00000221621	AC009835.1	Purple	--	--
ENSG00000221990	C5orf55	Purple	--	--
ENSG00000222068	RN7SKP154	Purple	--	--
ENSG00000222162	RN7SKP151	Purple	--	--
ENSG00000223442	AC004041.2	Purple	--	--
ENSG00000223501	VPS52	Purple	--	--
ENSG00000223725	AC007879.5	Purple	--	--
ENSG00000223916	RP11-353H3.1	Purple	--	--
ENSG00000224008	LINC01441	Purple	--	--
ENSG00000224165	DNAJC27-AS1	Purple	--	--
ENSG00000224215	RP11-371A19.2	Purple	--	--
ENSG00000224404	LL22NC03-13G6.2	Purple	--	--
ENSG00000224530	PPIAP10	Purple	--	--
ENSG00000224553	AC008065.1	Purple	--	--
ENSG00000224578	HNRNPA1P48	Purple	--	--
ENSG00000224597	SVIL-AS1	Purple	--	--
ENSG00000224738	AC099850.1	Purple	--	--
ENSG00000224830	OR2X1P	Purple	--	--
ENSG00000224863	LINC01398	Purple	--	--
ENSG00000225178	RPSAP56	Purple	--	--

ENSG00000225215	SMARCE1P1	Purple	--	--
ENSG00000225224	RP4-814D15.2	Purple	--	--
ENSG00000225399	RP11-3B7.1	Purple	--	--
ENSG00000225514	MTND1P34	Purple	--	--
ENSG00000225725	FAM66E	Purple	--	--
ENSG00000225742	RP11-513G11.4	Purple	--	--
ENSG00000225774	SIRPAP1	Purple	--	--
ENSG00000225778	PROSER2-AS1	Purple	--	--
ENSG00000225850	RP11-452K12.4	Purple	--	--
ENSG00000225876	AC024067.1	Purple	--	--
ENSG00000226216	RPS12P5	Purple	TOC	--
ENSG00000226235	LEMD1-AS1	Purple	TOC	--
ENSG00000226355	RP11-65J3.2	Purple	--	--
ENSG00000226377	AC084809.2	Purple	--	--
ENSG00000226386	PARD3-AS1	Purple	--	--
ENSG00000226397	C12orf77	Purple	--	--
ENSG00000226415	TPI1P1	Purple	--	--
ENSG00000226507	IPMKP1	Purple	--	--
ENSG00000226555	AGKP1	Purple	Controle	--
ENSG00000226631	SLC9A3P3	Purple	--	--
ENSG00000226757	PP12613	Purple	--	--
ENSG00000226789	AC110926.4	Purple	--	--
ENSG00000226808	LINC00840	Purple	--	--
ENSG00000227001	NBPF2P	Purple	--	--
ENSG00000227059	ANHX	Purple	--	--
ENSG00000227088	AC084149.2	Purple	Controle	--
ENSG00000227097	RPS28P7	Purple	--	--
ENSG00000227463	RP11-158D2.2	Purple	--	--
ENSG00000227517	LINC01483	Purple	--	--
ENSG00000227726	AP001271.3	Purple	Controle	--
ENSG00000227770	RPL7P12	Purple	--	--
ENSG00000227773	ASH1L-IT1	Purple	--	--
ENSG00000227847	RP11-420H19.2	Purple	--	--
ENSG00000228036	HSPD1P9	Purple	--	--
ENSG00000228084	RP5-884G6.2	Purple	--	--
ENSG00000228151	AC004941.3	Purple	--	--
ENSG00000228274	RP3-508I15.9	Purple	--	--
ENSG00000228335	AC073063.10	Purple	--	--
ENSG00000228532	RP1-241P17.4	Purple	--	--
ENSG00000228755	PABPC1P8	Purple	--	--
ENSG00000228897	CTD-2021A8.2	Purple	--	--
ENSG00000229178	AC069513.4	Purple	--	--
ENSG00000229196	RP11-775D22.2	Purple	--	--
ENSG00000229246	LINC00377	Purple	--	--
ENSG00000229348	HYI-AS1	Purple	--	--
ENSG00000229404	LINC00858	Purple	--	--
ENSG00000229536	AC079776.1	Purple	--	--
ENSG00000229848	RP13-766D20.2	Purple	--	--
ENSG00000229880	IMMTP1	Purple	--	--
ENSG00000229926	RP11-424E7.3	Purple	--	--

ENSG00000230185	C9orf147	Purple	--	--
ENSG00000230212	AP000688.14	Purple	--	--
ENSG00000230300	STARD13-IT1	Purple	--	--
ENSG00000230305	AC004980.9	Purple	--	--
ENSG00000230397	SPTLC1P1	Purple	--	--
ENSG00000230424	RP1-43E13.2	Purple	--	--
ENSG00000230818	MTND2P16	Purple	--	--
ENSG00000230828	RP11-492I2.1	Purple	Controle	--
ENSG00000230970	HHATL-AS1	Purple	--	--
ENSG00000231011	RP11-494I9.1	Purple	--	--
ENSG00000231147	ARHGAP42P2	Purple	--	--
ENSG00000231160	KLF3-AS1	Purple	--	--
ENSG00000231345	BEND3P1	Purple	TOC	--
ENSG00000231518	RP11-327L3.3	Purple	--	--
ENSG00000231532	LINC01249	Purple	--	--
ENSG00000231612	RP11-522M21.3	Purple	--	--
ENSG00000231653	AC010731.3	Purple	--	--
ENSG00000231725	VN1R110P	Purple	--	--
ENSG00000231729	ARHGEF9-IT1	Purple	--	--
ENSG00000231768	LINC01354	Purple	--	--
ENSG00000231793	DOC2GP	Purple	--	--
ENSG00000231918	AC007682.1	Purple	--	--
ENSG00000231964	RP11-67C2.2	Purple	TOC	--
ENSG00000232215	OR2L6P	Purple	--	--
ENSG00000232377	AC016910.1	Purple	--	--
ENSG00000232487	RASA3-IT1	Purple	--	--
ENSG00000232514	RP11-329A14.2	Purple	TOC	--
ENSG00000232536	RP11-74C1.4	Purple	--	--
ENSG00000232600	AC084125.4	Purple	--	--
ENSG00000232615	CTD-2012J19.1	Purple	--	--
ENSG00000232645	LINC01431	Purple	--	--
ENSG00000232780	GAPDHP74	Purple	--	--
ENSG00000232812	RP11-459K23.2	Purple	Controle	--
ENSG00000232832	LMLN-AS1	Purple	--	--
ENSG00000232852	CICP4	Purple	Controle	--
ENSG00000232891	RP11-136K14.1	Purple	--	--
ENSG00000232938	FLJ43681	Purple	--	--
ENSG00000233131	AC096649.1	Purple	--	--
ENSG00000233170	RP11-863K10.4	Purple	--	--
ENSG00000233176	OR7E157P	Purple	--	--
ENSG00000233242	RP11-220I1.2	Purple	--	--
ENSG00000233384	RP11-100E13.1	Purple	TOC	--
ENSG00000233403	RP11-86A5.1	Purple	--	--
ENSG00000233622	CYP2T2P	Purple	--	--
ENSG00000233646	OR52T1P	Purple	--	--
ENSG00000233680	HNRNPA1P27	Purple	--	--
ENSG00000233750	CICP27	Purple	--	--
ENSG00000233765	RP11-154P18.2	Purple	--	--
ENSG00000233907	FLJ31662	Purple	Controle	--
ENSG00000233956	BTF3P6	Purple	--	--

ENSG00000233966	UBE2SP1	Purple	--	--
ENSG00000234042	RP11-452D2.2	Purple	--	--
ENSG00000234134	RP11-383C5.5	Purple	--	--
ENSG00000234225	RP4-704D21.2	Purple	--	--
ENSG00000234292	RP11-213H15.1	Purple	--	--
ENSG00000234473	ZNF101P2	Purple	--	--
ENSG00000234571	RP5-998N21.4	Purple	--	--
ENSG00000234667	ACTBP13	Purple	--	--
ENSG00000234699	RP11-225H22.4	Purple	--	--
ENSG00000234775	RP11-335O13.7	Purple	--	--
ENSG00000234945	GTF3C2-AS1	Purple	--	--
ENSG00000235078	AC142528.1	Purple	--	--
ENSG00000235098	ANKRD65	Purple	--	--
ENSG00000235158	AC087430.1	Purple	--	--
ENSG00000235238	SUMO2P1	Purple	--	--
ENSG00000235390	CTD-2651B20.5	Purple	--	--
ENSG00000235449	RP11-480I12.2	Purple	--	--
ENSG00000235538	RP1-230L10.1	Purple	--	--
ENSG00000235590	GNAS-AS1	Purple	--	--
ENSG00000235613	NSRP1P1	Purple	--	--
ENSG00000235659	RP11-374M1.5	Purple	--	--
ENSG00000235775	AC063976.2	Purple	--	--
ENSG00000235875	ARHGEF7-AS2	Purple	--	--
ENSG00000235904	RBMS3-AS3	Purple	--	--
ENSG00000235919	ASH1L-AS1	Purple	--	--
ENSG00000235944	ZNF815P	Purple	--	--
ENSG00000236047	AC073410.1	Purple	--	--
ENSG00000236066	RP11-389O22.1	Purple	Controle/TOC	--
ENSG00000236378	RP11-394G3.2	Purple	--	--
ENSG00000236383	LINC00854	Purple	--	--
ENSG00000236456	RP4-785G19.2	Purple	--	--
ENSG00000236514	RP11-162G10.5	Purple	--	--
ENSG00000236532	AL035610.2	Purple	--	--
ENSG00000236662	RP11-108L7.4	Purple	--	--
ENSG00000236999	ATP2B2-IT1	Purple	TOC	--
ENSG00000237137	RP11-408A13.2	Purple	--	--
ENSG00000237187	NR2F1-AS1	Purple	--	--
ENSG00000237276	ANO7P1	Purple	--	--
ENSG00000237470	DCLRE1CP1	Purple	--	--
ENSG00000237476	XXbac-B135H6.15	Purple	--	--
ENSG00000237557	YWHABP1	Purple	--	--
ENSG00000237621	OR9A1P	Purple	--	--
ENSG00000237624	OXCT2P1	Purple	--	--
ENSG00000237640	RP4-604G5.1	Purple	--	--
ENSG00000237773	AC003075.4	Purple	Controle	--
ENSG00000237775	DDR1-AS1	Purple	--	--
ENSG00000237870	AC073130.1	Purple	Controle	--
ENSG00000237903	RP3-404F18.5	Purple	--	--
ENSG00000238038	ATP6V0E1P3	Purple	--	--

ENSG00000238045	AC009133.12	Purple	--	--
ENSG00000238164	RP3-395M20.8	Purple	--	--
ENSG00000238250	ST6GAL2-IT1	Purple	Controle	--
ENSG00000238290	RP11-431K24.1	Purple	--	--
ENSG00000238735	RNU7-113P	Purple	--	--
ENSG00000239122	RNU2-11P	Purple	--	--
ENSG00000239280	RP11-271C24.3	Purple	--	--
ENSG00000239705	RP11-65N13.8	Purple	TOC	--
ENSG00000240015	RP11-90P5.5	Purple	--	--
ENSG00000240412	RPL5P15	Purple	--	--
ENSG00000240423	LINC00636	Purple	--	--
ENSG00000240750	RN7SL559P	Purple	--	--
ENSG00000240935	PLGLA	Purple	--	--
ENSG00000241291	RN7SL791P	Purple	Controle	--
ENSG00000241678	RP11-732A19.1	Purple	--	--
ENSG00000241889	RP11-435F17.3	Purple	--	--
ENSG00000242061	CTD-2555K7.1	Purple	--	--
ENSG00000242423	RP11-451N19.1	Purple	--	--
ENSG00000242686	RP11-1191J2.2	Purple	--	--
ENSG00000242747	RP11-30K9.1	Purple	--	--
ENSG00000242931	RPL7P49	Purple	TOC	--
ENSG00000243069	ARHGEF26-AS1	Purple	--	--
ENSG00000243199	RP11-408P14.1	Purple	--	--
ENSG00000243260	RN7SL558P	Purple	--	--
ENSG00000243370	RN7SL775P	Purple	--	--
ENSG00000243398	RN7SL141P	Purple	Controle	--
ENSG00000243620	RP11-649A16.1	Purple	--	--
ENSG00000243702	RN7SL638P	Purple	--	--
ENSG00000243704	RN7SL105P	Purple	--	--
ENSG00000243951	RN7SL308P	Purple	--	--
ENSG00000244112	RN7SL508P	Purple	TOC	--
ENSG00000244245	RP11-120B7.1	Purple	TOC	--
ENSG00000244294	RN7SL740P	Purple	Controle	--
ENSG00000244337	AJ239322.3	Purple	--	--
ENSG00000244383	RP11-475O23.3	Purple	--	--
ENSG00000245156	RP11-867G23.3	Purple	--	--
ENSG00000245205	EEF1A1P4	Purple	--	--
ENSG00000245888	FLJ21408	Purple	--	--
ENSG00000246339	EXTL3-AS1	Purple	--	--
ENSG00000246548	RP11-7F17.5	Purple	--	--
ENSG00000246705	H2AFJ	Purple	--	--
ENSG00000246863	RP11-325N19.3	Purple	--	--
ENSG00000247134	RP11-11N9.4	Purple	--	--
ENSG00000247228	RP11-296I10.3	Purple	--	--
ENSG00000247363	RP11-637A17.2	Purple	--	--
ENSG00000247934	RP11-967K21.1	Purple	TOC	--
ENSG00000248027	CTD-2383M3.1	Purple	--	--
ENSG00000248221	STX18-IT1	Purple	--	--
ENSG00000248229	RP11-366M4.12	Purple	--	--
ENSG00000248243	RP11-93K22.13	Purple	--	--

ENSG00000248464	FGF10-AS1	Purple	Controle	--
ENSG00000248489	CTD-2007H13.3	Purple	--	--
ENSG00000248608	RP11-206P5.2	Purple	--	--
ENSG00000248729	RP11-531A21.3	Purple	TOC	--
ENSG00000249004	PRMT5P1	Purple	--	--
ENSG00000249115	HAUS5	Purple	--	--
ENSG00000249562	RP11-116O11.2	Purple	--	--
ENSG00000249574	AC226118.1	Purple	--	--
ENSG00000249609	RP11-635L1.3	Purple	--	--
ENSG00000249626	RP11-496H1.1	Purple	--	--
ENSG00000249664	CTD-2227C6.2	Purple	--	--
ENSG00000249876	CTC-563A5.4	Purple	--	--
ENSG00000249936	RAC1P2	Purple	--	--
ENSG00000249937	RP11-454P21.1	Purple	--	--
ENSG00000249998	RP11-141E13.1	Purple	--	--
ENSG00000250061	RP11-541P9.3	Purple	--	--
ENSG00000250240	CTD-2154I11.2	Purple	--	--
ENSG00000250289	VWA8P1	Purple	--	--
ENSG00000250325	IGBP1P4	Purple	--	--
ENSG00000250371	RP11-22A3.2	Purple	--	--
ENSG00000250387	RP11-136K7.2	Purple	Controle	--
ENSG00000250415	CTC-461F20.1	Purple	--	--
ENSG00000250420	AACSP1	Purple	--	--
ENSG00000250476	ENPP7P9	Purple	--	--
ENSG00000250673	RP11-6L6.2	Purple	Controle	--
ENSG00000250753	RP11-241F15.10	Purple	--	--
ENSG00000250786	SNHG18	Purple	--	--
ENSG00000250796	RP11-723O4.3	Purple	--	--
ENSG00000250910	AC097467.2	Purple	--	--
ENSG00000250934	RP11-71E19.1	Purple	--	--
ENSG00000250948	RP11-1079K10.2	Purple	--	--
ENSG00000251050	RP11-168A11.4	Purple	--	--
ENSG00000251152	RP11-281P23.1	Purple	--	--
ENSG00000251339	RP11-506N2.1	Purple	--	--
ENSG00000251359	WWC2-AS2	Purple	TOC	--
ENSG00000251369	ZNF550	Purple	--	--
ENSG00000251615	RP11-774O3.3	Purple	--	--
ENSG00000251632	RP11-714L20.1	Purple	--	--
ENSG00000251830	SNORD46	Purple	--	--
ENSG00000252985	SNORD116	Purple	--	--
ENSG00000253210	RP11-809O17.1	Purple	--	--
ENSG00000253282	KB-1410C5.3	Purple	--	--
ENSG00000253300	RP11-108E14.1	Purple	--	--
ENSG00000253313	C1orf210	Purple	TOC	--
ENSG00000253326	RP11-261C10.7	Purple	--	--
ENSG00000253542	SDR16C6P	Purple	Controle	--
ENSG00000253831	ETV3L	Purple	--	--
ENSG00000253865	RP11-394O4.3	Purple	--	--
ENSG00000253872	RP11-90D11.1	Purple	--	--
ENSG00000253923	KB-1980E6.2	Purple	--	--

ENSG00000254003	CTB-167B5.1	Purple	--	--
ENSG00000254187	CTB-78F1.1	Purple	--	--
ENSG00000254281	KB-1507C5.4	Purple	--	--
ENSG00000254305	MRPL9P1	Purple	--	--
ENSG00000254506	RP11-748H22.1	Purple	--	--
ENSG00000254535	PABPC4L	Purple	TOC	--
ENSG00000254590	RP11-334E6.2	Purple	--	--
ENSG00000254646	OR8B10P	Purple	--	--
ENSG00000254697	COPS8P3	Purple	Controle	--
ENSG00000254781	GVINP2	Purple	--	--
ENSG00000254821	RP3-400B16.4	Purple	--	--
ENSG00000254842	RP11-890B15.2	Purple	--	--
ENSG00000254862	RP11-159H22.2	Purple	--	--
ENSG00000254973	RP11-429J17.7	Purple	--	--
ENSG00000255231	MRPS36P4	Purple	--	--
ENSG00000255347	RP11-40H19.1	Purple	--	--
ENSG00000255507	RP11-535A19.2	Purple	--	--
ENSG00000255811	RP1-34M23.5	Purple	--	--
ENSG00000255991	RP11-242C24.2	Purple	--	--
ENSG00000256092	MIR8072	Purple	--	--
ENSG00000256538	RP11-847H18.3	Purple	--	--
ENSG00000256612	CYP2B7P	Purple	--	--
ENSG00000256650	RERG-IT1	Purple	--	--
ENSG00000256661	A2ML1-AS1	Purple	--	--
ENSG00000256673	RP11-599J14.2	Purple	--	--
ENSG00000256674	RP11-172C16.4	Purple	--	--
ENSG00000256742	RP13-941N14.1	Purple	--	--
ENSG00000257038	RP11-800A3.7	Purple	--	--
ENSG00000257241	RP11-611E13.3	Purple	--	--
ENSG00000257294	RP11-316A16.1	Purple	Controle	--
ENSG00000257480	MRPL2P1	Purple	--	--
ENSG00000257636	RP11-1103G16.1	Purple	--	--
ENSG00000257647	RP11-701H24.3	Purple	Controle	--
ENSG00000257838	RP11-368J21.3	Purple	--	--
ENSG00000257986	RP11-314P15.2	Purple	--	--
ENSG00000258017	RP11-386G11.10	Purple	--	--
ENSG00000258376	RP4-647C14.2	Purple	--	--
ENSG00000258548	LINC00645	Purple	--	--
ENSG00000258558	RP11-159L20.2	Purple	--	--
ENSG00000258744	RP11-80A15.1	Purple	--	--
ENSG00000258784	RP11-813I20.2	Purple	--	--
ENSG00000258859	RP11-594C13.1	Purple	--	--
ENSG00000258982	RP11-638I2.4	Purple	TOC	--
ENSG00000259010	RP11-973N13.2	Purple	--	--
ENSG00000259091	LINC00517	Purple	--	--
ENSG00000259155	RP11-831F12.3	Purple	Controle	--
ENSG00000259167	NMNAT1P1	Purple	Controle	--
ENSG00000259232	RP11-349G13.1	Purple	--	--
ENSG00000259327	CTD-2184D3.6	Purple	--	--
ENSG00000259335	HNRNPMP1	Purple	Controle	--

ENSG00000259357	RP11-316M1.12	Purple	--	--
ENSG00000259376	RP11-505E24.3	Purple	Controle	--
ENSG00000259433	CTD-2651B20.4	Purple	--	--
ENSG00000259488	RP11-154J22.1	Purple	--	--
ENSG00000259519	RP11-519G16.2	Purple	--	--
ENSG00000259543	CTD-2034I4.1	Purple	--	--
ENSG00000259577	RP11-430B1.2	Purple	--	SIM
ENSG00000259609	RP11-342A23.1	Purple	--	--
ENSG00000259664	CTD-2147F2.2	Purple	TOC	--
ENSG00000259687	LINC01220	Purple	--	--
ENSG00000259692	RP11-499F3.2	Purple	--	--
ENSG00000259767	RP11-90B9.2	Purple	--	--
ENSG00000259868	RP11-1012E15.2	Purple	--	--
ENSG00000260059	RP11-231E19.1	Purple	--	--
ENSG00000260179	RP5-902P8.12	Purple	TOC	--
ENSG00000260273	RP11-425D10.10	Purple	--	--
ENSG00000260369	CTD-2526A2.2	Purple	--	--
ENSG00000260394	LA16c-313D11.9	Purple	--	--
ENSG00000260430	RP11-626G11.4	Purple	--	--
ENSG00000260613	RP3-522J7.6	Purple	--	--
ENSG00000260708	CTA-29F11.1	Purple	--	--
ENSG00000260782	RP11-480G7.2	Purple	--	--
ENSG00000260872	RP11-680G24.5	Purple	--	--
ENSG00000260955	RP11-30L15.6	Purple	Controle	--
ENSG00000260971	RP11-504A18.1	Purple	--	--
ENSG00000261051	RP11-274H2.5	Purple	--	--
ENSG00000261060	RP11-545A16.4	Purple	--	--
ENSG00000261205	NIFKP4	Purple	--	--
ENSG00000261211	RP1-80N2.3	Purple	--	--
ENSG00000261604	CTD-2636A23.2	Purple	Controle/TOC	--
ENSG00000261616	RP11-6O2.3	Purple	--	--
ENSG00000261678	SCRT1	Purple	--	--
ENSG00000261711	RP11-80F22.9	Purple	--	--
ENSG00000261848	CTD-2309O5.3	Purple	--	--
ENSG00000261924	CTD-2561B21.5	Purple	--	--
ENSG00000262362	LA16c-380H5.2	Purple	TOC	--
ENSG00000262728	RP11-1000B6.8	Purple	--	--
ENSG00000262869	CTD-2545H1.1	Purple	--	--
ENSG00000263013	RP11-876N24.5	Purple	--	--
ENSG00000263293	RP11-290H9.4	Purple	--	--
ENSG00000263412	RP5-890E16.2	Purple	--	--
ENSG00000263508	RP11-963H4.3	Purple	--	--
ENSG00000263717	RP11-466A19.6	Purple	--	--
ENSG00000263873	RP11-334E6.12	Purple	--	--
ENSG00000264026	RP11-1124B17.1	Purple	--	--
ENSG00000264173	MIR3175	Purple	--	--
ENSG00000264207	RP11-196G18.23	Purple	--	--
ENSG00000264519	RN7SL596P	Purple	--	--
ENSG00000264569	RP13-650J16.1	Purple	Controle	--
ENSG00000264808	MIR4523	Purple	--	--

ENSG00000264978	RN7SL630P	Purple	--	--
ENSG00000265107	GJA5	Purple	--	--
ENSG00000265717	RP11-94B19.7	Purple	--	--
ENSG00000265907	RP11-737O24.2	Purple	--	--
ENSG00000265912	RP11-583F2.2	Purple	Controle	--
ENSG00000265939	UBE2CP2	Purple	--	--
ENSG00000266213	RP11-100K18.1	Purple	--	--
ENSG00000266308	RN7SL510P	Purple	--	--
ENSG00000266588	RP1-56K13.5	Purple	--	--
ENSG00000266976	AC079466.1	Purple	--	--
ENSG00000267128	RNF157-AS1	Purple	--	--
ENSG00000267185	PTP4A2P1	Purple	--	--
ENSG00000267265	CTC-550B14.7	Purple	Controle	--
ENSG00000267370	CTD-2623N2.3	Purple	--	--
ENSG00000267388	AF038458.5	Purple	--	--
ENSG00000267413	RP11-636O21.1	Purple	--	--
ENSG00000267496	FAM215A	Purple	TOC	--
ENSG00000267594	CYP4F24P	Purple	--	--
ENSG00000267607	CTD-2369P2.8	Purple	--	--
ENSG00000267724	RP11-49K24.8	Purple	--	--
ENSG00000267741	UBE2L4	Purple	--	--
ENSG00000267892	CTD-2540F13.2	Purple	--	--
ENSG00000268549	RP11-295P9.8	Purple	--	--
ENSG00000268565	AC005339.2	Purple	--	--
ENSG00000268584	RP11-464F9.20	Purple	--	--
ENSG00000269044	CTC-429P9.3	Purple	--	--
ENSG00000269054	CTD-2619J13.3	Purple	--	--
ENSG00000269148	AC092301.3	Purple	--	--
ENSG00000269463	RP11-727F15.13	Purple	--	--
ENSG00000269570	CMB9-55A18.1	Purple	--	--
ENSG00000269815	CTD-2278I10.4	Purple	--	--
ENSG00000269867	CTD-2583A14.8	Purple	--	--
ENSG00000269892	RP4-761J14.10	Purple	--	--
ENSG00000269903	RP11-571M6.18	Purple	--	--
ENSG00000269921	RP11-646I6.5	Purple	--	--
ENSG00000269973	RP11-95D17.1	Purple	--	--
ENSG00000270076	AF131215.8	Purple	--	--
ENSG00000270195	RP11-572O17.1	Purple	--	--
ENSG00000270661	RP1-142L7.9	Purple	--	--
ENSG00000270792	RP11-103J8.1	Purple	--	--
ENSG00000271138	IGLVIVOR22-1	Purple	TOC	--
ENSG00000271208	RP1-142L7.8	Purple	TOC	--
ENSG00000271386	SRGNP1	Purple	--	--
ENSG00000271503	CCL5	Purple	--	--
ENSG00000271784	RP1-28H20.3	Purple	--	--
ENSG00000271806	RP5-892K4.1	Purple	--	--
ENSG00000271818	7SK	Purple	--	--
ENSG00000271848	RP11-464F9.21	Purple	--	--
ENSG00000271918	CTD-2287O16.5	Purple	--	--
ENSG00000271937	RP11-424N24.2	Purple	--	--

ENSG00000271966	RP11-7F18.2	Purple	--	--
ENSG00000272017	RP1-199J3.7	Purple	--	--
ENSG00000272167	PROX1-AS1	Purple	--	--
ENSG00000272195	RP11-156E8.1	Purple	--	--
ENSG00000272217	XXbac-BPG157A10.21	Purple	Controle	--
ENSG00000272269	RP11-500C11.3	Purple	--	--
ENSG00000272293	RP11-91J19.3	Purple	--	--
ENSG00000272426	RP11-108M9.6	Purple	--	--
ENSG00000272567	RP11-73K9.3	Purple	--	--
ENSG00000272661	RP4-548D19.3	Purple	--	--
ENSG00000272707	RP11-534C12.1	Purple	--	--
ENSG00000272915	RP11-62J1.4	Purple	--	--
ENSG00000272963	OR7A19P	Purple	--	--
ENSG00000272966	RP11-686O6.1	Purple	--	--
ENSG00000273038	RP11-479G22.8	Purple	--	--
ENSG00000273104	CMP21-97G8.1	Purple	--	--
ENSG00000273145	CITF22-92A6.1	Purple	--	--
ENSG00000273284	RP11-888D10.4	Purple	--	--
ENSG00000273302	RP11-493E12.2	Purple	--	--
ENSG00000273389	RP13-514E23.2	Purple	--	--
ENSG00000273729	RP11-7F17.8	Purple	--	--
ENSG00000273824	RP11-81H14.1	Purple	--	--
ENSG00000273891	RP11-500G22.5	Purple	--	--
ENSG00000273973	RP11-973D8.5	Purple	--	--
ENSG00000274015	CTD-2302E22.6	Purple	--	--
ENSG00000274104	CTD-2553L13.10	Purple	--	--
ENSG00000274367	LA16c-380H5.6	Purple	--	--
ENSG00000274383	CTD-2017F17.2	Purple	Controle	--
ENSG00000274505	Metazoa_SRP	Purple	--	--
ENSG00000274560	RP11-285E23.2	Purple	--	--
ENSG00000274642	CH17-472G23.1	Purple	--	--
ENSG00000274653	RP11-347C12.11	Purple	Controle	--
ENSG00000274772	Metazoa_SRP	Purple	--	--
ENSG00000274954	RP11-56B16.6	Purple	--	--
ENSG00000275155	CTD-2595P9.4	Purple	--	--
ENSG00000275228	RP11-370I10.10	Purple	--	--
ENSG00000275327	RP11-234G16.4	Purple	--	--
ENSG00000275485	RP11-261P13.6	Purple	--	--
ENSG00000275700	AATF	Purple	--	--
ENSG00000275763	C18orf65	Purple	--	--
ENSG00000275874	LINC00162	Purple	--	--
ENSG00000275910	RP11-680G24.6	Purple	Controle	--
ENSG00000275978	Metazoa_SRP	Purple	--	--
ENSG00000276278	RP11-182J1.3	Purple	--	--
ENSG00000276476	LINC00540	Purple	--	--
ENSG00000276795	RP11-374M1.10	Purple	--	--
ENSG00000276823	Metazoa_SRP	Purple	--	--
ENSG00000276832	RP11-187C18.4	Purple	--	--
ENSG00000276855	CTD-3157E16.2	Purple	--	--

ENSG00000276984	LA16c-359F1.1	Purple	--	--
ENSG00000277020	RP11-476H16.1	Purple	--	--
ENSG00000277142	LINC00235	Purple	--	--
ENSG00000277144	RP11-59H7.4	Purple	--	--
ENSG00000277304	RP11-989E6.13	Purple	--	--
ENSG00000277383	CTD-3001H11.2	Purple	--	--
ENSG00000277443	MARCKS	Purple	--	--
ENSG00000277448	RP11-538C21.2	Purple	--	--
ENSG00000277511	CTD-2095E4.5	Purple	--	--
ENSG00000277843	AC106753.1	Purple	--	--
ENSG00000277954	RP11-679B19.1	Purple	--	--
ENSG00000277958	Metazoa_SRP	Purple	--	--
ENSG00000277959	RP11-45A17.2	Purple	--	--
ENSG00000278131	AC116050.1	Purple	Controle	--
ENSG00000278133	RP11-196G11.5	Purple	--	--
ENSG00000278475	RP11-19E18.2	Purple	--	--
ENSG00000278514	AC068831.16	Purple	--	--
ENSG00000278588	HIST1H2BI	Purple	--	--
ENSG00000278703	RP11-706P11.2	Purple	--	--
ENSG00000278732	Metazoa_SRP	Purple	--	--
ENSG00000278817	DGCR6	Purple	--	--
ENSG00000278860	RP11-28A22.2	Purple	--	--
ENSG00000278902	RP11-25L3.1	Purple	--	--
ENSG00000278954	RP13-415G19.2	Purple	--	--
ENSG00000278959	RP11-455I9.1	Purple	--	--
ENSG00000278969	RP11-662I13.3	Purple	--	--
ENSG00000279134	RP11-489P6.1	Purple	--	--
ENSG00000279197	CTB-3M24.1	Purple	--	--
ENSG00000279200	RP11-524F11.3	Purple	--	--
ENSG00000279237	RP11-212E4.1	Purple	--	--
ENSG00000279306	RP5-915N17.11	Purple	--	--
ENSG00000279393	RP11-95G6.1	Purple	--	--
ENSG00000279410	RP11-1102P22.3	Purple	--	--
ENSG00000279424	KB-1674E1.2	Purple	TOC	--
ENSG00000279427	RP11-132F7.2	Purple	TOC	--
ENSG00000279439	CTD-2576N18.1	Purple	--	--
ENSG00000279463	RP11-157H4.1	Purple	--	--
ENSG00000279474	CTD-2286N8.1	Purple	--	--
ENSG00000279484	KLHL30-AS1	Purple	--	--
ENSG00000279620	RP11-1102P22.2	Purple	--	--
ENSG00000279691	RP11-485M7.2	Purple	Controle	--
ENSG00000279694	RP11-5O23.2	Purple	--	--
ENSG00000279699	RP1-102K2.9	Purple	--	--
ENSG00000279851	CH507-216K13.2	Purple	--	--
ENSG00000279906	DKFZP313A047	Purple	--	--
ENSG00000279907	RP11-568J23.2	Purple	--	--
ENSG00000279908	RP11-325I22.3	Purple	--	--
ENSG00000279989	RP11-158H5.2	Purple	--	--
ENSG00000280083	RP11-317J9.1	Purple	--	--
ENSG00000280162	RP11-314N13.9	Purple	--	--

ENSG00000280244	RP11-44N21.3	Purple	--	--
ENSG00000280277	RP1-72A23.4	Purple	--	--
ENSG00000280376	RP11-93O14.3	Purple	--	--
ENSG00000280394	CTC-503J8.8	Purple	--	--
ENSG00000280413	KB-1674E1.1	Purple	--	--
Ensembl_gene (PT)	gene_name	módulo WGCNA	HUB	DEGs
ENSG00000004799	PDK4	Lightgreen	--	--
ENSG00000005436	GCFC2	Lightgreen	Controle	--
ENSG00000006071	ABCC8	Lightgreen	--	--
ENSG00000007174	DNAH9	Lightgreen	--	--
ENSG00000007264	MATK	Lightgreen	Controle	--
ENSG00000008282	SYPL1	Lightgreen	--	--
ENSG00000008311	AASS	Lightgreen	--	--
ENSG00000010810	FYN	Lightgreen	--	--
ENSG00000011083	SLC6A7	Lightgreen	--	--
ENSG00000011332	DPF1	Lightgreen	--	--
ENSG00000012822	CALCOCO1	Lightgreen	--	--
ENSG00000013288	MAN2B2	Lightgreen	--	--
ENSG00000014919	COX15	Lightgreen	Controle	--
ENSG00000018236	CNTN1	Lightgreen	--	--
ENSG00000019505	SYT13	Lightgreen	--	--
ENSG00000029993	HMGB3	Lightgreen	--	--
ENSG00000038427	VCAN	Lightgreen	Controle	--
ENSG00000058404	CAMK2B	Lightgreen	Controle	--
ENSG00000061337	LZTS1	Lightgreen	--	SIM
ENSG00000063015	SEZ6	Lightgreen	--	--
ENSG00000063761	ADCK1	Lightgreen	--	--
ENSG00000064692	SNCAIP	Lightgreen	--	--
ENSG00000065833	ME1	Lightgreen	--	--
ENSG00000066117	SMARCD1	Lightgreen	--	--
ENSG00000066248	NGEF	Lightgreen	--	SIM
ENSG00000066468	FGFR2	Lightgreen	--	--
ENSG00000067141	NEO1	Lightgreen	--	--
ENSG00000067191	CACNB1	Lightgreen	Controle	--
ENSG00000067208	EVI5	Lightgreen	--	--
ENSG00000067560	RHOA	Lightgreen	--	--
ENSG00000067955	CBFB	Lightgreen	--	--
ENSG00000068831	RASGRP2	Lightgreen	Controle	--
ENSG00000070814	TCOF1	Lightgreen	TOC	--
ENSG00000071189	SNX13	Lightgreen	--	--
ENSG00000072506	HSD17B10	Lightgreen	--	--
ENSG00000072954	TMEM38A	Lightgreen	--	--
ENSG00000073712	FERMT2	Lightgreen	--	--
ENSG00000074054	CLASP1	Lightgreen	--	--
ENSG00000076770	MBNL3	Lightgreen	--	--
ENSG00000082146	STRADB	Lightgreen	Controle	--
ENSG00000083312	TNPO1	Lightgreen	TOC	--
ENSG00000084754	HADHA	Lightgreen	--	--
ENSG00000085719	CPNE3	Lightgreen	Controle	--

ENSG00000085998	POMGNT1	Lightgreen	--	--
ENSG00000085999	RAD54L	Lightgreen	--	--
ENSG00000086717	PPEF1	Lightgreen	--	--
ENSG00000088727	KIF9	Lightgreen	--	--
ENSG00000088808	PPP1R13B	Lightgreen	--	--
ENSG00000088826	SMOX	Lightgreen	--	--
ENSG00000089169	RPH3A	Lightgreen	TOC	SIM
ENSG00000091622	PITPNM3	Lightgreen	TOC	--
ENSG00000092330	TINF2	Lightgreen	--	--
ENSG00000095574	IKZF5	Lightgreen	--	--
ENSG00000096093	EFHC1	Lightgreen	--	--
ENSG00000099308	MAST3	Lightgreen	Controle	--
ENSG00000099942	CRKL	Lightgreen	--	--
ENSG00000099991	CABIN1	Lightgreen	Controle	--
ENSG00000100335	MIEF1	Lightgreen	--	--
ENSG00000100346	CACNA1I	Lightgreen	--	--
ENSG00000100625	SIX4	Lightgreen	Controle	--
ENSG00000100884	CPNE6	Lightgreen	--	--
ENSG00000101104	PABPC1L	Lightgreen	--	--
ENSG00000101391	CDK5RAP1	Lightgreen	Controle	--
ENSG00000101413	RPRD1B	Lightgreen	--	--
ENSG00000102218	RP2	Lightgreen	--	--
ENSG00000102699	PARP4	Lightgreen	--	--
ENSG00000103647	CORO2B	Lightgreen	Controle	--
ENSG00000103723	AP3B2	Lightgreen	--	--
ENSG00000104312	RIPK2	Lightgreen	--	--
ENSG00000104375	STK3	Lightgreen	Controle	--
ENSG00000104419	NDRG1	Lightgreen	--	--
ENSG00000104892	KLC3	Lightgreen	--	--
ENSG00000104960	PTOV1	Lightgreen	Controle	--
ENSG00000105245	NUMBL	Lightgreen	--	--
ENSG00000105355	PLIN3	Lightgreen	--	--
ENSG00000105486	LIG1	Lightgreen	--	--
ENSG00000105696	TMEM59L	Lightgreen	--	--
ENSG00000106123	EPHB6	Lightgreen	--	--
ENSG00000107551	RASSF4	Lightgreen	--	--
ENSG00000108510	MED13	Lightgreen	--	--
ENSG00000108797	CNTNAP1	Lightgreen	--	--
ENSG00000109684	CLNK	Lightgreen	--	--
ENSG00000110514	MADD	Lightgreen	Controle	--
ENSG00000110880	CORO1C	Lightgreen	--	--
ENSG00000111254	AKAP3	Lightgreen	--	--
ENSG00000111911	HINT3	Lightgreen	Controle	--
ENSG00000112078	KCTD20	Lightgreen	Controle	--
ENSG00000112137	PHACTR1	Lightgreen	--	--
ENSG00000112406	HECA	Lightgreen	--	--
ENSG00000112414	GPR126	Lightgreen	--	--
ENSG00000112531	QKI	Lightgreen	--	--
ENSG00000112659	CUL9	Lightgreen	--	--
ENSG00000113384	GOLPH3	Lightgreen	--	--

ENSG00000113732	ATP6V0E1	Lightgreen	--	--
ENSG00000113758	DBN1	Lightgreen	--	--
ENSG00000113790	EHHADH	Lightgreen	Controle	--
ENSG00000113805	CNTN3	Lightgreen	--	SIM
ENSG00000114923	SLC4A3	Lightgreen	--	--
ENSG00000115084	SLC35F5	Lightgreen	--	--
ENSG00000115155	OTOF	Lightgreen	--	--
ENSG00000115486	GGCX	Lightgreen	Controle	--
ENSG00000115694	STK25	Lightgreen	--	--
ENSG00000115758	ODC1	Lightgreen	--	--
ENSG00000115825	PRKD3	Lightgreen	--	--
ENSG00000116497	S100PBP	Lightgreen	Controle	--
ENSG00000116604	MEF2D	Lightgreen	--	--
ENSG00000116747	TROVE2	Lightgreen	Controle	--
ENSG00000117500	TMED5	Lightgreen	--	--
ENSG00000118508	RAB32	Lightgreen	--	--
ENSG00000119280	C1orf198	Lightgreen	Controle	--
ENSG00000119326	CTNNAL1	Lightgreen	--	--
ENSG00000119778	ATAD2B	Lightgreen	Controle	--
ENSG00000119866	BCL11A	Lightgreen	--	--
ENSG00000119946	CNNM1	Lightgreen	--	--
ENSG00000120063	GNA13	Lightgreen	--	--
ENSG00000120253	NUP43	Lightgreen	--	--
ENSG00000120332	TNN	Lightgreen	Controle	--
ENSG00000120992	LYPLA1	Lightgreen	Controle	--
ENSG00000121101	TEX14	Lightgreen	--	--
ENSG00000121653	MAPK8IP1	Lightgreen	--	--
ENSG00000121904	CSMD2	Lightgreen	--	--
ENSG00000122140	MRPS2	Lightgreen	--	--
ENSG00000122733	KIAA1045	Lightgreen	--	--
ENSG00000122735	DNAI1	Lightgreen	Controle	--
ENSG00000124212	PTGIS	Lightgreen	--	--
ENSG00000124479	NDP	Lightgreen	Controle	--
ENSG00000124507	PACSIN1	Lightgreen	--	--
ENSG00000125447	GGA3	Lightgreen	Controle	--
ENSG00000125510	OPRL1	Lightgreen	--	--
ENSG00000125812	GZF1	Lightgreen	--	--
ENSG00000125871	MGME1	Lightgreen	--	--
ENSG00000125878	TCF15	Lightgreen	--	--
ENSG00000126778	SIX1	Lightgreen	--	--
ENSG00000127314	RAP1B	Lightgreen	--	--
ENSG00000128185	DGCR6L	Lightgreen	--	--
ENSG00000128585	MKLN1	Lightgreen	--	--
ENSG00000128918	ALDH1A2	Lightgreen	--	--
ENSG00000128965	CHAC1	Lightgreen	--	--
ENSG00000129422	MTUS1	Lightgreen	--	--
ENSG00000129910	CDH15	Lightgreen	--	--
ENSG00000130032	PRRG3	Lightgreen	TOC	--
ENSG00000130513	GDF15	Lightgreen	--	--
ENSG00000130751	NPAS1	Lightgreen	--	--

ENSG00000132031	MATN3	Lightgreen	Controle	--
ENSG00000132359	RAP1GAP2	Lightgreen	--	--
ENSG00000132740	IGHMBP2	Lightgreen	--	--
ENSG00000132953	XPO4	Lightgreen	Controle	--
ENSG00000133067	LGR6	Lightgreen	--	--
ENSG00000134757	DSG3	Lightgreen	--	--
ENSG00000135069	PSAT1	Lightgreen	TOC	--
ENSG00000135338	LCA5	Lightgreen	--	--
ENSG00000135454	B4GALNT1	Lightgreen	--	--
ENSG00000135476	ESPL1	Lightgreen	--	--
ENSG00000135597	REPS1	Lightgreen	--	--
ENSG00000136636	KCTD3	Lightgreen	--	--
ENSG00000136883	KIF12	Lightgreen	Controle	--
ENSG00000136940	PDCL	Lightgreen	--	--
ENSG00000137824	RMDN3	Lightgreen	--	--
ENSG00000137869	CYP19A1	Lightgreen	--	--
ENSG00000138002	IFT172	Lightgreen	--	--
ENSG00000138073	PREB	Lightgreen	--	--
ENSG00000138448	ITGAV	Lightgreen	--	--
ENSG00000138942	RNF185	Lightgreen	--	--
ENSG00000139218	SCAF11	Lightgreen	--	--
ENSG00000139350	NEDD1	Lightgreen	--	--
ENSG00000140299	BNIP2	Lightgreen	--	--
ENSG00000140455	USP3	Lightgreen	Controle	--
ENSG00000140941	MAP1LC3B	Lightgreen	--	--
ENSG00000141380	SS18	Lightgreen	--	--
ENSG00000141456	PELP1	Lightgreen	--	--
ENSG00000141469	SLC14A1	Lightgreen	--	--
ENSG00000142609	CFAP74	Lightgreen	--	--
ENSG00000143257	NR1I3	Lightgreen	--	--
ENSG00000143294	PRCC	Lightgreen	--	--
ENSG00000143514	TP53BP2	Lightgreen	--	--
ENSG00000143622	RIT1	Lightgreen	--	--
ENSG00000143630	HCN3	Lightgreen	Controle	--
ENSG00000143847	PPFIA4	Lightgreen	--	--
ENSG00000143921	ABCG8	Lightgreen	--	--
ENSG00000143952	VPS54	Lightgreen	--	--
ENSG00000144214	LYG1	Lightgreen	--	--
ENSG00000144476	ACKR3	Lightgreen	--	--
ENSG00000144481	TRPM8	Lightgreen	--	--
ENSG00000144711	IQSEC1	Lightgreen	--	--
ENSG00000145283	SLC10A6	Lightgreen	--	--
ENSG00000145331	TRMT10A	Lightgreen	--	--
ENSG00000145391	SETD7	Lightgreen	--	--
ENSG00000146233	CYP39A1	Lightgreen	--	--
ENSG00000146530	VWDE	Lightgreen	--	--
ENSG00000147117	ZNF157	Lightgreen	--	--
ENSG00000147130	ZMYM3	Lightgreen	--	--
ENSG00000148814	LRRC27	Lightgreen	--	--
ENSG00000148942	SLC5A12	Lightgreen	--	--

ENSG00000149922	TBX6	Lightgreen	--	--
ENSG00000150093	ITGB1	Lightgreen	Controle	--
ENSG00000151062	CACNA2D4	Lightgreen	--	--
ENSG00000151065	DCP1B	Lightgreen	--	--
ENSG00000151092	NGLY1	Lightgreen	--	--
ENSG00000151116	UEVLD	Lightgreen	TOC	--
ENSG00000151413	NUBPL	Lightgreen	--	--
ENSG00000151502	VPS26B	Lightgreen	--	--
ENSG00000153922	CHD1	Lightgreen	--	--
ENSG00000156990	RPUSD3	Lightgreen	--	--
ENSG00000157881	PANK4	Lightgreen	--	--
ENSG00000158201	ABHD3	Lightgreen	--	--
ENSG00000158615	PPP1R15B	Lightgreen	--	--
ENSG00000158850	B4GALT3	Lightgreen	Controle	--
ENSG00000160200	CBS	Lightgreen	--	--
ENSG00000160213	CSTB	Lightgreen	--	--
ENSG00000160445	ZER1	Lightgreen	--	--
ENSG00000160716	CHRNA2	Lightgreen	--	--
ENSG00000160746	ANO10	Lightgreen	--	--
ENSG00000161082	CELF5	Lightgreen	--	--
ENSG00000161249	DMKN	Lightgreen	--	--
ENSG00000161533	ACOX1	Lightgreen	--	--
ENSG00000162627	SNX7	Lightgreen	--	--
ENSG00000162747	FCGR3B	Lightgreen	--	--
ENSG00000162971	TYW5	Lightgreen	Controle	--
ENSG00000163125	RPRD2	Lightgreen	--	--
ENSG00000163364	LINC01116	Lightgreen	--	--
ENSG00000163428	LRRC58	Lightgreen	Controle	--
ENSG00000163462	TRIM46	Lightgreen	Controle	--
ENSG00000163482	STK36	Lightgreen	--	--
ENSG00000163516	ANKZF1	Lightgreen	--	--
ENSG00000163697	APBB2	Lightgreen	--	--
ENSG00000163833	FBXO40	Lightgreen	--	--
ENSG00000163884	KLF15	Lightgreen	--	--
ENSG00000163913	IFT122	Lightgreen	--	--
ENSG00000163960	UBXN7	Lightgreen	--	--
ENSG00000164037	SLC9B1	Lightgreen	--	--
ENSG00000164088	PPM1M	Lightgreen	--	--
ENSG00000164089	ETNPPL	Lightgreen	--	--
ENSG00000164292	RHOBTB3	Lightgreen	Controle	--
ENSG00000164619	BMPER	Lightgreen	--	--
ENSG00000165115	KIF27	Lightgreen	--	--
ENSG00000165271	NOL6	Lightgreen	--	--
ENSG00000165476	REEP3	Lightgreen	--	--
ENSG00000165512	ZNF22	Lightgreen	Controle/TOC	--
ENSG00000165724	ZMYND19	Lightgreen	Controle	--
ENSG00000166068	SPRED1	Lightgreen	--	--
ENSG00000166323	C11orf65	Lightgreen	--	--
ENSG00000166471	TMEM41B	Lightgreen	--	--
ENSG00000166734	CASC4	Lightgreen	TOC	--

ENSG00000166845	C18orf54	Lightgreen	--	--
ENSG00000167965	MLST8	Lightgreen	--	--
ENSG00000168309	FAM107A	Lightgreen	--	--
ENSG00000168385	SEPT2	Lightgreen	Controle/TOC	--
ENSG00000168539	CHRM1	Lightgreen	--	--
ENSG00000168874	ATOH8	Lightgreen	--	SIM
ENSG00000169057	MECP2	Lightgreen	--	--
ENSG00000169169	CPT1C	Lightgreen	--	--
ENSG00000169181	GSG1L	Lightgreen	Controle	--
ENSG00000169184	MN1	Lightgreen	Controle	--
ENSG00000169908	TM4SF1	Lightgreen	--	--
ENSG00000169926	KLF13	Lightgreen	--	--
ENSG00000170325	PRDM10	Lightgreen	--	--
ENSG00000170485	NPAS2	Lightgreen	--	--
ENSG00000171100	MTM1	Lightgreen	--	--
ENSG00000172232	AZU1	Lightgreen	--	--
ENSG00000172250	SERHL	Lightgreen	--	--
ENSG00000172273	HINFP	Lightgreen	--	--
ENSG00000172375	C2CD2L	Lightgreen	--	--
ENSG00000172803	SNX32	Lightgreen	--	--
ENSG00000173175	ADCY5	Lightgreen	Controle	--
ENSG00000174332	GLIS1	Lightgreen	--	--
ENSG00000174944	P2RY14	Lightgreen	--	--
ENSG00000174996	KLC2	Lightgreen	Controle	--
ENSG00000175294	CATSPER1	Lightgreen	--	--
ENSG00000175470	PPP2R2D	Lightgreen	--	--
ENSG00000175772	LINC01106	Lightgreen	--	--
ENSG00000176454	LPCAT4	Lightgreen	Controle	--
ENSG00000176732	PFN4	Lightgreen	--	--
ENSG00000176840	MIR7-3HG	Lightgreen	--	--
ENSG00000176919	C8G	Lightgreen	--	--
ENSG00000177192	PUS1	Lightgreen	--	--
ENSG00000177888	ZBTB41	Lightgreen	--	--
ENSG00000178033	FAM26E	Lightgreen	--	--
ENSG00000178537	SLC25A20	Lightgreen	Controle	--
ENSG00000178921	PFAS	Lightgreen	--	--
ENSG00000179240	RP11-111M22.2	Lightgreen	Controle	--
ENSG00000179869	ABCA13	Lightgreen	--	--
ENSG00000180938	ZNF572	Lightgreen	TOC	--
ENSG00000181378	CCDC108	Lightgreen	--	--
ENSG00000182473	EXOC7	Lightgreen	--	--
ENSG00000182551	ADI1	Lightgreen	--	--
ENSG00000183067	IGSF5	Lightgreen	--	--
ENSG00000183309	ZNF623	Lightgreen	--	--
ENSG00000183763	TRAIP	Lightgreen	--	--
ENSG00000184575	XPOT	Lightgreen	--	--
ENSG00000184677	ZBTB40	Lightgreen	--	--
ENSG00000184860	SDR42E1	Lightgreen	--	--
ENSG00000185090	MANEAL	Lightgreen	Controle	--
ENSG00000185324	CDK10	Lightgreen	--	--

ENSG00000185839	RP4-592A1.2	Lightgreen	--	--
ENSG00000186642	PDE2A	Lightgreen	--	--
ENSG00000187630	DHRS4L2	Lightgreen	--	--
ENSG00000188133	TMEM215	Lightgreen	Controle	--
ENSG00000188277	C15orf62	Lightgreen	--	--
ENSG00000188647	PTAR1	Lightgreen	Controle	--
ENSG00000188859	FAM78B	Lightgreen	--	--
ENSG00000189079	ARID2	Lightgreen	--	--
ENSG00000189320	FAM180A	Lightgreen	--	--
ENSG00000196172	ZNF681	Lightgreen	--	--
ENSG00000196273	LINC00523	Lightgreen	--	--
ENSG00000196363	WDR5	Lightgreen	--	--
ENSG00000196391	ZNF774	Lightgreen	Controle	--
ENSG00000196408	NOXO1	Lightgreen	--	--
ENSG00000196453	ZNF777	Lightgreen	--	--
ENSG00000196581	AJAP1	Lightgreen	--	--
ENSG00000196616	ADH1B	Lightgreen	--	--
ENSG00000198075	SULT1C4	Lightgreen	--	--
ENSG00000198363	ASPH	Lightgreen	--	--
ENSG00000198515	CNGA1	Lightgreen	--	--
ENSG00000198604	BAZ1A	Lightgreen	Controle/TOC	--
ENSG00000198682	PAPSS2	Lightgreen	--	--
ENSG00000198853	RUSC2	Lightgreen	Controle	--
ENSG00000198887	SMC5	Lightgreen	Controle	--
ENSG00000198920	KIAA0753	Lightgreen	Controle	--
ENSG00000201183	RNVU1-3	Lightgreen	--	--
ENSG00000203364	RP11-370F5.4	Lightgreen	--	--
ENSG00000204044	RP11-465L10.10	Lightgreen	--	--
ENSG00000204052	LRRC73	Lightgreen	--	--
ENSG00000204348	DXO	Lightgreen	Controle	--
ENSG00000204531	POU5F1	Lightgreen	TOC	--
ENSG00000204564	C6orf136	Lightgreen	--	--
ENSG00000205089	CCNI2	Lightgreen	Controle/TOC	--
ENSG00000205189	ZBTB10	Lightgreen	Controle	--
ENSG00000205250	E2F4	Lightgreen	--	--
ENSG00000205423	CNEP1R1	Lightgreen	TOC	--
ENSG00000206120	EGFEM1P	Lightgreen	--	--
ENSG00000206702	RNU1-11P	Lightgreen	--	--
ENSG00000213212	NCLP1	Lightgreen	--	--
ENSG00000213965	NUDT19	Lightgreen	--	--
ENSG00000214067	RP11-549L6.2	Lightgreen	Controle	--
ENSG00000215301	DDX3X	Lightgreen	--	--
ENSG00000218233	NEPNP	Lightgreen	TOC	--
ENSG00000221621	AC009835.1	Lightgreen	--	--
ENSG00000222650	RNU2-70P	Lightgreen	--	--
ENSG00000222898	RN7SKP97	Lightgreen	--	--
ENSG00000223588	AC103564.9	Lightgreen	--	--
ENSG00000224066	RP4-622L5.7	Lightgreen	Controle	--
ENSG00000224664	RPL36AP53	Lightgreen	Controle	--
ENSG00000224729	PCOLCE-AS1	Lightgreen	--	--

ENSG00000224881	AC068279.3	Lightgreen	--	--
ENSG00000224963	U82695.9	Lightgreen	--	--
ENSG00000225988	LAMP5-AS1	Lightgreen	--	--
ENSG00000226053	RP5-1070A16.1	Lightgreen	--	--
ENSG00000226239	RP1-310O13.7	Lightgreen	--	--
ENSG00000227244	LINC00845	Lightgreen	--	--
ENSG00000227359	AC017074.2	Lightgreen	--	--
ENSG00000227540	RP11-152N13.5	Lightgreen	--	--
ENSG00000227741	RP11-536C5.7	Lightgreen	--	--
ENSG00000227764	RP11-354K1.1	Lightgreen	--	--
ENSG00000227946	AC007383.3	Lightgreen	--	--
ENSG00000228063	LYPLAL1-AS1	Lightgreen	--	--
ENSG00000228126	FALEC	Lightgreen	--	--
ENSG00000228158	TLE1P1	Lightgreen	--	--
ENSG00000228166	MTND1P11	Lightgreen	--	--
ENSG00000228238	GS1-304P7.2	Lightgreen	Controle	--
ENSG00000228372	RP11-85L21.4	Lightgreen	--	--
ENSG00000228521	AC099552.3	Lightgreen	--	--
ENSG00000228878	SEPT7-AS1	Lightgreen	--	--
ENSG00000229236	TTY10	Lightgreen	TOC	--
ENSG00000229425	AJ006998.2	Lightgreen	--	--
ENSG00000230392	RP5-1139I1.1	Lightgreen	--	--
ENSG00000230428	RP1-196A12.1	Lightgreen	Controle	--
ENSG00000230552	AC092162.1	Lightgreen	--	--
ENSG00000230778	ANKRD63	Lightgreen	Controle/TOC	--
ENSG00000231307	RPS3P2	Lightgreen	--	--
ENSG00000231437	RP11-88H9.2	Lightgreen	--	--
ENSG00000231458	RNASEH1P2	Lightgreen	TOC	--
ENSG00000231729	ARHGEF9-IT1	Lightgreen	--	--
ENSG00000231816	RP4-782L23.1	Lightgreen	Controle	--
ENSG00000231890	DARS-AS1	Lightgreen	--	--
ENSG00000232352	SEMA3B-AS1	Lightgreen	--	--
ENSG00000232377	AC016910.1	Lightgreen	--	--
ENSG00000232502	AC073464.7	Lightgreen	--	--
ENSG00000232721	RP11-403I13.5	Lightgreen	--	--
ENSG00000233265	MICF	Lightgreen	--	--
ENSG00000233343	ATP6V1G1P4	Lightgreen	--	--
ENSG00000233521	RP5-1172A22.1	Lightgreen	Controle	--
ENSG00000233930	KRTAP5-AS1	Lightgreen	--	--
ENSG00000234123	RHBDF1P1	Lightgreen	--	--
ENSG00000234222	RP11-315I20.1	Lightgreen	--	--
ENSG00000235271	RP1-90L6.3	Lightgreen	--	--
ENSG00000235631	RNF148	Lightgreen	--	--
ENSG00000235652	RP11-545I5.3	Lightgreen	--	--
ENSG00000235944	ZNF815P	Lightgreen	--	--
ENSG00000236438	FAM157A	Lightgreen	--	--
ENSG00000236709	DAPK1-IT1	Lightgreen	Controle	--
ENSG00000236882	LINC01554	Lightgreen	--	--
ENSG00000236988	RP11-402K9.1	Lightgreen	Controle	--
ENSG00000237260	AC073069.2	Lightgreen	--	--

ENSG00000237588	RP11-66D17.3	Lightgreen	--	--
ENSG00000237775	DDR1-AS1	Lightgreen	--	--
ENSG00000237821	AC083873.4	Lightgreen	--	--
ENSG00000237863	RP6-24A23.3	Lightgreen	Controle	--
ENSG00000238198	RP11-31F15.2	Lightgreen	--	--
ENSG00000238276	RP11-245J24.1	Lightgreen	--	--
ENSG00000240915	RP11-659E9.2	Lightgreen	--	--
ENSG00000241993	RPL38P1	Lightgreen	--	--
ENSG00000242732	RGAG4	Lightgreen	--	--
ENSG00000243094	RP11-1084A12.1	Lightgreen	--	--
ENSG00000243287	RPS17P14	Lightgreen	Controle	--
ENSG00000243516	RP11-19F9.1	Lightgreen	--	--
ENSG00000243721	RP11-472I20.1	Lightgreen	--	--
ENSG00000244968	LIFR-AS1	Lightgreen	--	--
ENSG00000246774	AC004051.2	Lightgreen	--	--
ENSG00000247228	RP11-296I10.3	Lightgreen	--	--
ENSG00000247271	ZBED5-AS1	Lightgreen	--	--
ENSG00000247317	RP11-273G15.2	Lightgreen	--	--
ENSG00000247624	CPEB2-AS1	Lightgreen	--	--
ENSG00000248117	MINOS1P4	Lightgreen	--	--
ENSG00000248148	RP11-357F12.1	Lightgreen	--	--
ENSG00000248664	CTC-498J12.3	Lightgreen	Controle	--
ENSG00000248773	RP11-231L11.3	Lightgreen	--	--
ENSG00000248975	CTD-2251F13.1	Lightgreen	--	--
ENSG00000249645	RP11-552M14.1	Lightgreen	--	--
ENSG00000249992	TMEM158	Lightgreen	Controle	--
ENSG00000249996	RP11-359P5.1	Lightgreen	--	--
ENSG00000250061	RP11-541P9.3	Lightgreen	--	--
ENSG00000250159	RP11-381K20.2	Lightgreen	--	--
ENSG00000250896	RNPS1P1	Lightgreen	Controle	--
ENSG00000251046	ZNF969P	Lightgreen	--	--
ENSG00000251244	RP13-487K5.1	Lightgreen	--	--
ENSG00000252812	RN7SKP2	Lightgreen	--	--
ENSG00000253263	KB-1507C5.3	Lightgreen	--	--
ENSG00000253661	ZFH4-AS1	Lightgreen	--	--
ENSG00000253663	NPM1P52	Lightgreen	--	--
ENSG00000253773	C8orf37-AS1	Lightgreen	--	--
ENSG00000254285	KRT8P3	Lightgreen	--	--
ENSG00000256229	ZNF486	Lightgreen	--	--
ENSG00000256650	RERG-IT1	Lightgreen	--	--
ENSG00000257103	LSM14A	Lightgreen	--	--
ENSG00000257139	RP11-320P7.2	Lightgreen	Controle	--
ENSG00000257534	RP11-834C11.10	Lightgreen	Controle	--
ENSG00000258101	RP11-977B10.2	Lightgreen	--	--
ENSG00000258123	RP11-314D7.2	Lightgreen	--	--
ENSG00000258569	RP11-99E15.2	Lightgreen	--	--
ENSG00000259248	USP3-AS1	Lightgreen	--	--
ENSG00000259286	RP11-696L21.2	Lightgreen	--	--
ENSG00000259326	RP11-102L12.2	Lightgreen	--	--
ENSG00000259342	RP11-519G16.5	Lightgreen	--	--

ENSG00000259374	RP11-736N17.4	Lightgreen	--	--
ENSG00000259467	NDUFAF4P1	Lightgreen	--	--
ENSG00000259512	HNRNPA1P5	Lightgreen	--	--
ENSG00000259939	RP11-77H9.5	Lightgreen	--	--
ENSG00000260027	HOXB7	Lightgreen	--	--
ENSG00000260059	RP11-231E19.1	Lightgreen	--	--
ENSG00000260091	RP11-33B1.4	Lightgreen	--	--
ENSG00000260209	RP11-680F20.10	Lightgreen	TOC	--
ENSG00000260633	RP11-375I20.6	Lightgreen	--	--
ENSG00000261007	RP11-382N13.3	Lightgreen	--	--
ENSG00000261186	RP11-341N2.1	Lightgreen	--	--
ENSG00000261227	AC140912.1	Lightgreen	--	--
ENSG00000261231	RP11-523L20.2	Lightgreen	--	--
ENSG00000261441	RP11-217B1.2	Lightgreen	--	--
ENSG00000261840	RP11-146F11.1	Lightgreen	--	--
ENSG00000261996	CTC-281F24.1	Lightgreen	--	--
ENSG00000262267	U95743.1	Lightgreen	--	--
ENSG00000262803	RP11-160A9.3	Lightgreen	--	--
ENSG00000265456	MIR3672	Lightgreen	--	--
ENSG00000266003	RP11-267C16.2	Lightgreen	--	--
ENSG00000266217	CTSLP7	Lightgreen	--	--
ENSG00000266467	RN7SL220P	Lightgreen	--	--
ENSG00000266965	RP11-712P20.2	Lightgreen	TOC	--
ENSG00000267064	UXT-AS1	Lightgreen	--	--
ENSG00000267287	RP11-567M16.1	Lightgreen	--	--
ENSG00000267498	CTB-32O4.2	Lightgreen	--	--
ENSG00000267723	CTD-2189E23.1	Lightgreen	Controle	--
ENSG00000268001	CTC-241F20.3	Lightgreen	--	--
ENSG00000268472	RP11-356J5.13	Lightgreen	--	--
ENSG00000268955	RP11-556O5.6	Lightgreen	Controle	--
ENSG00000269067	ZNF728	Lightgreen	--	--
ENSG00000269397	CTB-92J24.2	Lightgreen	--	--
ENSG00000269570	CMB9-55A18.1	Lightgreen	--	--
ENSG00000269886	RP11-266J6.2	Lightgreen	--	--
ENSG00000269968	RP5-940J5.9	Lightgreen	--	--
ENSG00000270638	RP3-466P17.1	Lightgreen	--	--
ENSG00000270880	RP11-255E6.5	Lightgreen	--	--
ENSG00000271119	CTD-2012J19.3	Lightgreen	--	--
ENSG00000271127	LL22NC03-N64E9.1	Lightgreen	--	--
ENSG00000272031	ANKRD34A	Lightgreen	--	--
ENSG00000272144	CTD-2035E11.5	Lightgreen	--	--
ENSG00000272279	RP11-157J24.2	Lightgreen	--	--
ENSG00000272293	RP11-91J19.3	Lightgreen	--	--
ENSG00000272476	RP1-191J18.66	Lightgreen	--	--
ENSG00000272632	RP11-362F19.3	Lightgreen	--	--
ENSG00000272644	RP11-33O4.1	Lightgreen	--	--
ENSG00000272783	RP13-1016M1.2	Lightgreen	--	--
ENSG00000273010	RP11-96K19.5	Lightgreen	--	--
ENSG00000273061	CDC37L1-AS1	Lightgreen	--	--

ENSG00000273106	RP11-559M23.1	Lightgreen	Controle	--
ENSG00000273162	RP11-108L7.15	Lightgreen	--	--
ENSG00000273233	RP11-713D19.1	Lightgreen	Controle	--
ENSG00000273297	RP11-38M8.1	Lightgreen	Controle	--
ENSG00000273472	RP11-102N12.3	Lightgreen	Controle	--
ENSG00000273488	RP11-114I8.4	Lightgreen	--	--
ENSG00000273973	RP11-973D8.5	Lightgreen	--	--
ENSG00000274281	RP11-326N17.2	Lightgreen	--	--
ENSG00000274444	RP11-128A17.2	Lightgreen	--	--
ENSG00000276449	AC004076.5	Lightgreen	--	--
ENSG00000276840	PMS2P10	Lightgreen	Controle	--
ENSG00000277399	GPR179	Lightgreen	--	--
ENSG00000277430	AC084198.1	Lightgreen	--	--
ENSG00000277511	CTD-2095E4.5	Lightgreen	--	--
ENSG00000277728	RP11-143K11.7	Lightgreen	--	--
ENSG00000277840	RP11-103B5.4	Lightgreen	--	--
ENSG00000278291	RP11-172H24.4	Lightgreen	--	--
ENSG00000278356	RP11-372B4.3	Lightgreen	Controle	--
ENSG00000278867	RP11-640N20.4	Lightgreen	--	--
ENSG00000278886	RP11-108A14.1	Lightgreen	--	--
ENSG00000279066	RP13-20L14.9	Lightgreen	TOC	--
ENSG00000279088	RP11-574K11.24	Lightgreen	--	--
ENSG00000279092	RP11-1H8.5	Lightgreen	TOC	--
ENSG00000279146	RP11-117L5.3	Lightgreen	Controle	--
ENSG00000279208	bP-21264C1.1	Lightgreen	--	SIM
ENSG00000279623	RP11-399C16.3	Lightgreen	--	--
ENSG00000279668	CTC-304I17.1	Lightgreen	--	--
ENSG00000279718	bP-21264C1.3	Lightgreen	--	SIM
ENSG00000279800	ABBA01017803.1	Lightgreen	--	--
ENSG00000280123	RP11-267M23.1	Lightgreen	--	--

Anexo 7. Módulos de WGCNA selecionados para o circuito afetivo (ACC-NAC) para controles e TOC. Na coluna HUB são os genes *hubs* encontrado em cada região (ACC ou NAC). Grupo controles: Módulo mais preservado (BROWN, n=1086), Módulo menos preservado (LIGHTYELLOW, n=486). Grupo TOC: Módulo mais preservado (TURQUOISE, n=1570), Módulos menos preservados (ROYALBLUE, n=511 e PURPLE, n=661).

Ensembl_gene (Controles)	gene_name	Módulo	HUB
ENSG00000094914	AAAS	brown	--
ENSG00000198691	ABCA4	brown	--
ENSG00000138075	ABCG5	brown	--
ENSG00000272330	AC002044.4	brown	NAC
ENSG00000224505	AC002117.1	brown	ACC
ENSG00000234358	AC003080.4	brown	--
ENSG00000236754	AC004019.13	brown	--
ENSG00000250670	AC004063.1	brown	NAC
ENSG00000280226	AC004824.2	brown	--
ENSG00000228434	AC004951.6	brown	ACC
ENSG00000275829	AC005227.1	brown	--
ENSG00000270802	AC005776.1	brown	--
ENSG00000234409	AC006547.14	brown	ACC
ENSG00000249930	AC007016.3	brown	--
ENSG00000227946	AC007383.3	brown	--
ENSG00000242539	AC007620.3	brown	ACC
ENSG00000221233	AC007842.1	brown	ACC/NAC
ENSG00000223935	AC008074.3	brown	ACC/NAC
ENSG00000280007	AC008079.10	brown	ACC
ENSG00000280344	AC009166.7	brown	ACC
ENSG00000216895	AC009403.2	brown	ACC
ENSG00000221621	AC009835.1	brown	--
ENSG00000267219	AC010504.2	brown	--
ENSG00000232479	AC010900.2	brown	ACC
ENSG00000280098	AC011155.1	brown	--
ENSG00000213197	AC012066.1	brown	ACC
ENSG00000221179	AC016670.1	brown	ACC
ENSG00000274634	AC018361.1	brown	ACC
ENSG00000278897	AC020951.1	brown	ACC
ENSG00000215068	AC025171.1	brown	ACC
ENSG00000260005	AC027601.1	brown	ACC
ENSG00000233006	AC034220.3	brown	ACC
ENSG00000229334	AC046143.3	brown	--
ENSG00000279131	AC069063.1	brown	ACC
ENSG00000236047	AC073410.1	brown	--
ENSG00000222311	AC084882.1	brown	ACC

ENSG00000232034	AC092168.2	brown	ACC/NAC
ENSG00000222262	AC092846.1	brown	ACC
ENSG00000224184	AC096559.1	brown	--
ENSG00000226410	AC104058.1	brown	ACC
ENSG00000226508	AC104655.3	brown	ACC/NAC
ENSG00000224232	AC110299.5	brown	--
ENSG00000226789	AC110926.4	brown	--
ENSG00000227713	AC116609.1	brown	ACC
ENSG00000261047	AC137527.2	brown	ACC
ENSG00000230606	AC159540.1	brown	NAC
ENSG00000235833	AC159540.14	brown	NAC
ENSG00000239005	ACA64	brown	ACC
ENSG00000148848	ADAM12	brown	--
ENSG00000087116	ADAMTS2	brown	--
ENSG00000223694	ADH5P3	brown	ACC
ENSG00000159346	ADIPOR1	brown	ACC
ENSG00000121933	ADORA3	brown	ACC
ENSG00000254936	AF131215.3	brown	ACC
ENSG00000254556	AF131215.4	brown	ACC
ENSG00000254839	AF131215.6	brown	ACC/NAC
ENSG00000232828	AF196970.3	brown	ACC
ENSG00000165923	AGBL2	brown	--
ENSG00000225623	AGBL4-IT1	brown	ACC
ENSG00000226555	AGKP1	brown	ACC/NAC
ENSG00000124942	AHNAK	brown	--
ENSG00000204472	AIF1	brown	--
ENSG00000234187	AIMP1P1	brown	ACC/NAC
ENSG00000106305	AIMP2	brown	--
ENSG00000226989	AL049758.2	brown	ACC
ENSG00000280240	AL049794.1	brown	ACC
ENSG00000212101	AL080276.1	brown	ACC
ENSG00000221378	AL096864.1	brown	ACC
ENSG00000278260	AL157399.1	brown	--
ENSG00000278384	AL354822.1	brown	--
ENSG00000263626	AL392111.1	brown	ACC
ENSG00000109107	ALDOC	brown	ACC
ENSG00000250794	ALG1L12P	brown	ACC/NAC
ENSG00000119523	ALG2	brown	--
ENSG00000012779	ALOX5	brown	ACC
ENSG00000132965	ALOX5AP	brown	NAC
ENSG00000233273	AMMECR1LP1	brown	--
ENSG00000144504	ANKMY1	brown	ACC
ENSG00000174501	ANKRD36C	brown	ACC
ENSG00000143401	ANP32E	brown	--
ENSG00000177721	ANXA2R	brown	ACC

ENSG00000273295	AP000350.5	brown	--
ENSG00000279342	AP000866.2	brown	ACC
ENSG00000232692	AP001596.6	brown	--
ENSG00000100336	APOL4	brown	--
ENSG00000103569	AQP9	brown	--
ENSG00000165527	ARF6	brown	ACC
ENSG00000118520	ARG1	brown	--
ENSG00000075884	ARHGAP15	brown	--
ENSG00000140750	ARHGAP17	brown	ACC
ENSG00000186517	ARHGAP30	brown	ACC
ENSG00000111348	ARHGDIB	brown	ACC
ENSG00000152213	ARL11	brown	--
ENSG00000185829	ARL17A	brown	--
ENSG00000236818	ARL5AP2	brown	--
ENSG00000113369	ARRDC3	brown	ACC
ENSG00000267080	ASB16-AS1	brown	ACC
ENSG00000236554	ASNSP3	brown	--
ENSG00000034533	ASTE1	brown	--
ENSG00000228218	ATF4P3	brown	--
ENSG00000068650	ATP11A	brown	--
ENSG00000130270	ATP8B3	brown	--
ENSG00000158321	AUTS2	brown	ACC
ENSG00000135697	BCO1	brown	--
ENSG00000204177	BMS1P1	brown	--
ENSG00000169627	BOLA2B	brown	--
ENSG00000224775	BRAFP1	brown	NAC
ENSG00000104221	BRF2	brown	--
ENSG00000138152	BTBD16	brown	--
ENSG00000010671	BTK	brown	--
ENSG00000215924	BX284613.1	brown	ACC
ENSG00000204683	C10orf113	brown	ACC
ENSG00000158636	C11orf30	brown	ACC
ENSG00000214226	C17orf67	brown	ACC
ENSG00000074842	C19orf10	brown	--
ENSG00000214212	C19orf38	brown	--
ENSG00000105072	C19orf44	brown	ACC
ENSG00000173369	C1QB	brown	ACC
ENSG00000133466	C1QTNF6	brown	--
ENSG00000171984	C20orf196	brown	--
ENSG00000157617	C2CD2	brown	ACC
ENSG00000125730	C3	brown	ACC
ENSG00000171860	C3AR1	brown	ACC
ENSG00000153790	C7orf31	brown	--
ENSG00000230185	C9orf147	brown	--
ENSG00000155621	C9orf85	brown	ACC

ENSG00000164879	CA3	brown	--
ENSG00000256721	CACNA1C-IT3	brown	ACC
ENSG00000179218	CALR	brown	--
ENSG00000259151	CAP2P1	brown	ACC
ENSG00000198286	CARD11	brown	--
ENSG00000141527	CARD14	brown	--
ENSG00000272168	CASC15	brown	--
ENSG00000166734	CASC4	brown	ACC
ENSG00000099338	CATSPERG	brown	ACC
ENSG00000078699	CBFA2T2	brown	--
ENSG00000154222	CC2D1B	brown	ACC
ENSG00000159884	CCDC107	brown	--
ENSG00000159214	CCDC24	brown	--
ENSG00000157456	CCNB2	brown	--
ENSG00000221978	CCNL2	brown	ACC
ENSG00000163823	CCR1	brown	ACC
ENSG00000225569	CCT4P2	brown	ACC/NAC
ENSG00000170458	CD14	brown	--
ENSG00000134061	CD180	brown	--
ENSG00000167851	CD300A	brown	ACC
ENSG00000167850	CD300C	brown	--
ENSG00000019582	CD74	brown	--
ENSG00000134690	CDCA8	brown	ACC
ENSG00000205643	CDPF1	brown	--
ENSG00000110274	CEP164	brown	--
ENSG00000143375	CGN	brown	--
ENSG00000279278	CH17-264L24.1	brown	ACC/NAC
ENSG00000275131	CH17-472G23.4	brown	ACC
ENSG00000171310	CHST11	brown	--
ENSG00000160679	CHTOP	brown	ACC
ENSG00000187912	CLEC17A	brown	--
ENSG00000172243	CLEC7A	brown	NAC
ENSG00000173727	CMB9-22P13.1	brown	ACC
ENSG00000174600	CMKLR1	brown	--
ENSG00000132259	CNGA4	brown	ACC
ENSG00000213355	CNN2P8	brown	--
ENSG00000168434	COG7	brown	--
ENSG00000101203	COL20A1	brown	--
ENSG00000080573	COL5A3	brown	--
ENSG00000112280	COL9A1	brown	--
ENSG00000247624	CPEB2-AS1	brown	--
ENSG00000113742	CPEB4	brown	--
ENSG00000106066	CPVL	brown	--
ENSG00000080947	CROCCP3	brown	ACC/NAC
ENSG00000139631	CSAD	brown	ACC

ENSG00000182578	CSF1R	brown	NAC
ENSG00000119535	CSF3R	brown	--
ENSG00000259295	CSPG4P12	brown	ACC
ENSG00000273424	CTA-223H9.9	brown	ACC
ENSG00000272720	CTA-228A9.3	brown	ACC
ENSG00000272977	CTA-390C10.10	brown	ACC
ENSG00000223665	CTB-111F10.1	brown	ACC
ENSG00000267092	CTB-25B13.9	brown	ACC
ENSG00000117151	CTBS	brown	ACC/NAC
ENSG00000274251	CTC-1337H24.3	brown	ACC/NAC
ENSG00000251467	CTC-250P20.2	brown	--
ENSG00000279047	CTC-270D5.1	brown	--
ENSG00000279668	CTC-304I17.1	brown	ACC/NAC
ENSG00000263485	CTC-304I17.4	brown	ACC/NAC
ENSG00000205041	CTC-425O23.2	brown	ACC
ENSG00000277453	CTC-492K19.7	brown	--
ENSG00000247877	CTD-2001C12.1	brown	--
ENSG00000248489	CTD-2007H13.3	brown	ACC
ENSG00000255076	CTD-2023J5.1	brown	ACC
ENSG00000250764	CTD-2152M20.2	brown	--
ENSG00000260751	CTD-2196E14.6	brown	ACC
ENSG00000250001	CTD-2201E9.2	brown	ACC
ENSG00000279948	CTD-2233K9.1	brown	ACC
ENSG00000279400	CTD-2353F22.2	brown	ACC
ENSG00000269066	CTD-2528A14.5	brown	--
ENSG00000274925	CTD-2547G23.4	brown	ACC
ENSG00000268231	CTD-2560K21.6	brown	ACC/NAC
ENSG00000255136	CTD-2562J17.4	brown	ACC/NAC
ENSG00000268496	CTD-2587H19.2	brown	ACC
ENSG00000269873	CTD-2587H19.3	brown	--
ENSG00000280159	CTD-2591A1.1	brown	--
ENSG00000268416	CTD-2626G11.2	brown	ACC
ENSG00000264754	CTD-2653B5.1	brown	--
ENSG00000277220	CTD-3113P16.10	brown	ACC
ENSG00000259690	CTD-3118D7.1	brown	--
ENSG00000271555	CTD-3214K23.1	brown	ACC
ENSG00000279529	CTD-3222D19.8	brown	ACC
ENSG00000272255	CTD-3224K15.3	brown	--
ENSG00000144677	CTDSPL	brown	ACC/NAC
ENSG00000109861	CTSC	brown	ACC
ENSG00000174080	CTSF	brown	--
ENSG00000107611	CUBN	brown	--
ENSG00000120280	CXorf21	brown	--
ENSG00000165168	CYBB	brown	--
ENSG00000021461	CYP3A43	brown	--

ENSG00000100055	CYTH4	brown	--
ENSG00000115165	CYTIP	brown	--
ENSG00000070190	DAPP1	brown	--
ENSG00000223825	DAZAP2P1	brown	ACC
ENSG00000122741	DCAF10	brown	ACC
ENSG00000187323	DCC	brown	ACC
ENSG00000230986	DDX3YP2	brown	ACC
ENSG00000198837	DENND4B	brown	--
ENSG00000174839	DENND6A	brown	ACC/NAC
ENSG00000104808	DHDH	brown	--
ENSG00000102580	DNAJC3	brown	ACC
ENSG00000259660	DNM1P47	brown	--
ENSG00000134516	DOCK2	brown	--
ENSG00000128512	DOCK4	brown	--
ENSG00000205683	DPF3	brown	--
ENSG00000134755	DSC2	brown	ACC
ENSG00000233756	DSCAM-IT1	brown	ACC
ENSG00000169570	DTWD2	brown	ACC
ENSG00000110042	DTX4	brown	ACC
ENSG00000158163	DZIP1L	brown	ACC
ENSG00000203435	E2F3P2	brown	--
ENSG00000105246	EBI3	brown	--
ENSG00000121310	ECHDC2	brown	ACC
ENSG00000134463	ECHDC3	brown	ACC
ENSG00000198721	ECI2	brown	--
ENSG00000275981	EGOT	brown	--
ENSG00000149547	EI24	brown	--
ENSG00000233830	EIF4HP1	brown	ACC
ENSG00000132507	EIF5A	brown	--
ENSG00000115459	ELMOD3	brown	ACC
ENSG00000132199	ENOSF1	brown	ACC
ENSG00000120658	ENOX1	brown	ACC
ENSG00000249188	ENPP7P1	brown	ACC
ENSG00000154928	EPHB1	brown	ACC
ENSG00000120915	EPHX2	brown	--
ENSG00000132591	ERAL1	brown	--
ENSG00000242950	ERVW-1	brown	--
ENSG00000157036	EXOG	brown	--
ENSG00000171311	EXOSC1	brown	--
ENSG00000183055	FAM133CP	brown	--
ENSG00000144567	FAM134A	brown	--
ENSG00000150756	FAM173B	brown	ACC
ENSG00000108021	FAM208B	brown	--
ENSG00000122378	FAM213A	brown	ACC
ENSG00000184949	FAM227A	brown	ACC

ENSG00000188859	FAM78B	brown	--
ENSG00000158483	FAM86C1	brown	--
ENSG00000083857	FAT1	brown	--
ENSG00000135108	FBXO21	brown	--
ENSG00000158869	FCER1G	brown	ACC
ENSG00000275395	FCGBP	brown	--
ENSG00000150337	FCGR1A	brown	ACC
ENSG00000198019	FCGR1B	brown	ACC
ENSG00000203747	FCGR3A	brown	ACC
ENSG00000149781	FERMT3	brown	--
ENSG00000146192	FGD2	brown	--
ENSG00000127951	FGL2	brown	ACC
ENSG00000280151	FKSG59	brown	ACC
ENSG00000279849	FKSG70	brown	--
ENSG00000245888	FLJ21408	brown	ACC
ENSG00000132589	FLOT2	brown	--
ENSG00000185070	FLRT2	brown	ACC/NAC
ENSG00000171051	FPR1	brown	ACC
ENSG00000151474	FRMD4A	brown	ACC
ENSG00000185638	FTH1P14	brown	--
ENSG00000179163	FUCA1	brown	ACC
ENSG00000001036	FUCA2	brown	ACC/NAC
ENSG00000174951	FUT1	brown	--
ENSG00000276116	FUT8-AS1	brown	--
ENSG00000129245	FXR2	brown	--
ENSG00000082074	FYB	brown	--
ENSG00000166573	GALR1	brown	--
ENSG00000175857	GAPT	brown	--
ENSG00000157833	GAREML	brown	ACC
ENSG00000145990	GFOD1	brown	--
ENSG00000133574	GIMAP4	brown	NAC
ENSG00000101003	GIN51	brown	--
ENSG00000074047	GLI2	brown	--
ENSG00000174332	GLIS1	brown	NAC
ENSG00000168237	GLYCTK	brown	ACC
ENSG00000250903	GMDS-AS1	brown	ACC
ENSG00000137198	GMPR	brown	--
ENSG00000235590	GNAS-AS1	brown	ACC
ENSG00000130119	GNL3L	brown	--
ENSG00000179399	GPC5	brown	ACC/NAC
ENSG00000236240	GPC5-IT1	brown	ACC/NAC
ENSG00000169508	GPR183	brown	--
ENSG00000135973	GPR45	brown	--
ENSG00000233276	GPX1	brown	NAC
ENSG00000189152	GRAPL	brown	--

ENSG00000230470	GS1-115G20.1	brown	ACC
ENSG00000196275	GTF2IRD2	brown	--
ENSG00000254838	GVINP1	brown	ACC/NAC
ENSG00000132475	H3F3B	brown	--
ENSG00000162882	HAAO	brown	--
ENSG00000131373	HACL1	brown	NAC
ENSG00000084754	HADHA	brown	NAC
ENSG00000101336	HCK	brown	ACC
ENSG00000180353	HCLS1	brown	ACC
ENSG00000126264	HCST	brown	--
ENSG00000233012	HDAC1P2	brown	--
ENSG00000147099	HDAC8	brown	ACC
ENSG00000181211	HECW1-IT1	brown	ACC/NAC
ENSG00000114735	HEMK1	brown	ACC
ENSG00000051108	HERPUD1	brown	--
ENSG00000219608	HIGD1AP16	brown	ACC
ENSG00000146066	HIGD2A	brown	ACC
ENSG00000230398	HINT2P1	brown	NAC
ENSG00000278828	HIST1H3H	brown	--
ENSG00000184270	HIST2H2AB	brown	--
ENSG00000160883	HK3	brown	--
ENSG00000181666	HKR1	brown	ACC
ENSG00000204252	HLA-DOA	brown	NAC
ENSG00000231389	HLA-DPA1	brown	ACC
ENSG00000196735	HLA-DQA1	brown	ACC
ENSG00000204287	HLA-DRA	brown	--
ENSG00000148357	HMCN2	brown	ACC
ENSG00000229992	HMGB3P9	brown	ACC
ENSG00000250197	HMGN1P15	brown	--
ENSG00000236086	HMGN2P28	brown	--
ENSG00000100292	HMOX1	brown	ACC
ENSG00000135486	HNRNPA1	brown	--
ENSG00000270837	HNRNPDL4	brown	NAC
ENSG00000169813	HNRNPF	brown	NAC
ENSG00000096746	HNRNPH3	brown	--
ENSG00000257017	HP	brown	--
ENSG00000266712	hsa-mir-3149	brown	--
ENSG00000237138	HUNK-AS1	brown	ACC
ENSG00000203684	IBA57-AS1	brown	--
ENSG00000138002	IFT172	brown	ACC
ENSG00000100360	IFT27	brown	--
ENSG00000163395	IGFN1	brown	--
ENSG00000132465	IGJ	brown	ACC
ENSG00000185811	IKZF1	brown	ACC
ENSG00000131724	IL13RA1	brown	NAC

ENSG00000172349	IL16	brown	--
ENSG00000137496	IL18BP	brown	ACC
ENSG00000267100	ILF3-AS1	brown	--
ENSG00000132323	ILKAP	brown	--
ENSG00000178035	IMPDH2	brown	ACC
ENSG00000168918	INPP5D	brown	--
ENSG00000119509	INVS	brown	--
ENSG00000128604	IRF5	brown	--
ENSG00000235257	ITGA9-AS1	brown	ACC/NAC
ENSG00000005844	ITGAL	brown	--
ENSG00000169896	ITGAM	brown	--
ENSG00000105855	ITGB8	brown	--
ENSG00000189337	KAZN	brown	ACC
ENSG00000253468	KB-1517D11.2	brown	--
ENSG00000280413	KB-1674E1.1	brown	--
ENSG00000232545	KB-318B8.7	brown	ACC
ENSG00000176595	KBTBD11	brown	ACC
ENSG00000182674	KCNB2	brown	--
ENSG00000171385	KCND3	brown	--
ENSG00000180901	KCTD2	brown	ACC
ENSG00000246174	KCTD21-AS1	brown	--
ENSG00000214264	KCTD9P4	brown	--
ENSG00000250329	KDELC1P1	brown	--
ENSG00000235262	KDM5C-IT1	brown	ACC
ENSG00000124702	KLHDC3	brown	--
ENSG00000055609	KMT2C	brown	ACC
ENSG00000103550	KNOP1	brown	--
ENSG00000233579	KRT8P15	brown	ACC
ENSG00000262312	LA16c-390H2.4	brown	ACC
ENSG00000280341	LA16c-60D12.1	brown	--
ENSG00000167613	LAIR1	brown	ACC
ENSG00000002549	LAP3	brown	--
ENSG00000068697	LAPTM4A	brown	NAC
ENSG00000162511	LAPTM5	brown	ACC/NAC
ENSG00000086730	LAT2	brown	ACC/NAC
ENSG00000136167	LCP1	brown	ACC
ENSG00000217783	LDHAL6FP	brown	ACC/NAC
ENSG00000164406	LEAP2	brown	ACC
ENSG00000117385	LEPRE1	brown	ACC
ENSG00000171747	LGALS4	brown	ACC
ENSG00000183722	LHFP	brown	--
ENSG00000231459	LINC00032	brown	--
ENSG00000203801	LINC00222	brown	--
ENSG00000235823	LINC00263	brown	--
ENSG00000235665	LINC00298	brown	ACC

ENSG00000197251	LINC00336	brown	ACC
ENSG00000237585	LINC00407	brown	ACC/NAC
ENSG00000228221	LINC00578	brown	--
ENSG00000203930	LINC00632	brown	--
ENSG00000231177	LINC00852	brown	--
ENSG00000236383	LINC00854	brown	--
ENSG00000230417	LINC00856	brown	ACC
ENSG00000235703	LINC00894	brown	ACC
ENSG00000228393	LINC01004	brown	ACC
ENSG00000232077	LINC01031	brown	--
ENSG00000163364	LINC01116	brown	--
ENSG00000214837	LINC01347	brown	--
ENSG00000227964	LINC01429	brown	ACC/NAC
ENSG00000225872	LINC01529	brown	ACC
ENSG00000226686	LINC01535	brown	--
ENSG00000234345	LL0XNC01-116E7.1	brown	ACC
ENSG00000231728	LL0XNC01-116E7.2	brown	ACC/NAC
ENSG00000270012	LL0XNC01-7P3.1	brown	ACC
ENSG00000274422	LL22NC03-2H8.5	brown	NAC
ENSG00000270041	LL22NC03-N27C7.1	brown	--
ENSG00000074695	LMAN1	brown	ACC
ENSG00000186001	LRCH3	brown	ACC
ENSG00000168904	LRRC28	brown	--
ENSG00000130764	LRRC47	brown	--
ENSG00000108829	LRRC59	brown	ACC
ENSG00000007392	LUC7L	brown	ACC
ENSG00000145220	LYAR	brown	--
ENSG00000090382	LYZ	brown	NAC
ENSG00000183833	MAATS1	brown	--
ENSG00000127603	MACF1	brown	ACC
ENSG00000156265	MAP3K7CL	brown	--
ENSG00000012983	MAP4K5	brown	ACC
ENSG00000078070	MCCC1	brown	--
ENSG00000112118	MCM3	brown	ACC
ENSG00000198625	MDM4	brown	ACC
ENSG00000159479	MED8	brown	--
ENSG00000215004	MESTP4	brown	--
ENSG00000278818	Metazoa_SRP	brown	--
ENSG00000276653	Metazoa_SRP	brown	--
ENSG00000277385	Metazoa_SRP	brown	--
ENSG00000197334	Metazoa_SRP	brown	ACC
ENSG00000165792	METTL17	brown	--
ENSG00000229623	METTL21AP1	brown	ACC
ENSG00000170439	METTL7B	brown	ACC
ENSG00000085871	MGST2	brown	--

ENSG00000225358	MIPEPP1	brown	ACC
ENSG00000151338	MIPOL1	brown	--
ENSG00000141854	MIR1199	brown	ACC
ENSG00000221650	MIR1267	brown	ACC
ENSG00000221552	MIR1303	brown	--
ENSG00000199094	MIR30C2	brown	ACC
ENSG00000207995	MIR325	brown	--
ENSG00000265635	MIR3612	brown	ACC
ENSG00000279302	MIR3622A	brown	ACC
ENSG00000265456	MIR3672	brown	NAC
ENSG00000199127	MIR383	brown	ACC
ENSG00000268471	MIR4453	brown	ACC
ENSG00000265465	MIR4768	brown	ACC
ENSG00000266097	MIR5192	brown	NAC
ENSG00000208003	MIR549A	brown	--
ENSG00000212024	MIR550A3	brown	--
ENSG00000264084	MIR5688	brown	ACC
ENSG00000274056	MIR6507	brown	ACC
ENSG00000211997	MIR708	brown	ACC
ENSG00000136297	MMD2	brown	--
ENSG00000163563	MNDA	brown	--
ENSG00000114978	MOB1A	brown	NAC
ENSG00000124217	MOCS3	brown	--
ENSG00000005381	MPO	brown	--
ENSG00000228782	MRPL45P2	brown	ACC
ENSG00000204568	MRPS18B	brown	ACC
ENSG00000110077	MS4A6A	brown	--
ENSG00000205362	MT1A	brown	--
ENSG00000205364	MT1M	brown	--
ENSG00000198727	MT-CYB	brown	ACC
ENSG00000065911	MTHFD2	brown	ACC
ENSG00000103248	MTHFSD	brown	ACC
ENSG00000171100	MTM1	brown	ACC
ENSG00000198763	MT-ND2	brown	--
ENSG00000198786	MT-ND5	brown	--
ENSG00000116984	MTR	brown	ACC
ENSG00000211459	MT-RNR1	brown	ACC
ENSG00000109063	MYH3	brown	ACC
ENSG00000240677	MYL6P4	brown	ACC
ENSG00000142347	MYO1F	brown	--
ENSG00000196586	MYO6	brown	ACC
ENSG00000105835	NAMPT	brown	ACC
ENSG00000132780	NASP	brown	ACC
ENSG00000109805	NCAPG	brown	--
ENSG00000158517	NCF1	brown	--

ENSG00000165178	NCF1C	brown	--
ENSG00000116701	NCF2	brown	NAC
ENSG00000100365	NCF4	brown	ACC
ENSG00000182636	NDN	brown	ACC
ENSG00000237406	NDUFA9P1	brown	ACC
ENSG00000167792	NDUFV1	brown	--
ENSG00000235568	NFAM1	brown	--
ENSG00000100968	NFATC4	brown	ACC/NAC
ENSG00000165066	NKX6-3	brown	--
ENSG00000073536	NLE1	brown	--
ENSG00000146909	NOM1	brown	--
ENSG00000056291	NPFFR2	brown	--
ENSG00000169203	NPIP	brown	--
ENSG00000198064	NPIP	brown	--
ENSG00000214967	NPIPA7	brown	ACC
ENSG00000255524	NPIPB8	brown	--
ENSG00000184162	NR2C2AP	brown	--
ENSG00000158458	NRG2	brown	ACC/NAC
ENSG00000185737	NRG3	brown	ACC
ENSG00000163002	NUP35	brown	ACC/NAC
ENSG00000198088	NUP62CL	brown	--
ENSG00000143748	NVL	brown	--
ENSG00000262180	OCLM	brown	--
ENSG00000102837	OLFM4	brown	--
ENSG00000254896	OPCML-IT1	brown	ACC
ENSG00000188124	OR2AG2	brown	--
ENSG00000166368	OR2D2	brown	--
ENSG00000237492	OR2L9P	brown	--
ENSG00000171180	OR2M4	brown	--
ENSG00000183251	OR51B4	brown	ACC
ENSG00000184933	OR6A2	brown	ACC/NAC
ENSG00000091651	ORC6	brown	--
ENSG00000170909	OSCAR	brown	--
ENSG00000164823	OSGIN2	brown	--
ENSG00000081087	OSTM1	brown	--
ENSG00000068308	OTUD5	brown	--
ENSG00000186912	P2RY4	brown	--
ENSG00000101104	PABPC1L	brown	ACC/NAC
ENSG00000233892	PAIP1P1	brown	--
ENSG00000182749	PAQR7	brown	ACC
ENSG00000115687	PASK	brown	--
ENSG00000196844	PATE2	brown	ACC/NAC
ENSG00000177425	PAWR	brown	--
ENSG00000138650	PCDH10	brown	--
ENSG00000197479	PCDHB11	brown	--

ENSG00000112852	PCDHB2	brown	--
ENSG00000276545	PCDHGB9P	brown	ACC
ENSG00000258359	PCNPP1	brown	--
ENSG00000197646	PDCD1LG2	brown	--
ENSG00000244119	PDCL3P4	brown	ACC
ENSG00000133256	PDE6B	brown	NAC
ENSG00000108518	PFN1	brown	--
ENSG00000142657	PGD	brown	--
ENSG00000111752	PHC1	brown	ACC/NAC
ENSG00000175309	PHYKPL	brown	ACC
ENSG00000155629	PIK3AP1	brown	ACC
ENSG00000105851	PIK3CG	brown	ACC/NAC
ENSG00000167103	PIP5KL1	brown	--
ENSG00000118762	PKD2	brown	ACC
ENSG00000121316	PLBD1	brown	ACC
ENSG00000115956	PLEK	brown	--
ENSG00000175895	PLEKHF2	brown	--
ENSG00000152527	PLEKHH2	brown	ACC
ENSG00000183281	PLGLB1	brown	ACC
ENSG00000166851	PLK1	brown	--
ENSG00000127957	PMS2P3	brown	ACC
ENSG00000198805	PNP	brown	--
ENSG00000143442	POGZ	brown	--
ENSG00000224510	POLR2KP2	brown	ACC/NAC
ENSG00000168495	POLR3D	brown	--
ENSG00000113356	POLR3G	brown	--
ENSG00000205808	PPAPDC2	brown	--
ENSG00000231765	PPP1R11P2	brown	ACC
ENSG00000184304	PRKD1	brown	ACC/NAC
ENSG00000230665	PRKRIRP1	brown	--
ENSG00000243915	PRKRIRP2	brown	--
ENSG00000184500	PROS1	brown	--
ENSG00000167595	PROSER3	brown	--
ENSG00000135378	PRRG4	brown	--
ENSG00000008018	PSMB1	brown	--
ENSG00000180822	PSMG4	brown	ACC
ENSG00000169403	PTAFR	brown	--
ENSG00000233067	PTCHD1-AS	brown	--
ENSG00000095303	PTGS1	brown	--
ENSG00000120899	PTK2B	brown	ACC
ENSG00000111679	PTPN6	brown	--
ENSG00000081237	PTPRC	brown	ACC
ENSG00000170234	PWWP2A	brown	--
ENSG00000103490	PYCARD	brown	--
ENSG00000100504	PYGL	brown	ACC

ENSG00000128340	RAC2	brown	ACC
ENSG00000245849	RAD51-AS1	brown	ACC
ENSG00000182185	RAD51B	brown	ACC
ENSG00000133321	RARRES3	brown	--
ENSG00000171777	RASGRP4	brown	--
ENSG00000249485	RBBP4P1	brown	ACC
ENSG00000213411	RBM22P2	brown	NAC
ENSG00000102317	RBM3	brown	--
ENSG00000155636	RBM45	brown	--
ENSG00000163694	RBM47	brown	--
ENSG00000170748	RBMXL2	brown	ACC
ENSG00000236535	RC3H1-IT1	brown	ACC
ENSG00000049541	RFC2	brown	ACC
ENSG00000128253	RFPL2	brown	ACC
ENSG00000090104	RGS1	brown	--
ENSG00000148908	RGS10	brown	--
ENSG00000129667	RHBDF2	brown	ACC
ENSG00000067560	RHOA	brown	ACC/NAC
ENSG00000201684	RN7SKP239	brown	ACC/NAC
ENSG00000252322	RN7SKP244	brown	ACC
ENSG00000242999	RN7SL239P	brown	ACC
ENSG00000263989	RN7SL615P	brown	--
ENSG00000242330	RN7SL683P	brown	ACC/NAC
ENSG00000239595	RN7SL79P	brown	ACC
ENSG00000241230	RN7SL801P	brown	--
ENSG00000239923	RN7SL864P	brown	--
ENSG00000252179	RNA5SP255	brown	ACC
ENSG00000169413	RNASE6	brown	--
ENSG00000231458	RNASEH1P2	brown	--
ENSG00000168159	RNF187	brown	ACC
ENSG00000201659	RNU12-2P	brown	ACC
ENSG00000222314	RNU6-1118P	brown	--
ENSG00000252643	RNU6-1136P	brown	ACC
ENSG00000201180	RNU6-115P	brown	--
ENSG00000201372	RNU6-1251P	brown	--
ENSG00000202184	RNU6-1283P	brown	--
ENSG00000199335	RNU6-204P	brown	--
ENSG00000199570	RNU6-228P	brown	--
ENSG00000252922	RNU6-365P	brown	ACC
ENSG00000252023	RNU6-581P	brown	ACC
ENSG00000212385	RNU6-817P	brown	ACC
ENSG00000221562	RNU6ATAC10P	brown	NAC
ENSG00000252351	RNU6ATAC12P	brown	ACC
ENSG00000221564	RNU6ATAC42P	brown	--
ENSG00000238365	RNU7-57P	brown	ACC

ENSG00000238500	RNU7-87P	brown	ACC
ENSG00000207205	RNVU1-15	brown	ACC
ENSG00000206617	RNY1P5	brown	ACC
ENSG00000273893	RP1-101A2.1	brown	ACC/NAC
ENSG00000279616	RP1-102H19.7	brown	ACC
ENSG00000271382	RP11-1060G2.2	brown	ACC
ENSG00000276261	RP11-1060J15.9	brown	ACC
ENSG00000279410	RP11-1102P22.3	brown	ACC
ENSG00000258526	RP11-111A21.1	brown	ACC
ENSG00000271757	RP11-111M22.5	brown	--
ENSG00000279146	RP11-117L5.3	brown	ACC
ENSG00000234841	RP11-119H12.4	brown	ACC
ENSG00000278396	RP11-120E11.2	brown	--
ENSG00000279179	RP11-131M11.3	brown	ACC
ENSG00000279537	RP11-133K1.8	brown	--
ENSG00000240634	RP11-1348G14.1	brown	--
ENSG00000279432	RP11-135N5.3	brown	ACC
ENSG00000250999	RP11-1379J22.5	brown	ACC/NAC
ENSG00000259740	RP11-142J21.2	brown	ACC
ENSG00000232176	RP11-146N23.1	brown	ACC
ENSG00000241170	RP11-147I3.1	brown	ACC
ENSG00000232527	RP11-14N7.2	brown	--
ENSG00000263394	RP11-160E2.19	brown	ACC
ENSG00000257954	RP11-161H23.10	brown	ACC
ENSG00000274929	RP11-165D7.5	brown	--
ENSG00000261173	RP11-169E6.1	brown	--
ENSG00000273007	RP11-170N16.3	brown	--
ENSG00000256674	RP11-172C16.4	brown	ACC
ENSG00000276188	RP11-173P15.10	brown	--
ENSG00000279659	RP11-177G23.1	brown	ACC
ENSG00000271590	RP11-181E10.3	brown	--
ENSG00000279839	RP11-193J6.1	brown	ACC/NAC
ENSG00000249790	RP11-20D14.6	brown	--
ENSG00000231741	RP11-213G2.5	brown	ACC
ENSG00000270001	RP11-218C14.8	brown	--
ENSG00000248725	RP11-218C23.1	brown	ACC
ENSG00000260493	RP11-219B4.7	brown	--
ENSG00000261578	RP11-21L23.2	brown	--
ENSG00000279281	RP11-226M10.3	brown	ACC
ENSG00000236576	RP11-22B10.3	brown	--
ENSG00000227034	RP11-234N17.1	brown	--
ENSG00000261916	RP11-235E17.4	brown	--
ENSG00000262248	RP11-235E17.5	brown	--
ENSG00000270273	RP11-242C24.3	brown	--
ENSG00000278891	RP11-246E12.2	brown	ACC

ENSG00000277438	RP11-256K9.1	brown	ACC
ENSG00000255209	RP11-258O13.1	brown	--
ENSG00000248994	RP11-259O2.1	brown	NAC
ENSG00000253326	RP11-261C10.7	brown	ACC
ENSG00000279135	RP11-261P13.5	brown	--
ENSG00000257875	RP11-263K4.1	brown	ACC
ENSG00000261837	RP11-264L1.3	brown	ACC
ENSG00000272905	RP11-265E18.1	brown	ACC/NAC
ENSG00000279147	RP11-271K21.12	brown	ACC
ENSG00000242588	RP11-274B21.1	brown	--
ENSG00000271553	RP11-274B21.10	brown	ACC/NAC
ENSG00000227711	RP11-275O4.5	brown	ACC/NAC
ENSG00000245648	RP11-277P12.20	brown	--
ENSG00000275854	RP11-278C7.5	brown	--
ENSG00000260460	RP11-284F21.8	brown	--
ENSG00000271983	RP11-28H5.2	brown	ACC
ENSG00000253793	RP11-293D9.2	brown	ACC
ENSG00000270049	RP11-297D21.4	brown	ACC
ENSG00000259172	RP11-299G20.2	brown	--
ENSG00000259780	RP11-304L19.12	brown	--
ENSG00000250280	RP11-305O6.3	brown	ACC
ENSG00000258445	RP11-307P22.1	brown	--
ENSG00000253726	RP11-313C15.1	brown	ACC
ENSG00000230939	RP11-314C16.1	brown	--
ENSG00000280438	RP11-315A16.2	brown	--
ENSG00000272551	RP11-324L17.1	brown	--
ENSG00000277135	RP11-327J17.9	brown	--
ENSG00000243403	RP11-330L19.1	brown	ACC
ENSG00000237861	RP11-332L8.1	brown	--
ENSG00000277589	RP11-333J10.3	brown	ACC
ENSG00000256085	RP11-337L12.1	brown	--
ENSG00000253623	RP11-346I3.2	brown	--
ENSG00000243979	RP11-347C18.1	brown	--
ENSG00000236905	RP11-348H3.2	brown	--
ENSG00000280392	RP11-357N13.6	brown	ACC
ENSG00000272574	RP11-359K18.4	brown	--
ENSG00000279917	RP11-360N9.2	brown	ACC
ENSG00000258957	RP11-363J20.1	brown	--
ENSG00000205740	RP11-363N22.3	brown	--
ENSG00000256031	RP11-364C11.3	brown	--
ENSG00000232648	RP11-367N14.2	brown	ACC
ENSG00000257680	RP11-367O10.1	brown	ACC
ENSG00000231787	RP11-370B6.1	brown	ACC
ENSG00000247199	RP11-373N22.3	brown	ACC
ENSG00000267230	RP11-376M2.2	brown	NAC

ENSG00000243675	RP11-379F4.1	brown	ACC
ENSG00000271778	RP11-379F4.8	brown	--
ENSG00000213613	RP11-380G5.3	brown	ACC
ENSG00000276740	RP11-381O6.1	brown	ACC
ENSG00000266538	RP11-385D13.3	brown	ACC
ENSG00000262410	RP11-388C12.8	brown	--
ENSG00000216802	RP11-390P2.2	brown	ACC
ENSG00000272562	RP11-396C23.4	brown	ACC
ENSG00000242795	RP11-3K16.2	brown	ACC
ENSG00000260249	RP11-401P9.5	brown	ACC
ENSG00000273153	RP11-406H21.2	brown	--
ENSG00000274156	RP11-407N8.6	brown	ACC
ENSG00000254579	RP11-407P18.1	brown	ACC/NAC
ENSG00000273399	RP11-408A13.3	brown	ACC
ENSG00000231050	RP1-140A9.1	brown	ACC
ENSG00000259915	RP11-410E4.1	brown	ACC
ENSG00000271964	RP11-415F23.2	brown	--
ENSG00000270115	RP11-415J8.7	brown	ACC
ENSG00000257246	RP11-416A17.6	brown	ACC
ENSG00000226431	RP11-416N2.3	brown	ACC
ENSG00000264895	RP11-421E14.2	brown	ACC
ENSG00000271937	RP11-424N24.2	brown	ACC
ENSG00000278983	RP11-426J5.3	brown	ACC
ENSG00000251388	RP11-427M20.1	brown	ACC
ENSG00000271659	RP11-435O5.4	brown	--
ENSG00000231252	RP11-436K8.1	brown	ACC/NAC
ENSG00000255413	RP11-436P7.2	brown	--
ENSG00000249592	RP11-440L14.1	brown	ACC
ENSG00000272588	RP11-440L14.4	brown	ACC
ENSG00000279764	RP11-441F2.4	brown	ACC
ENSG00000229388	RP11-442N24_B.1	brown	ACC
ENSG00000255864	RP11-444D3.1	brown	ACC
ENSG00000241218	RP11-446H18.1	brown	--
ENSG00000253372	RP11-44N11.1	brown	ACC
ENSG00000260385	RP11-450H6.3	brown	--
ENSG00000242423	RP11-451N19.1	brown	ACC
ENSG00000261056	RP11-454F8.2	brown	--
ENSG00000279589	RP11-454F8.4	brown	--
ENSG00000275846	RP11-457M11.7	brown	ACC
ENSG00000278864	RP11-45M22.2	brown	ACC
ENSG00000231440	RP11-467I20.6	brown	--
ENSG00000260835	RP11-468I15.1	brown	ACC/NAC
ENSG00000253336	RP11-468O2.1	brown	ACC
ENSG00000279250	RP11-46D1.2	brown	--
ENSG00000278949	RP11-46H11.11	brown	--

ENSG00000243721	RP11-472I20.1	brown	--
ENSG00000226318	RP11-474D14.2	brown	ACC
ENSG00000274591	RP11-474P2.5	brown	ACC
ENSG00000278896	RP11-474P2.7	brown	--
ENSG00000235381	RP11-477D19.2	brown	ACC
ENSG00000269887	RP11-477H21.2	brown	--
ENSG00000254897	RP11-482L11.1	brown	ACC
ENSG00000262119	RP11-483C6.1	brown	ACC
ENSG00000232437	RP11-487I5.4	brown	ACC
ENSG00000225871	RP11-495P10.10	brown	--
ENSG00000278876	RP11-498C9.4	brown	--
ENSG00000229272	RP11-498J9.2	brown	NAC
ENSG00000236095	RP11-49O14.2	brown	--
ENSG00000227076	RP11-4C20.4	brown	ACC
ENSG00000254165	RP11-503E24.2	brown	ACC
ENSG00000260971	RP11-504A18.1	brown	ACC
ENSG00000279837	RP11-504G3.2	brown	ACC
ENSG00000272645	RP11-504P24.8	brown	ACC
ENSG00000244733	RP11-506M13.3	brown	--
ENSG00000257180	RP11-509E10.1	brown	ACC/NAC
ENSG00000280000	RP11-509E10.3	brown	ACC/NAC
ENSG00000279495	RP11-521B24.4	brown	ACC
ENSG00000260368	RP11-521I2.3	brown	--
ENSG00000262503	RP11-530N7.2	brown	ACC
ENSG00000219712	RP11-532F6.2	brown	--
ENSG00000235145	RP11-533E19.3	brown	ACC
ENSG00000251413	RP11-534L6.5	brown	ACC
ENSG00000255458	RP11-539G18.2	brown	--
ENSG00000272746	RP11-53B2.6	brown	ACC
ENSG00000270557	RP11-546J1.1	brown	ACC
ENSG00000237781	RP11-54A4.2	brown	ACC
ENSG00000228058	RP11-552D4.1	brown	--
ENSG00000273792	RP11-554D20.2	brown	ACC
ENSG00000260511	RP11-556H2.2	brown	ACC
ENSG00000260479	RP11-556H2.3	brown	ACC
ENSG00000260495	RP11-55K13.1	brown	--
ENSG00000254712	RP11-560B16.5	brown	ACC/NAC
ENSG00000272619	RP11-563K23.1	brown	NAC
ENSG00000278863	RP11-567L7.3	brown	ACC
ENSG00000260101	RP11-568N6.1	brown	--
ENSG00000241462	RP11-579O24.1	brown	ACC
ENSG00000251034	RP11-582J16.4	brown	ACC
ENSG00000264057	RP11-583F2.1	brown	--
ENSG00000251408	RP11-586D19.2	brown	NAC
ENSG00000273183	RP11-5C23.2	brown	--

ENSG00000257815	RP11-611E13.2	brown	--
ENSG00000275383	RP11-615I2.6	brown	--
ENSG00000257999	RP11-61E11.2	brown	--
ENSG00000266805	RP11-61L19.1	brown	--
ENSG00000273321	RP11-621L6.3	brown	--
ENSG00000280182	RP11-626G3.1	brown	--
ENSG00000250461	RP11-631M6.2	brown	ACC
ENSG00000258904	RP11-638I2.2	brown	--
ENSG00000258056	RP11-644F5.11	brown	ACC
ENSG00000279497	RP11-654C20.1	brown	--
ENSG00000240086	RP11-657O9.1	brown	ACC
ENSG00000279734	RP11-675P14.2	brown	--
ENSG00000260209	RP11-680F20.10	brown	ACC/NAC
ENSG00000271608	RP11-697G4.4	brown	ACC
ENSG00000240739	RP11-69M1.1	brown	NAC
ENSG00000273369	RP11-700J17.1	brown	--
ENSG00000263503	RP11-707O23.5	brown	ACC
ENSG00000278434	RP11-709D24.8	brown	ACC
ENSG00000279670	RP11-70L8.5	brown	ACC
ENSG00000260874	RP11-715J22.4	brown	--
ENSG00000260293	RP11-715J22.6	brown	NAC
ENSG00000272912	RP11-724N1.1	brown	ACC
ENSG00000224016	RP11-728K20.1	brown	ACC/NAC
ENSG00000263606	RP11-737O24.3	brown	--
ENSG00000278472	RP11-74D7.3	brown	ACC
ENSG00000278399	RP11-74M13.5	brown	ACC
ENSG00000255197	RP11-750H9.5	brown	--
ENSG00000259462	RP11-752G15.3	brown	ACC
ENSG00000279801	RP11-75C10.6	brown	--
ENSG00000235244	RP11-761E20.1	brown	ACC/NAC
ENSG00000226476	RP11-776H12.1	brown	ACC/NAC
ENSG00000273971	RP11-77K12.10	brown	--
ENSG00000258066	RP11-781A6.1	brown	ACC
ENSG00000265413	RP11-789C17.1	brown	--
ENSG00000234248	RP11-799O21.2	brown	ACC
ENSG00000237950	RP11-7O11.3	brown	ACC
ENSG00000272690	RP11-803B1.8	brown	ACC
ENSG00000276115	RP11-817I4.2	brown	ACC
ENSG00000248863	RP11-83A24.1	brown	ACC
ENSG00000273247	RP11-83A24.2	brown	ACC
ENSG00000277342	RP11-843B15.4	brown	--
ENSG00000250138	RP11-848G14.5	brown	--
ENSG00000279416	RP11-849I19.2	brown	--
ENSG00000279573	RP11-855A2.1	brown	ACC
ENSG00000268931	RP11-886P16.6	brown	--

ENSG00000229019	RP11-88I18.3	brown	--
ENSG00000266413	RP11-88L24.4	brown	--
ENSG00000228862	RP11-91I20.3	brown	--
ENSG00000279852	RP11-91J19.2	brown	ACC
ENSG00000255449	RP11-91P24.6	brown	--
ENSG00000260473	RP11-923I11.4	brown	--
ENSG00000227827	RP11-958N24.2	brown	--
ENSG00000259797	RP11-96D1.3	brown	ACC
ENSG00000278112	RP11-972P1.11	brown	--
ENSG00000277534	RP11-9E17.1	brown	--
ENSG00000271840	RP1-224A6.9	brown	ACC
ENSG00000231496	RP1-251M9.2	brown	--
ENSG00000218561	RP1-253B10.1	brown	--
ENSG00000219553	RP1-281H8.3	brown	--
ENSG00000275902	RP13-1032I1.11	brown	--
ENSG00000278012	RP1-310O13.13	brown	--
ENSG00000272009	RP1-313I6.12	brown	--
ENSG00000231121	RP1-34H18.1	brown	--
ENSG00000264548	RP13-516M14.2	brown	--
ENSG00000263531	RP13-753N3.1	brown	ACC
ENSG00000279038	RP1-506.6	brown	ACC
ENSG00000235834	RP1-60N8.1	brown	--
ENSG00000273325	RP1-90G24.11	brown	--
ENSG00000217648	RP1-95L4.4	brown	ACC
ENSG00000257835	RP1-97G4.1	brown	ACC
ENSG00000272374	RP3-329A5.8	brown	ACC
ENSG00000271533	RP3-368A4.6	brown	ACC/NAC
ENSG00000233157	RP3-388M5.8	brown	--
ENSG00000278842	RP3-405J10.5	brown	ACC
ENSG00000258603	RP3-414A15.10	brown	--
ENSG00000235008	RP3-497J21.1	brown	ACC/NAC
ENSG00000261786	RP4-555D20.2	brown	ACC/NAC
ENSG00000228423	RP4-633I8.4	brown	ACC
ENSG00000235501	RP4-639F20.1	brown	--
ENSG00000271461	RP4-673D20.6	brown	--
ENSG00000228679	RP4-676J13.2	brown	ACC/NAC
ENSG00000278383	RP4-694B14.8	brown	--
ENSG00000230922	RP4-753M9.1	brown	ACC
ENSG00000272455	RP4-758J18.13	brown	ACC
ENSG00000280378	RP4-758J24.6	brown	--
ENSG00000231272	RP4-799P18.4	brown	ACC/NAC
ENSG00000236358	RP5-827C21.2	brown	ACC
ENSG00000213703	RP5-849H19.2	brown	--
ENSG00000230021	RP5-857K21.4	brown	--
ENSG00000224592	RP5-884C9.2	brown	NAC

ENSG00000261624	RP5-914M6.1	brown	ACC
ENSG00000242593	RP5-921G16.1	brown	ACC
ENSG00000231246	RP5-965F6.2	brown	ACC
ENSG00000275142	RP5-999L4.2	brown	ACC
ENSG00000233010	RPEP4	brown	ACC
ENSG00000236552	RPL13AP5	brown	--
ENSG00000241261	RPL17P19	brown	--
ENSG00000239272	RPL21P10	brown	ACC
ENSG00000224019	RPL21P32	brown	ACC
ENSG00000258640	RPL21P5	brown	ACC
ENSG00000237887	RPL23AP32	brown	ACC
ENSG00000232568	RPL23AP35	brown	ACC
ENSG00000223508	RPL23AP53	brown	NAC
ENSG00000223995	RPL32P35	brown	NAC
ENSG00000213979	RPL7AP14	brown	ACC/NAC
ENSG00000240003	RPL7P24	brown	--
ENSG00000137970	RPL7P9	brown	--
ENSG00000214903	RPS15AP3	brown	ACC
ENSG00000230629	RPS23P8	brown	--
ENSG00000242829	RPS26P21	brown	ACC
ENSG00000244378	RPS2P45	brown	--
ENSG00000237818	RPS3AP29	brown	ACC
ENSG00000156990	RPUSD3	brown	ACC
ENSG00000101347	SAMHD1	brown	ACC
ENSG00000164105	SAP30	brown	--
ENSG00000252808	SCARNA4	brown	--
ENSG00000198832	SELM	brown	--
ENSG00000197249	SERPINA1	brown	ACC
ENSG00000021355	SERPINB1	brown	--
ENSG00000145391	SETD7	brown	NAC
ENSG00000255222	SETP17	brown	--
ENSG00000116560	SFPQ	brown	--
ENSG00000061936	SFSWAP	brown	ACC
ENSG00000213064	SFT2D2	brown	--
ENSG00000142512	SIGLEC10	brown	ACC
ENSG00000105366	SIGLEC8	brown	ACC
ENSG00000169375	SIN3A	brown	--
ENSG00000105281	SLC1A5	brown	ACC
ENSG00000232846	SLC25A6P3	brown	--
ENSG00000137860	SLC28A2	brown	--
ENSG00000142583	SLC2A5	brown	ACC
ENSG00000136868	SLC31A1	brown	ACC
ENSG00000177058	SLC38A9	brown	ACC
ENSG00000137968	SLC44A5	brown	ACC
ENSG00000003989	SLC7A2	brown	ACC

ENSG00000103064	SLC7A6	brown	--
ENSG00000155465	SLC7A7	brown	--
ENSG00000180251	SLC9A4	brown	ACC
ENSG00000170365	SMAD1	brown	ACC
ENSG00000230793	SMARCE1P5	brown	ACC/NAC
ENSG00000198887	SMC5	brown	--
ENSG00000230184	SMYD3-IT1	brown	ACC/NAC
ENSG00000202216	SNORA17	brown	--
ENSG00000212588	SNORA26	brown	ACC
ENSG00000271907	SNORA35	brown	--
ENSG00000207008	SNORA54	brown	--
ENSG00000222489	SNORA79	brown	ACC
ENSG00000199833	SNORD115-21	brown	ACC/NAC
ENSG00000212380	SNORD115-45	brown	ACC
ENSG00000252985	SNORD116	brown	ACC
ENSG00000201847	SNORD31	brown	ACC
ENSG00000238902	snoU13	brown	ACC
ENSG00000077312	SNRPA	brown	--
ENSG00000115234	SNX17	brown	ACC
ENSG00000167208	SNX20	brown	--
ENSG00000057252	SOAT1	brown	ACC
ENSG00000112096	SOD2	brown	ACC
ENSG00000095637	SORBS1	brown	NAC
ENSG00000187808	SOWAHD	brown	ACC
ENSG00000113140	SPARC	brown	--
ENSG00000152253	SPC25	brown	ACC
ENSG00000066336	SPI1	brown	--
ENSG00000164056	SPRY1	brown	--
ENSG00000168939	SPRY3	brown	ACC/NAC
ENSG00000260233	SSSCA1-AS1	brown	--
ENSG00000184005	ST6GALNAC3	brown	--
ENSG00000277072	STAG3L2	brown	ACC
ENSG00000163482	STK36	brown	ACC/NAC
ENSG00000112079	STK38	brown	ACC
ENSG00000148175	STOM	brown	--
ENSG00000135604	STX11	brown	--
ENSG00000165416	SUGT1	brown	--
ENSG00000196562	SULF2	brown	--
ENSG00000197165	SULT1A2	brown	NAC
ENSG00000101945	SUV39H1	brown	ACC
ENSG00000165025	SYK	brown	NAC
ENSG00000179073	TAAR3	brown	--
ENSG00000263327	TAPT1-AS1	brown	ACC
ENSG00000121318	TAS2R10	brown	--
ENSG00000212128	TAS2R13	brown	ACC

ENSG00000212125	TAS2R15P	brown	ACC
ENSG00000255837	TAS2R20	brown	ACC
ENSG00000127362	TAS2R3	brown	ACC
ENSG00000132405	TBC1D14	brown	ACC
ENSG00000059377	TBXAS1	brown	ACC
ENSG00000234152	TCEB2P1	brown	--
ENSG00000236567	TCF3P1	brown	--
ENSG00000152284	TCF7L1	brown	ACC
ENSG00000204852	TCTN1	brown	--
ENSG00000241186	TDGF1	brown	--
ENSG00000120708	TGFBI	brown	ACC
ENSG00000106799	TGFBR1	brown	--
ENSG00000079134	THOC1	brown	--
ENSG00000224822	THRB-IT1	brown	ACC/NAC
ENSG00000092330	TINF2	brown	ACC
ENSG00000163659	TIPARP	brown	--
ENSG00000187554	TLR5	brown	ACC
ENSG00000139644	TMBIM6	brown	--
ENSG00000167895	TMC8	brown	--
ENSG00000149483	TMEM138	brown	ACC/NAC
ENSG00000215717	TMEM167B	brown	ACC
ENSG00000002933	TMEM176A	brown	--
ENSG00000106609	TMEM248	brown	ACC
ENSG00000181458	TMEM45A	brown	--
ENSG00000166682	TMPRSS5	brown	--
ENSG00000164761	TNFRSF11B	brown	--
ENSG00000083312	TNPO1	brown	--
ENSG00000078687	TNRC6C	brown	ACC
ENSG00000170919	TPT1-AS1	brown	--
ENSG00000164548	TRA2A	brown	ACC
ENSG00000231889	TRAF3IP2-AS1	brown	ACC
ENSG00000107614	TRDMT1	brown	--
ENSG00000183718	TRIM52	brown	--
ENSG00000100505	TRIM9	brown	ACC
ENSG00000122435	TRMT13	brown	--
ENSG00000204025	TRPC5OS	brown	--
ENSG00000102804	TSC22D1	brown	--
ENSG00000154743	TSEN2	brown	ACC
ENSG00000182173	TSEN54	brown	--
ENSG00000163728	TTC14	brown	ACC
ENSG00000074935	TUBE1	brown	ACC
ENSG00000259581	TYRO3P	brown	--
ENSG00000011600	TYROBP	brown	ACC/NAC
ENSG00000272810	U91328.22	brown	ACC
ENSG00000157741	UBN2	brown	--

ENSG00000260818	UNGP1	brown	ACC
ENSG00000169062	UPF3A	brown	ACC
ENSG00000137288	UQCC2	brown	ACC
ENSG00000267064	UXT-AS1	brown	--
ENSG00000214353	VAC14-AS1	brown	--
ENSG00000118640	VAMP8	brown	NAC
ENSG00000141968	VAV1	brown	ACC
ENSG00000111424	VDR	brown	--
ENSG00000131871	VIMP	brown	ACC/NAC
ENSG00000230772	VN1R108P	brown	--
ENSG00000112303	VNN2	brown	--
ENSG00000132549	VPS13B	brown	--
ENSG00000240375	VPS26AP1	brown	--
ENSG00000166887	VPS39	brown	--
ENSG00000143952	VPS54	brown	--
ENSG00000155659	VSIG4	brown	ACC
ENSG00000138614	VWA9	brown	--
ENSG00000015285	WAS	brown	--
ENSG00000260389	WBP11P1	brown	--
ENSG00000071462	WBSCR22	brown	NAC
ENSG00000128815	WDFY4	brown	--
ENSG00000184465	WDR27	brown	ACC
ENSG00000276786	WI2-8325B5.1	brown	NAC
ENSG00000109046	WSB1	brown	ACC
ENSG00000273139	XXbac-B444P24.14	brown	ACC
ENSG00000234913	XXbac-B476C20.13	brown	ACC
ENSG00000093217	XYLB	brown	--
ENSG00000222511	Y_RNA	brown	ACC
ENSG00000199740	Y_RNA	brown	ACC
ENSG00000274118	Y_RNA	brown	ACC
ENSG00000206795	Y_RNA	brown	--
ENSG00000182362	YBEY	brown	--
ENSG00000181704	YIPF6	brown	ACC
ENSG00000149658	YTHDF1	brown	--
ENSG00000100811	YY1	brown	--
ENSG00000255460	ZDHC20P3	brown	NAC
ENSG00000039319	ZFYVE16	brown	ACC
ENSG00000125846	ZNF133	brown	ACC
ENSG00000179909	ZNF154	brown	ACC/NAC
ENSG00000159917	ZNF235	brown	--
ENSG00000198393	ZNF26	brown	ACC
ENSG00000198185	ZNF334	brown	ACC
ENSG00000213742	ZNF337-AS1	brown	--
ENSG00000113761	ZNF346	brown	--
ENSG00000183621	ZNF438	brown	--

ENSG00000167555	ZNF528	brown	ACC
ENSG00000121406	ZNF549	brown	NAC
ENSG00000172006	ZNF554	brown	--
ENSG00000176472	ZNF575	brown	--
ENSG00000171163	ZNF692	brown	ACC
ENSG00000133624	ZNF767P	brown	--
ENSG00000196391	ZNF774	brown	ACC
ENSG00000198556	ZNF789	brown	ACC
ENSG00000224689	ZNF812	brown	--
ENSG00000235944	ZNF815P	brown	--
ENSG00000106479	ZNF862	brown	ACC
ENSG00000214029	ZNF891	brown	ACC
ENSG00000204623	ZNRD1-AS1	brown	ACC
ENSG00000131848	ZSCAN5A	brown	ACC
ENSG00000070476	ZXDC	brown	ACC
Ensembl_gene (Controles)	gene_name	Módulo	HUB
ENSG00000278727	AC000403.4	lightyellow	ACC
ENSG00000234469	AC002365.5	lightyellow	ACC
ENSG00000271871	AC005740.6	lightyellow	ACC
ENSG00000276097	AC006538.8	lightyellow	--
ENSG00000233494	AC009963.3	lightyellow	ACC
ENSG00000174977	AC026271.5	lightyellow	ACC
ENSG00000236116	AC064853.2	lightyellow	ACC
ENSG00000237418	AC069257.6	lightyellow	ACC
ENSG00000235920	AC073109.2	lightyellow	--
ENSG00000225187	AC073283.7	lightyellow	--
ENSG00000223522	AC093690.1	lightyellow	ACC
ENSG00000233766	AC098617.1	lightyellow	ACC
ENSG00000177646	ACAD9	lightyellow	--
ENSG00000100412	ACO2	lightyellow	ACC
ENSG00000172497	ACOT12	lightyellow	--
ENSG00000182584	ACTL10	lightyellow	ACC
ENSG00000145536	ADAMTS16	lightyellow	ACC
ENSG00000134698	AGO4	lightyellow	ACC
ENSG00000162433	AK4	lightyellow	ACC
ENSG00000263535	AK4P1	lightyellow	--
ENSG00000112294	ALDH5A1	lightyellow	ACC
ENSG00000254016	ALG1L10P	lightyellow	ACC
ENSG00000136383	ALPK3	lightyellow	--
ENSG00000139211	AMIGO2	lightyellow	ACC
ENSG00000133805	AMPD3	lightyellow	ACC
ENSG00000154188	ANGPT1	lightyellow	--
ENSG00000153930	ANKFN1	lightyellow	--
ENSG00000230778	ANKRD63	lightyellow	ACC/NAC

ENSG00000234558	API5P1	lightyellow	--
ENSG00000103375	AQP8	lightyellow	--
ENSG00000169083	AR	lightyellow	--
ENSG00000137962	ARHGAP29	lightyellow	--
ENSG00000160007	ARHGAP35	lightyellow	--
ENSG00000147256	ARHGAP36	lightyellow	--
ENSG00000204959	ARHGEF34P	lightyellow	--
ENSG00000141748	ARL5C	lightyellow	--
ENSG00000135931	ARMC9	lightyellow	ACC/NAC
ENSG00000117407	ARTN	lightyellow	ACC
ENSG00000179774	ATOH7	lightyellow	--
ENSG00000236999	ATP2B2-IT1	lightyellow	ACC
ENSG00000058668	ATP2B4	lightyellow	--
ENSG00000169020	ATP5I	lightyellow	ACC
ENSG00000175334	BANF1	lightyellow	--
ENSG00000114200	BCHE	lightyellow	--
ENSG00000166546	BEAN1	lightyellow	ACC
ENSG00000177951	BET1L	lightyellow	--
ENSG00000023445	BIRC3	lightyellow	--
ENSG00000162813	BPNT1	lightyellow	ACC
ENSG00000183826	BTBD9	lightyellow	ACC/NAC
ENSG00000154640	BTG3	lightyellow	ACC
ENSG00000180425	C11orf71	lightyellow	ACC
ENSG00000183644	C11orf88	lightyellow	ACC
ENSG00000151131	C12orf45	lightyellow	ACC
ENSG00000176753	C15orf56	lightyellow	--
ENSG00000186665	C17orf58	lightyellow	ACC
ENSG00000162817	C1orf115	lightyellow	NAC
ENSG00000187889	C1orf168	lightyellow	--
ENSG00000203685	C1orf95	lightyellow	ACC
ENSG00000174403	C20orf166-AS1	lightyellow	ACC
ENSG00000128346	C22orf23	lightyellow	--
ENSG00000128254	C22orf24	lightyellow	ACC
ENSG00000184208	C22orf46	lightyellow	ACC
ENSG00000158966	CACHD1	lightyellow	--
ENSG00000164076	CAMKV	lightyellow	NAC
ENSG00000130559	CAMSAP1	lightyellow	ACC
ENSG00000105483	CARD8	lightyellow	ACC
ENSG00000236830	CBR3-AS1	lightyellow	ACC
ENSG00000183287	CCBE1	lightyellow	ACC
ENSG00000153237	CCDC148	lightyellow	ACC
ENSG00000198937	CCDC167	lightyellow	ACC
ENSG00000187094	CCK	lightyellow	ACC
ENSG00000108100	CCNY	lightyellow	ACC
ENSG00000151014	CCRN4L	lightyellow	ACC

ENSG00000113100	CDH9	lightyellow	ACC
ENSG00000105810	CDK6	lightyellow	ACC
ENSG00000129355	CDKN2D	lightyellow	ACC
ENSG00000277449	CEBPB-AS1	lightyellow	ACC/NAC
ENSG00000243710	CFAP57	lightyellow	--
ENSG00000213877	CFL1P7	lightyellow	NAC
ENSG00000198824	CHAMP1	lightyellow	--
ENSG00000170004	CHD3	lightyellow	--
ENSG00000278530	CHMP1B2P	lightyellow	--
ENSG00000232000	CLCN3P1	lightyellow	--
ENSG00000189143	CLDN4	lightyellow	--
ENSG00000164309	CMYA5	lightyellow	--
ENSG00000070729	CNGB1	lightyellow	ACC
ENSG00000213149	CNN2P9	lightyellow	--
ENSG00000080802	CNOT4	lightyellow	--
ENSG00000118432	CNR1	lightyellow	ACC
ENSG00000100473	COCH	lightyellow	ACC
ENSG00000197467	COL13A1	lightyellow	ACC
ENSG00000188517	COL25A1	lightyellow	ACC
ENSG00000109472	CPE	lightyellow	ACC
ENSG00000137449	CPEB2	lightyellow	--
ENSG00000100884	CPNE6	lightyellow	ACC
ENSG00000101343	CRNKL1	lightyellow	ACC
ENSG00000279202	CTA-113A6.1	lightyellow	ACC
ENSG00000273237	CTB-119C2.1	lightyellow	ACC
ENSG00000248371	CTC-347C20.2	lightyellow	--
ENSG00000275413	CTC-529I10.1	lightyellow	--
ENSG00000251293	CTC-552D5.1	lightyellow	ACC/NAC
ENSG00000249042	CTD-2015H6.3	lightyellow	ACC
ENSG00000227080	CTD-2021A8.3	lightyellow	--
ENSG00000274515	CTD-2026K11.5	lightyellow	--
ENSG00000260361	CTD-2313J17.5	lightyellow	ACC
ENSG00000260810	CTD-2547L24.4	lightyellow	--
ENSG00000276744	CTD-2562G15.3	lightyellow	ACC
ENSG00000268520	CTD-2616J11.10	lightyellow	ACC
ENSG00000259520	CTD-2651B20.3	lightyellow	--
ENSG00000147231	CXorf57	lightyellow	ACC
ENSG00000008256	CYTH3	lightyellow	--
ENSG00000165617	DACT1	lightyellow	--
ENSG00000198354	DCAF12L2	lightyellow	ACC
ENSG00000179958	DCTPP1	lightyellow	--
ENSG00000153904	DDAH1	lightyellow	ACC
ENSG00000225766	DHRS4L1	lightyellow	ACC
ENSG00000161249	DMKN	lightyellow	ACC/NAC
ENSG00000105877	DNAH11	lightyellow	--

ENSG00000163793	DNAJC5G	lightyellow	NAC
ENSG00000187957	DNER	lightyellow	ACC/NAC
ENSG00000107554	DNMBP	lightyellow	--
ENSG00000149927	DOC2A	lightyellow	ACC
ENSG00000206052	DOK6	lightyellow	ACC
ENSG00000113657	DPYSL3	lightyellow	--
ENSG00000184845	DRD1	lightyellow	NAC
ENSG00000157538	DSCR3	lightyellow	ACC
ENSG00000096696	DSP	lightyellow	--
ENSG00000276023	DUSP14	lightyellow	ACC
ENSG00000162999	DUSP19	lightyellow	ACC
ENSG00000143479	DYRK3	lightyellow	--
ENSG00000034239	EFCAB1	lightyellow	--
ENSG00000108947	EFNB3	lightyellow	ACC
ENSG00000127774	EMC6	lightyellow	--
ENSG00000095203	EPB41L4B	lightyellow	ACC
ENSG00000164010	ERMAP	lightyellow	ACC
ENSG00000184731	FAM110C	lightyellow	ACC
ENSG00000197798	FAM118B	lightyellow	ACC
ENSG00000144369	FAM171B	lightyellow	ACC
ENSG00000188916	FAM196A	lightyellow	--
ENSG00000237840	FAM21FP	lightyellow	--
ENSG00000128923	FAM63B	lightyellow	ACC
ENSG00000166595	FAM96B	lightyellow	--
ENSG00000203780	FANK1	lightyellow	--
ENSG00000156804	FBXO32	lightyellow	--
ENSG00000153832	FBXO36	lightyellow	ACC
ENSG00000088340	FER1L4	lightyellow	ACC
ENSG00000186188	FFAR4	lightyellow	ACC
ENSG00000129682	FGF13	lightyellow	ACC
ENSG00000107831	FGF8	lightyellow	NAC
ENSG00000160867	FGFR4	lightyellow	ACC
ENSG00000022267	FHL1	lightyellow	ACC
ENSG00000230133	FLJ33581	lightyellow	ACC
ENSG00000220161	FLJ35934	lightyellow	--
ENSG00000141560	FN3KRP	lightyellow	--
ENSG00000172568	FNDC9	lightyellow	ACC
ENSG00000176920	FUT2	lightyellow	ACC
ENSG00000268089	GABRQ	lightyellow	--
ENSG00000117308	GALE	lightyellow	--
ENSG00000107485	GATA3	lightyellow	--
ENSG00000179562	GCC1	lightyellow	ACC
ENSG00000106128	GHRHR	lightyellow	--
ENSG00000170161	GLIDR	lightyellow	--
ENSG00000141404	GNAL	lightyellow	--

ENSG00000114450	GNB4	lightyellow	ACC
ENSG00000168243	GNG4	lightyellow	ACC
ENSG00000111670	GNPTAB	lightyellow	ACC
ENSG00000135052	GOLM1	lightyellow	ACC
ENSG00000076716	GPC4	lightyellow	ACC
ENSG00000115159	GPD2	lightyellow	ACC
ENSG00000069122	GPR116	lightyellow	--
ENSG00000119714	GPR68	lightyellow	ACC
ENSG00000123901	GPR83	lightyellow	ACC
ENSG00000181656	GPR88	lightyellow	ACC
ENSG00000121764	HCRTR1	lightyellow	ACC
ENSG00000270276	HIST2H4B	lightyellow	ACC
ENSG00000233266	HMGB1P31	lightyellow	--
ENSG00000143889	HNRNPLL	lightyellow	ACC
ENSG00000116983	HPCAL4	lightyellow	ACC
ENSG00000168004	HRASLS5	lightyellow	ACC
ENSG00000196639	HRH1	lightyellow	ACC
ENSG00000002587	HS3ST1	lightyellow	ACC
ENSG00000153976	HS3ST3A1	lightyellow	--
ENSG00000248159	HSPA8P11	lightyellow	ACC
ENSG00000197386	HTT	lightyellow	ACC
ENSG00000118096	IFT46	lightyellow	ACC
ENSG00000179057	IGSF22	lightyellow	NAC
ENSG00000095574	IKZF5	lightyellow	ACC
ENSG00000123496	IL13RA2	lightyellow	ACC
ENSG00000188263	IL17REL	lightyellow	ACC
ENSG00000100385	IL2RB	lightyellow	ACC
ENSG00000137033	IL33	lightyellow	--
ENSG00000066583	ISOC1	lightyellow	ACC
ENSG00000227895	ISX-AS1	lightyellow	--
ENSG00000143127	ITGA10	lightyellow	ACC
ENSG00000011201	KAL1	lightyellow	ACC
ENSG00000278914	KB-1517D11.3	lightyellow	--
ENSG00000177301	KCNA2	lightyellow	--
ENSG00000171126	KCNG3	lightyellow	ACC/NAC
ENSG00000120049	KCNIP2	lightyellow	NAC
ENSG00000180332	KCTD4	lightyellow	ACC
ENSG00000112379	KIAA1244	lightyellow	ACC
ENSG00000250305	KIAA1456	lightyellow	ACC
ENSG00000165757	KIAA1462	lightyellow	ACC/NAC
ENSG00000138944	KIAA1644	lightyellow	ACC
ENSG00000182329	KIAA2012	lightyellow	--
ENSG00000162849	KIF26B	lightyellow	--
ENSG00000084731	KIF3C	lightyellow	--
ENSG00000157404	KIT	lightyellow	ACC

ENSG00000102554	KLF5	lightyellow	ACC/NAC
ENSG00000168427	KLHL30	lightyellow	--
ENSG00000129437	KLK14	lightyellow	ACC
ENSG00000167754	KLK5	lightyellow	--
ENSG00000125869	LAMP5	lightyellow	ACC
ENSG00000163352	LENEP	lightyellow	--
ENSG00000187416	LHFPL3	lightyellow	--
ENSG00000106852	LHX6	lightyellow	ACC
ENSG00000178947	LINC00086	lightyellow	ACC
ENSG00000175701	LINC00116	lightyellow	ACC
ENSG00000218510	LINC00339	lightyellow	--
ENSG00000234689	LINC00444	lightyellow	--
ENSG00000259023	LINC00524	lightyellow	NAC
ENSG00000224429	LINC00539	lightyellow	--
ENSG00000266256	LINC00683	lightyellow	ACC
ENSG00000215808	LINC01139	lightyellow	ACC
ENSG00000229081	LINC01165	lightyellow	--
ENSG00000229891	LINC01315	lightyellow	--
ENSG00000248673	LINC01331	lightyellow	--
ENSG00000166035	LIPC	lightyellow	ACC
ENSG00000130224	LRCH2	lightyellow	ACC
ENSG00000128594	LRRC4	lightyellow	ACC/NAC
ENSG00000146006	LRRTM2	lightyellow	ACC
ENSG00000150556	LYPD6B	lightyellow	--
ENSG00000178573	MAF	lightyellow	ACC
ENSG00000161920	MED11	lightyellow	--
ENSG00000276839	Metazoa_SRP	lightyellow	ACC
ENSG00000144401	METTL21A	lightyellow	ACC
ENSG00000207705	MIR129-1	lightyellow	ACC
ENSG00000221390	MIR1295A	lightyellow	--
ENSG00000218283	MORF4L1P1	lightyellow	--
ENSG00000158186	MRAS	lightyellow	ACC
ENSG00000086504	MRPL28	lightyellow	ACC
ENSG00000234325	MRPS10P2	lightyellow	ACC
ENSG00000057935	MTA3	lightyellow	ACC/NAC
ENSG00000168502	MTCL1	lightyellow	ACC
ENSG00000134640	MTNR1B	lightyellow	--
ENSG00000255823	MTRNR2L8	lightyellow	ACC
ENSG00000120279	MYCT1	lightyellow	--
ENSG00000101335	MYL9	lightyellow	--
ENSG00000197879	MYO1C	lightyellow	--
ENSG00000266236	NARF-IT1	lightyellow	--
ENSG00000271383	NBPF14	lightyellow	--
ENSG00000071051	NCK2	lightyellow	--
ENSG00000138653	NDST4	lightyellow	--

ENSG00000103154	NECAB2	lightyellow	ACC
ENSG00000117691	NENF	lightyellow	--
ENSG00000109320	NFKB1	lightyellow	--
ENSG00000233557	NFU1P2	lightyellow	--
ENSG00000145912	NHP2	lightyellow	ACC
ENSG00000167034	NKX3-1	lightyellow	--
ENSG00000197696	NMB	lightyellow	--
ENSG00000053438	NNAT	lightyellow	ACC/NAC
ENSG00000162408	NOL9	lightyellow	--
ENSG00000221890	NPTXR	lightyellow	ACC
ENSG00000119720	NRDE2	lightyellow	ACC
ENSG00000144130	NT5DC4	lightyellow	--
ENSG00000082556	OPRK1	lightyellow	--
ENSG00000167332	OR51E2	lightyellow	--
ENSG00000188000	OR7D2	lightyellow	ACC
ENSG00000144909	OSBPL11	lightyellow	ACC/NAC
ENSG00000143867	OSR1	lightyellow	--
ENSG00000079462	PAFAH1B3	lightyellow	ACC
ENSG00000171759	PAH	lightyellow	--
ENSG00000118946	PCDH17	lightyellow	ACC
ENSG00000160299	PCNT	lightyellow	--
ENSG00000125851	PCSK2	lightyellow	--
ENSG00000169174	PCSK9	lightyellow	ACC
ENSG00000102230	PCYT1B	lightyellow	--
ENSG00000242265	PEG10	lightyellow	ACC
ENSG00000164751	PEX2	lightyellow	--
ENSG00000173868	PHOSPHO1	lightyellow	ACC
ENSG00000165443	PHYHIPL	lightyellow	ACC/NAC
ENSG00000241973	PI4KA	lightyellow	--
ENSG00000197563	PIGN	lightyellow	ACC
ENSG00000224437	PIGUP1	lightyellow	ACC
ENSG00000224680	PLA2G12AP1	lightyellow	--
ENSG00000153246	PLA2R1	lightyellow	ACC
ENSG00000161381	PLXDC1	lightyellow	ACC
ENSG00000130822	PNCK	lightyellow	ACC
ENSG00000100479	POLE2	lightyellow	--
ENSG00000115350	POLE4	lightyellow	ACC
ENSG00000166169	POLL	lightyellow	ACC
ENSG00000146707	POMZP3	lightyellow	--
ENSG00000164088	PPM1M	lightyellow	ACC
ENSG00000238086	PPP1R26P1	lightyellow	ACC
ENSG00000163932	PRKCD	lightyellow	ACC
ENSG00000126583	PRKCG	lightyellow	NAC
ENSG00000185532	PRKG1	lightyellow	--
ENSG00000112812	PRSS16	lightyellow	ACC

ENSG00000237412	PRSS56	lightyellow	ACC
ENSG00000143363	PRUNE	lightyellow	--
ENSG00000237575	PYY2	lightyellow	ACC
ENSG00000129472	RAB2B	lightyellow	ACC
ENSG00000134594	RAB33A	lightyellow	--
ENSG00000172794	RAB37	lightyellow	--
ENSG00000075785	RAB7A	lightyellow	ACC
ENSG00000236570	RAD23BP1	lightyellow	--
ENSG00000181467	RAP2B	lightyellow	ACC/NAC
ENSG00000123728	RAP2C	lightyellow	--
ENSG00000068831	RASGRP2	lightyellow	--
ENSG00000226406	RBMX2P1	lightyellow	--
ENSG00000138207	RBP4	lightyellow	ACC
ENSG00000117602	RCAN3	lightyellow	--
ENSG00000136161	RCBTB2	lightyellow	--
ENSG00000243978	RGAG1	lightyellow	--
ENSG00000140519	RHCG	lightyellow	--
ENSG00000104312	RIPK2	lightyellow	ACC
ENSG00000222162	RN7SKP151	lightyellow	--
ENSG00000202058	RN7SKP80	lightyellow	ACC
ENSG00000242650	RN7SL292P	lightyellow	--
ENSG00000243260	RN7SL558P	lightyellow	--
ENSG00000243267	RN7SL614P	lightyellow	--
ENSG00000241291	RN7SL791P	lightyellow	ACC
ENSG00000244218	RN7SL81P	lightyellow	--
ENSG00000223318	RNA5SP111	lightyellow	ACC
ENSG00000113269	RNF130	lightyellow	--
ENSG00000137393	RNF144B	lightyellow	--
ENSG00000176641	RNF152	lightyellow	--
ENSG00000176393	RNPEP	lightyellow	--
ENSG00000222924	RNU6-1148P	lightyellow	ACC
ENSG00000169855	ROBO1	lightyellow	ACC
ENSG00000279958	RP11-12O16.1	lightyellow	ACC
ENSG00000274546	RP11-137H15.3	lightyellow	ACC
ENSG00000269728	RP11-145M9.4	lightyellow	--
ENSG00000279989	RP11-158H5.2	lightyellow	ACC
ENSG00000278376	RP11-158I9.8	lightyellow	ACC
ENSG00000279069	RP11-159D12.6	lightyellow	--
ENSG00000225513	RP11-165N19.2	lightyellow	ACC
ENSG00000258460	RP11-168L7.1	lightyellow	ACC/NAC
ENSG00000258386	RP11-187E13.2	lightyellow	--
ENSG00000271941	RP11-188P20.3	lightyellow	--
ENSG00000262766	RP11-196G11.4	lightyellow	--
ENSG00000228395	RP11-216B9.6	lightyellow	ACC
ENSG00000255991	RP11-242C24.2	lightyellow	--

ENSG00000279976	RP11-243M5.4	lightyellow	ACC
ENSG00000229156	RP11-250H24.2	lightyellow	ACC
ENSG00000255081	RP11-263C24.1	lightyellow	--
ENSG00000234504	RP11-285G1.2	lightyellow	ACC
ENSG00000272789	RP11-286H15.1	lightyellow	ACC
ENSG00000279878	RP11-286N22.16	lightyellow	ACC
ENSG00000180712	RP11-290F5.2	lightyellow	ACC
ENSG00000260362	RP11-297M9.1	lightyellow	ACC/NAC
ENSG00000280211	RP11-2C24.3	lightyellow	ACC
ENSG00000280083	RP11-317J9.1	lightyellow	ACC
ENSG00000253642	RP11-317N12.1	lightyellow	--
ENSG00000236393	RP11-320G24.1	lightyellow	--
ENSG00000280048	RP11-327J17.7	lightyellow	ACC
ENSG00000250950	RP11-33B1.3	lightyellow	--
ENSG00000236154	RP11-343J3.2	lightyellow	ACC
ENSG00000274718	RP11-346C4.3	lightyellow	ACC
ENSG00000268105	RP11-369G6.2	lightyellow	--
ENSG00000251468	RP11-369K16.1	lightyellow	ACC
ENSG00000279815	RP11-394B2.7	lightyellow	--
ENSG00000279267	RP11-395L14.18	lightyellow	ACC
ENSG00000279019	RP11-407G23.2	lightyellow	--
ENSG00000251323	RP11-452H21.4	lightyellow	--
ENSG00000257572	RP11-478B9.2	lightyellow	--
ENSG00000250548	RP11-47I22.2	lightyellow	--
ENSG00000279433	RP11-4B16.1	lightyellow	ACC
ENSG00000279606	RP11-502F1.1	lightyellow	ACC
ENSG00000259519	RP11-519G16.2	lightyellow	ACC
ENSG00000234828	RP11-526A4.1	lightyellow	--
ENSG00000258131	RP11-541G9.1	lightyellow	ACC
ENSG00000258072	RP11-554D14.2	lightyellow	ACC
ENSG00000226026	RP11-57H12.3	lightyellow	--
ENSG00000260780	RP11-580I1.1	lightyellow	--
ENSG00000258859	RP11-594C13.1	lightyellow	ACC
ENSG00000259037	RP11-614O9.1	lightyellow	ACC
ENSG00000235523	RP11-63P12.7	lightyellow	--
ENSG00000244183	RP11-641C17.1	lightyellow	ACC
ENSG00000259251	RP11-643M14.1	lightyellow	ACC
ENSG00000223495	RP11-763B22.7	lightyellow	ACC
ENSG00000256637	RP11-76I14.1	lightyellow	ACC
ENSG00000274220	RP11-77K12.9	lightyellow	ACC
ENSG00000259881	RP11-830F9.5	lightyellow	ACC
ENSG00000272158	RP11-840I19.5	lightyellow	--
ENSG00000257829	RP11-845M18.6	lightyellow	ACC
ENSG00000265717	RP11-94B19.7	lightyellow	ACC
ENSG00000254746	RP11-958J22.1	lightyellow	--

ENSG00000237280	RP11-96C23.9	lightyellow	--
ENSG00000258569	RP11-99E15.2	lightyellow	--
ENSG00000271434	RP13-238F13.3	lightyellow	ACC/NAC
ENSG00000264569	RP13-650J16.1	lightyellow	ACC
ENSG00000280216	RP3-333H23.9	lightyellow	--
ENSG00000220600	RP3-509I19.6	lightyellow	--
ENSG00000185839	RP4-592A1.2	lightyellow	ACC
ENSG00000260997	RP4-647J21.1	lightyellow	--
ENSG00000280149	RP4-751H13.5	lightyellow	--
ENSG00000232453	RP4-794H19.1	lightyellow	ACC
ENSG00000225224	RP4-814D15.2	lightyellow	--
ENSG00000259065	RP5-1021I20.1	lightyellow	--
ENSG00000226053	RP5-1070A16.1	lightyellow	ACC
ENSG00000259209	RP5-991G20.2	lightyellow	--
ENSG00000255547	RPA2P3	lightyellow	--
ENSG00000229638	RPL4P4	lightyellow	--
ENSG00000259001	RPPH1	lightyellow	--
ENSG00000227887	RPS26P13	lightyellow	ACC
ENSG00000244289	RPS3AP35	lightyellow	--
ENSG00000163602	RYBP	lightyellow	--
ENSG00000197956	S100A6	lightyellow	ACC
ENSG00000166788	SAAL1	lightyellow	--
ENSG00000104112	SCG3	lightyellow	ACC
ENSG00000166257	SCN3B	lightyellow	--
ENSG00000136546	SCN7A	lightyellow	ACC
ENSG00000138758	11-Sep	lightyellow	ACC/NAC
ENSG00000082497	SERTAD4	lightyellow	--
ENSG00000183605	SFXN4	lightyellow	ACC
ENSG00000156463	SH3RF2	lightyellow	ACC/NAC
ENSG00000146950	SHROOM2	lightyellow	--
ENSG00000215475	SIAH3	lightyellow	ACC
ENSG00000162241	SLC25A45	lightyellow	--
ENSG00000112759	SLC29A1	lightyellow	ACC
ENSG00000123643	SLC36A1	lightyellow	--
ENSG00000148482	SLC39A12	lightyellow	--
ENSG00000136052	SLC41A2	lightyellow	ACC
ENSG00000105641	SLC5A5	lightyellow	ACC
ENSG00000188725	SMIM15	lightyellow	ACC
ENSG00000124562	SNRPC	lightyellow	ACC
ENSG00000185404	SP140L	lightyellow	ACC
ENSG00000189120	SP6	lightyellow	--
ENSG00000077327	SPAG6	lightyellow	--
ENSG00000189419	SPATA41	lightyellow	--
ENSG00000106686	SPATA6L	lightyellow	NAC
ENSG00000040275	SPDL1	lightyellow	--

ENSG00000115306	SPTBN1	lightyellow	ACC
ENSG00000102359	SRPX2	lightyellow	--
ENSG00000145687	SSBP2	lightyellow	ACC
ENSG00000138434	SSFA2	lightyellow	ACC
ENSG00000157005	SST	lightyellow	ACC
ENSG00000139874	SSTR1	lightyellow	ACC
ENSG00000278195	SSTR3	lightyellow	--
ENSG00000126091	ST3GAL3	lightyellow	--
ENSG00000148488	ST8SIA6	lightyellow	--
ENSG00000169689	STRA13	lightyellow	--
ENSG00000137868	STRA6	lightyellow	--
ENSG00000168952	STXBP6	lightyellow	ACC
ENSG00000173928	SWSAP1	lightyellow	ACC
ENSG00000171772	SYCE1	lightyellow	--
ENSG00000196074	SYCP2	lightyellow	--
ENSG00000008056	SYN1	lightyellow	--
ENSG00000143858	SYT2	lightyellow	--
ENSG00000136111	TBC1D4	lightyellow	--
ENSG00000003436	TFPI	lightyellow	--
ENSG00000223573	TINCR	lightyellow	ACC
ENSG00000150455	TIRAP	lightyellow	--
ENSG00000249992	TMEM158	lightyellow	NAC
ENSG00000188133	TMEM215	lightyellow	--
ENSG00000224982	TMEM233	lightyellow	--
ENSG00000174292	TNK1	lightyellow	NAC
ENSG00000116147	TNR	lightyellow	--
ENSG00000124191	TOX2	lightyellow	--
ENSG00000196459	TRAPPC2	lightyellow	ACC
ENSG00000174417	TRHR	lightyellow	--
ENSG00000137672	TRPC6	lightyellow	ACC
ENSG00000248211	TRPC7-AS1	lightyellow	--
ENSG00000182912	TSPEAR-AS2	lightyellow	ACC
ENSG00000223756	TSSC2	lightyellow	--
ENSG00000187862	TTC24	lightyellow	ACC
ENSG00000250366	TUNAR	lightyellow	ACC
ENSG00000077498	TYR	lightyellow	--
ENSG00000270384	U1	lightyellow	ACC
ENSG00000154127	UBASH3B	lightyellow	--
ENSG00000188021	UBQLN2	lightyellow	--
ENSG00000225986	UBXN10-AS1	lightyellow	ACC
ENSG00000183696	UPP1	lightyellow	--
ENSG00000042781	USH2A	lightyellow	ACC
ENSG00000124422	USP22	lightyellow	--
ENSG00000185798	WDR53	lightyellow	--
ENSG00000237476	XXbac-B135H6.15	lightyellow	ACC

ENSG00000100027	YPEL1	lightyellow	--
ENSG00000179456	ZBTB18	lightyellow	--
ENSG00000177125	ZBTB34	lightyellow	ACC
ENSG00000166140	ZFYVE19	lightyellow	--
ENSG00000147130	ZMYM3	lightyellow	--
ENSG00000102870	ZNF629	lightyellow	--
ENSG00000180884	ZNF792	lightyellow	ACC
ENSG00000137185	ZSCAN9	lightyellow	ACC
Ensembl_gene (TOC)	gene_name	Módulo	HUB
ENSG00000175899	A2M	turquoise	ACC
ENSG00000128274	A4GALT	turquoise	ACC
ENSG00000103591	AAGAB	turquoise	ACC/NAC
ENSG00000149313	AASDHPPT	turquoise	ACC/NAC
ENSG00000150967	ABCB9	turquoise	--
ENSG00000164163	ABCE1	turquoise	ACC/NAC
ENSG00000144827	ABHD10	turquoise	ACC/NAC
ENSG00000131969	ABHD12B	turquoise	--
ENSG00000163686	ABHD6	turquoise	ACC
ENSG00000273300	AC000068.9	turquoise	ACC
ENSG00000224981	AC000367.1	turquoise	--
ENSG00000279591	AC002044.1	turquoise	--
ENSG00000280092	AC002044.3	turquoise	--
ENSG00000236194	AC003104.1	turquoise	--
ENSG00000279777	AC004813.1	turquoise	--
ENSG00000205485	AC004980.7	turquoise	ACC/NAC
ENSG00000230305	AC004980.9	turquoise	--
ENSG00000213549	AC005077.8	turquoise	--
ENSG00000230751	AC007036.4	turquoise	--
ENSG00000172974	AC007318.5	turquoise	ACC
ENSG00000279533	AC009022.1	turquoise	--
ENSG00000233287	AC009362.2	turquoise	--
ENSG00000186235	AC016757.3	turquoise	--
ENSG00000279921	AC017081.1	turquoise	ACC/NAC
ENSG00000235683	AC018442.1	turquoise	ACC/NAC
ENSG00000223628	AC023449.2	turquoise	--
ENSG00000226939	AC062021.1	turquoise	--
ENSG00000226261	AC064836.3	turquoise	--
ENSG00000235920	AC073109.2	turquoise	ACC
ENSG00000228643	AC079779.4	turquoise	--
ENSG00000234169	AC092168.3	turquoise	--
ENSG00000231758	AC092652.1	turquoise	--
ENSG00000225057	AC096574.4	turquoise	ACC
ENSG00000235151	AC114730.2	turquoise	--
ENSG00000229782	AC118754.4	turquoise	--

ENSG00000226155	AC124944.3	turquoise	ACC
ENSG00000279396	AC130469.1	turquoise	NAC
ENSG00000278540	ACACA	turquoise	ACC
ENSG00000120437	ACAT2	turquoise	ACC
ENSG00000182827	ACBD3	turquoise	ACC
ENSG00000177465	ACOT4	turquoise	ACC
ENSG00000176715	ACSF3	turquoise	NAC
ENSG00000131966	ACTR10	turquoise	ACC/NAC
ENSG00000115091	ACTR3	turquoise	ACC
ENSG00000121989	ACVR2A	turquoise	ACC/NAC
ENSG00000149451	ADAM33	turquoise	--
ENSG00000160323	ADAMTS13	turquoise	NAC
ENSG00000121933	ADORA3	turquoise	--
ENSG00000119844	AFTPH	turquoise	ACC/NAC
ENSG00000134698	AGO4	turquoise	ACC
ENSG00000018510	AGPS	turquoise	ACC
ENSG00000135049	AGTPBP1	turquoise	--
ENSG00000106546	AHR	turquoise	--
ENSG00000140057	AK7	turquoise	ACC
ENSG00000151320	AKAP6	turquoise	ACC/NAC
ENSG00000174574	AKIRIN1	turquoise	ACC/NAC
ENSG00000053371	AKR7A2	turquoise	--
ENSG00000105221	AKT2	turquoise	ACC/NAC
ENSG00000166971	AKTIP	turquoise	ACC/NAC
ENSG00000226989	AL049758.2	turquoise	--
ENSG00000279745	AL365202.1	turquoise	--
ENSG00000170017	ALCAM	turquoise	ACC/NAC
ENSG00000182858	ALG12	turquoise	--
ENSG00000250794	ALG1L12P	turquoise	--
ENSG00000189046	ALKBH2	turquoise	--
ENSG00000123505	AMD1	turquoise	ACC
ENSG00000144233	AMMECR1L	turquoise	--
ENSG00000151743	AMN1	turquoise	ACC/NAC
ENSG00000129055	ANAPC13	turquoise	ACC/NAC
ENSG00000110200	ANAPC15	turquoise	--
ENSG00000151150	ANK3	turquoise	NAC
ENSG00000118454	ANKRD13C	turquoise	ACC/NAC
ENSG00000189127	ANKRD34B	turquoise	--
ENSG00000064999	ANKS1A	turquoise	ACC
ENSG00000185046	ANKS1B	turquoise	--
ENSG00000074855	ANO8	turquoise	--
ENSG00000140350	ANP32A	turquoise	--
ENSG00000280432	AP000962.1	turquoise	--
ENSG00000237604	AP001056.1	turquoise	NAC
ENSG00000138660	AP1AR	turquoise	ACC

ENSG00000166747	AP1G1	turquoise	ACC/NAC
ENSG00000226167	AP4B1-AS1	turquoise	--
ENSG00000053770	AP5M1	turquoise	ACC/NAC
ENSG00000154856	APCDD1	turquoise	--
ENSG00000138613	APH1B	turquoise	ACC
ENSG00000166181	API5	turquoise	ACC/NAC
ENSG00000062725	APPBP2	turquoise	ACC/NAC
ENSG00000157500	APPL1	turquoise	ACC
ENSG00000168374	ARF4	turquoise	ACC/NAC
ENSG00000066777	ARFGEF1	turquoise	ACC
ENSG00000123329	ARHGAP9	turquoise	--
ENSG00000076928	ARHGEF1	turquoise	--
ENSG00000214944	ARHGEF28	turquoise	--
ENSG00000179361	ARID3B	turquoise	ACC
ENSG00000120805	ARL1	turquoise	ACC/NAC
ENSG00000102931	ARL2BP	turquoise	ACC/NAC
ENSG00000144746	ARL6IP5	turquoise	ACC/NAC
ENSG00000170632	ARMC10	turquoise	ACC/NAC
ENSG00000157343	ARMC12	turquoise	--
ENSG00000169126	ARMC4	turquoise	--
ENSG00000128989	ARPP19	turquoise	--
ENSG00000177981	ASB8	turquoise	NAC
ENSG00000070669	ASNS	turquoise	--
ENSG00000143970	ASXL2	turquoise	--
ENSG00000107669	ATE1	turquoise	ACC/NAC
ENSG00000145782	ATG12	turquoise	NAC
ENSG00000066739	ATG2B	turquoise	ACC
ENSG00000198513	ATL1	turquoise	ACC/NAC
ENSG00000196296	ATP2A1	turquoise	ACC
ENSG00000017260	ATP2C1	turquoise	ACC
ENSG00000152234	ATP5A1	turquoise	ACC/NAC
ENSG00000159199	ATP5G1	turquoise	ACC/NAC
ENSG00000167863	ATP5H	turquoise	ACC/NAC
ENSG00000154723	ATP5J	turquoise	ACC/NAC
ENSG00000182220	ATP6AP2	turquoise	ACC/NAC
ENSG00000100554	ATP6V1D	turquoise	ACC/NAC
ENSG00000130770	ATPIF1	turquoise	ACC
ENSG00000107518	ATRNL1	turquoise	--
ENSG00000167601	AXL	turquoise	--
ENSG00000172232	AZU1	turquoise	--
ENSG00000169255	B3GALNT1	turquoise	ACC/NAC
ENSG00000187676	B3GALTL	turquoise	ACC
ENSG00000176597	B3GNT5	turquoise	--
ENSG00000086062	B4GALT1	turquoise	ACC/NAC
ENSG00000108641	B9D1	turquoise	--

ENSG00000228817	BACH1-IT2	turquoise	ACC/NAC
ENSG00000087088	BAX	turquoise	--
ENSG00000181004	BBS12	turquoise	ACC
ENSG00000116752	BCAS2	turquoise	ACC/NAC
ENSG00000153094	BCL2L11	turquoise	--
ENSG00000029363	BCLAF1	turquoise	ACC/NAC
ENSG00000183337	BCOR	turquoise	--
ENSG00000215481	BCRP3	turquoise	--
ENSG00000133134	BEX2	turquoise	ACC
ENSG00000184515	BEX5	turquoise	--
ENSG00000147439	BIN3	turquoise	NAC
ENSG00000023445	BIRC3	turquoise	--
ENSG00000196072	BLOC1S2	turquoise	ACC/NAC
ENSG00000106605	BLVRA	turquoise	ACC
ENSG00000178096	BOLA1	turquoise	--
ENSG00000172331	BPGM	turquoise	ACC/NAC
ENSG00000162813	BPNT1	turquoise	ACC/NAC
ENSG00000089234	BRAP	turquoise	ACC/NAC
ENSG00000112983	BRD8	turquoise	--
ENSG00000164713	BRI3	turquoise	--
ENSG00000100916	BRMS1L	turquoise	ACC/NAC
ENSG00000162819	BROX	turquoise	--
ENSG00000064726	BTBD1	turquoise	ACC/NAC
ENSG00000148925	BTBD10	turquoise	ACC
ENSG00000222009	BTBD19	turquoise	ACC/NAC
ENSG00000134717	BTF3L4	turquoise	ACC/NAC
ENSG00000159388	BTG2	turquoise	--
ENSG00000111801	BTN3A3	turquoise	ACC
ENSG00000154473	BUB3	turquoise	--
ENSG00000106245	BUD31	turquoise	ACC/NAC
ENSG00000204683	C10orf113	turquoise	--
ENSG00000165511	C10orf25	turquoise	--
ENSG00000149196	C11orf73	turquoise	ACC
ENSG00000179933	C14orf119	turquoise	ACC
ENSG00000087302	C14orf166	turquoise	ACC/NAC
ENSG00000185716	C16orf52	turquoise	--
ENSG00000186665	C17orf58	turquoise	ACC/NAC
ENSG00000108666	C17orf75	turquoise	--
ENSG00000279020	C18orf15	turquoise	NAC
ENSG00000116922	C1orf109	turquoise	ACC/NAC
ENSG00000143612	C1orf43	turquoise	ACC/NAC
ENSG00000162642	C1orf52	turquoise	ACC
ENSG00000142698	C1orf94	turquoise	--
ENSG00000160298	C21orf58	turquoise	NAC
ENSG00000163026	C2orf44	turquoise	ACC

ENSG00000179270	C2orf71	turquoise	NAC
ENSG00000114405	C3orf14	turquoise	ACC/NAC
ENSG00000163608	C3orf17	turquoise	ACC/NAC
ENSG00000088543	C3orf18	turquoise	--
ENSG00000174928	C3orf33	turquoise	ACC
ENSG00000056050	C4orf27	turquoise	ACC/NAC
ENSG00000185127	C6orf120	turquoise	NAC
ENSG00000146476	C6orf211	turquoise	ACC/NAC
ENSG00000187753	C9orf153	turquoise	--
ENSG00000136819	C9orf78	turquoise	ACC/NAC
ENSG00000134508	CABLES1	turquoise	ACC
ENSG00000160325	CACFD1	turquoise	--
ENSG00000157445	CACNA2D3	turquoise	--
ENSG00000116161	CACYBP	turquoise	ACC/NAC
ENSG00000163618	CADPS	turquoise	ACC
ENSG00000169885	CALML6	turquoise	ACC/NAC
ENSG00000164615	CAMLG	turquoise	ACC
ENSG00000111530	CAND1	turquoise	ACC/NAC
ENSG00000127022	CANX	turquoise	ACC/NAC
ENSG00000131236	CAP1	turquoise	--
ENSG00000152611	CAPSL	turquoise	ACC
ENSG00000127995	CASD1	turquoise	ACC/NAC
ENSG00000003400	CASP10	turquoise	--
ENSG00000143318	CASQ1	turquoise	--
ENSG00000105879	CBLL1	turquoise	NAC
ENSG00000108468	CBX1	turquoise	ACC/NAC
ENSG00000169193	CCDC126	turquoise	ACC/NAC
ENSG00000004766	CCDC132	turquoise	ACC/NAC
ENSG00000256304	CCDC150P1	turquoise	--
ENSG00000198937	CCDC167	turquoise	ACC
ENSG00000117477	CCDC181	turquoise	--
ENSG00000024862	CCDC28A	turquoise	ACC
ENSG00000173421	CCDC36	turquoise	ACC/NAC
ENSG00000163885	CCDC37	turquoise	--
ENSG00000198624	CCDC69	turquoise	--
ENSG00000120647	CCDC77	turquoise	--
ENSG00000137500	CCDC90B	turquoise	--
ENSG00000112237	CCNC	turquoise	ACC/NAC
ENSG00000129315	CCNT1	turquoise	ACC/NAC
ENSG00000173992	CCS	turquoise	ACC/NAC
ENSG00000107771	CCSER2	turquoise	ACC/NAC
ENSG00000166226	CCT2	turquoise	ACC/NAC
ENSG00000115484	CCT4	turquoise	ACC/NAC
ENSG00000186074	CD300LF	turquoise	--
ENSG00000010610	CD4	turquoise	ACC

ENSG00000101017	CD40	turquoise	--
ENSG00000143119	CD53	turquoise	ACC
ENSG00000140326	CDAN1	turquoise	ACC
ENSG00000151465	CDC123	turquoise	ACC
ENSG00000094880	CDC23	turquoise	--
ENSG00000004897	CDC27	turquoise	ACC/NAC
ENSG00000106993	CDC37L1	turquoise	ACC/NAC
ENSG00000070831	CDC42	turquoise	ACC
ENSG00000096401	CDC5L	turquoise	--
ENSG00000179776	CDH5	turquoise	ACC/NAC
ENSG00000185324	CDK10	turquoise	ACC/NAC
ENSG00000129596	CDO1	turquoise	ACC/NAC
ENSG00000093072	CECR1	turquoise	ACC
ENSG00000143702	CEP170	turquoise	ACC
ENSG00000174007	CEP19	turquoise	--
ENSG00000101624	CEP76	turquoise	ACC
ENSG00000147400	CETN2	turquoise	ACC/NAC
ENSG00000163320	CGGBP1	turquoise	ACC/NAC
ENSG00000143942	CHAC2	turquoise	--
ENSG00000136457	CHAD	turquoise	--
ENSG00000172586	CHCHD1	turquoise	NAC
ENSG00000106153	CHCHD2	turquoise	ACC/NAC
ENSG00000100888	CHD8	turquoise	--
ENSG00000188419	CHM	turquoise	ACC
ENSG00000130724	CHMP2A	turquoise	ACC/NAC
ENSG00000083937	CHMP2B	turquoise	ACC
ENSG00000128656	CHN1	turquoise	ACC
ENSG00000106069	CHN2	turquoise	NAC
ENSG00000181072	CHRM2	turquoise	ACC
ENSG00000131873	CHSY1	turquoise	--
ENSG00000176194	CIDEA	turquoise	--
ENSG00000122873	CISD1	turquoise	ACC
ENSG00000145354	CISD2	turquoise	ACC/NAC
ENSG00000163539	CLASP2	turquoise	ACC
ENSG00000104859	CLASRP	turquoise	--
ENSG00000114859	CLCN2	turquoise	--
ENSG00000232000	CLCN3P1	turquoise	--
ENSG00000150048	CLEC1A	turquoise	ACC
ENSG00000179335	CLK3	turquoise	--
ENSG00000166855	CLPX	turquoise	ACC
ENSG00000141367	CLTC	turquoise	ACC/NAC
ENSG00000140931	CMTM3	turquoise	--
ENSG00000091317	CMTM6	turquoise	ACC
ENSG00000153551	CMTM7	turquoise	--
ENSG00000205423	CNEP1R1	turquoise	--

ENSG00000100528	CNIH1	turquoise	NAC
ENSG00000143771	CNIH4	turquoise	--
ENSG00000158435	CNOT11	turquoise	--
ENSG00000198791	CNOT7	turquoise	ACC/NAC
ENSG00000155508	CNOT8	turquoise	--
ENSG00000018236	CNTN1	turquoise	ACC
ENSG00000183978	COA3	turquoise	ACC/NAC
ENSG00000168275	COA6	turquoise	--
ENSG00000187498	COL4A1	turquoise	NAC
ENSG00000134871	COL4A2	turquoise	NAC
ENSG00000113163	COL4A3BP	turquoise	ACC
ENSG00000081052	COL4A4	turquoise	--
ENSG00000206384	COL6A6	turquoise	--
ENSG00000198756	COLGALT2	turquoise	--
ENSG00000184432	COPB2	turquoise	NAC
ENSG00000141030	COPS3	turquoise	ACC/NAC
ENSG00000138663	COPS4	turquoise	ACC/NAC
ENSG00000132423	COQ3	turquoise	ACC/NAC
ENSG00000014919	COX15	turquoise	ACC/NAC
ENSG00000178741	COX5A	turquoise	ACC
ENSG00000126267	COX6B1	turquoise	ACC/NAC
ENSG00000164919	COX6C	turquoise	ACC/NAC
ENSG00000118260	CREB1	turquoise	--
ENSG00000164463	CREBRF	turquoise	--
ENSG00000101343	CRNKL1	turquoise	ACC/NAC
ENSG00000116791	CRYZ	turquoise	ACC
ENSG00000205758	CRYZL1	turquoise	ACC
ENSG00000124207	CSE1L	turquoise	ACC/NAC
ENSG00000147408	CSGALNACT1	turquoise	--
ENSG00000234534	CSNK1G2P1	turquoise	ACC/NAC
ENSG00000101138	CSTF1	turquoise	NAC
ENSG00000279554	CTA-113A6.2	turquoise	--
ENSG00000279217	CTA-212A2.3	turquoise	--
ENSG00000280370	CTA-342B11.3	turquoise	--
ENSG00000250069	CTB-131B5.2	turquoise	ACC
ENSG00000242683	CTB-46B19.1	turquoise	ACC
ENSG00000274996	CTB-58E17.2	turquoise	ACC
ENSG00000269397	CTB-92J24.2	turquoise	--
ENSG00000267749	CTC-265F19.1	turquoise	NAC
ENSG00000251279	CTC-436P18.1	turquoise	ACC
ENSG00000219665	CTD-2006C1.2	turquoise	ACC
ENSG00000279474	CTD-2286N8.1	turquoise	ACC
ENSG00000240729	CTD-2301A4.3	turquoise	--
ENSG00000276250	CTD-2349P21.12	turquoise	--
ENSG00000247796	CTD-2366F13.1	turquoise	--

ENSG00000255182	CTD-2517M22.14	turquoise	ACC/NAC
ENSG00000260810	CTD-2547L24.4	turquoise	--
ENSG00000270804	CTD-2583A14.11	turquoise	NAC
ENSG00000273901	CTD-2619J13.27	turquoise	ACC
ENSG00000270055	CTD-3092A11.2	turquoise	--
ENSG00000268516	CTD-3138B18.5	turquoise	--
ENSG00000168036	CTNNB1	turquoise	ACC
ENSG00000132792	CTNNBL1	turquoise	--
ENSG00000198730	CTR9	turquoise	ACC/NAC
ENSG00000109861	CTSC	turquoise	--
ENSG00000205279	CTXN3	turquoise	--
ENSG00000108094	CUL2	turquoise	ACC/NAC
ENSG00000036257	CUL3	turquoise	ACC/NAC
ENSG00000158290	CUL4B	turquoise	ACC
ENSG00000172115	CYCS	turquoise	--
ENSG00000276644	DACH1	turquoise	--
ENSG00000236709	DAPK1-IT1	turquoise	--
ENSG00000115866	DARS	turquoise	NAC
ENSG00000198924	DCLRE1A	turquoise	ACC/NAC
ENSG00000179958	DCTPP1	turquoise	ACC/NAC
ENSG00000085788	DDHD2	turquoise	ACC/NAC
ENSG00000079785	DDX1	turquoise	ACC/NAC
ENSG00000064703	DDX20	turquoise	ACC
ENSG00000198231	DDX42	turquoise	--
ENSG00000110367	DDX6	turquoise	ACC/NAC
ENSG00000143753	DEGS1	turquoise	ACC
ENSG00000072849	DERL2	turquoise	ACC
ENSG00000114956	DGUOK	turquoise	ACC
ENSG00000102796	DHRS12	turquoise	--
ENSG00000157326	DHRS4	turquoise	--
ENSG00000100612	DHRS7	turquoise	ACC
ENSG00000135829	DHX9	turquoise	ACC/NAC
ENSG00000166938	DIS3L	turquoise	ACC
ENSG00000091140	DLD	turquoise	ACC/NAC
ENSG00000237152	DLEU7-AS1	turquoise	NAC
ENSG00000104093	DMXL2	turquoise	ACC
ENSG00000185842	DNAH14	turquoise	--
ENSG00000069345	DNAJA2	turquoise	ACC/NAC
ENSG00000164031	DNAJB14	turquoise	ACC/NAC
ENSG00000105993	DNAJB6	turquoise	ACC
ENSG00000170946	DNAJC24	turquoise	ACC
ENSG00000247400	DNAJC3-AS1	turquoise	ACC
ENSG00000147570	DNAJC5B	turquoise	--
ENSG00000168259	DNAJC7	turquoise	ACC
ENSG00000119661	DNAL1	turquoise	--

ENSG00000087470	DNM1L	turquoise	ACC/NAC
ENSG00000197959	DNM3	turquoise	ACC
ENSG00000130158	DOCK6	turquoise	ACC/NAC
ENSG00000260992	DOCK9-AS2	turquoise	--
ENSG00000166171	DPCD	turquoise	ACC
ENSG00000167261	DPEP2	turquoise	--
ENSG00000248079	DPH6-AS1	turquoise	--
ENSG00000148399	DPH7	turquoise	ACC/NAC
ENSG00000000419	DPM1	turquoise	ACC/NAC
ENSG00000113657	DPYSL3	turquoise	--
ENSG00000113360	DROSHA	turquoise	ACC
ENSG00000149636	DSN1	turquoise	ACC
ENSG00000125868	DSTN	turquoise	ACC/NAC
ENSG00000120129	DUSP1	turquoise	--
ENSG00000128951	DUT	turquoise	--
ENSG00000004975	DVL2	turquoise	--
ENSG00000141627	DYM	turquoise	ACC/NAC
ENSG00000144635	DYNC1LI1	turquoise	NAC
ENSG00000088986	DYNLL1	turquoise	ACC/NAC
ENSG00000125971	DYNLRB1	turquoise	NAC
ENSG00000198919	DZIP3	turquoise	ACC
ENSG00000169016	E2F6	turquoise	ACC
ENSG00000129518	EAPP	turquoise	ACC/NAC
ENSG00000255423	EBLN2	turquoise	--
ENSG00000127884	ECHS1	turquoise	ACC
ENSG00000116406	EDEM3	turquoise	ACC/NAC
ENSG00000249855	EEF1A1P19	turquoise	ACC
ENSG00000186676	EEF1GP1	turquoise	--
ENSG00000103319	EEF2K	turquoise	--
ENSG00000132294	EFR3A	turquoise	ACC
ENSG00000140598	EFTUD1	turquoise	ACC
ENSG00000255302	EID1	turquoise	ACC/NAC
ENSG00000173674	EIF1AX	turquoise	ACC/NAC
ENSG00000114784	EIF1B	turquoise	ACC/NAC
ENSG00000144895	EIF2A	turquoise	ACC
ENSG00000055332	EIF2AK2	turquoise	ACC
ENSG00000111361	EIF2B1	turquoise	--
ENSG00000070785	EIF2B3	turquoise	--
ENSG00000134001	EIF2S1	turquoise	ACC/NAC
ENSG00000125977	EIF2S2	turquoise	ACC/NAC
ENSG00000100353	EIF3D	turquoise	--
ENSG00000147677	EIF3H	turquoise	--
ENSG00000178982	EIF3K	turquoise	ACC
ENSG00000063046	EIF4B	turquoise	ACC
ENSG00000229944	EIF4EP2	turquoise	ACC/NAC

ENSG00000075151	EIF4G3	turquoise	--
ENSG00000100664	EIF5	turquoise	ACC/NAC
ENSG00000107105	ELAVL2	turquoise	ACC
ENSG00000102034	ELF4	turquoise	ACC
ENSG00000134153	EMC7	turquoise	ACC/NAC
ENSG00000127507	EMR2	turquoise	--
ENSG00000106991	ENG	turquoise	ACC/NAC
ENSG00000074800	ENO1	turquoise	ACC
ENSG00000145293	ENOPH1	turquoise	ACC
ENSG00000001561	ENPP4	turquoise	--
ENSG00000241278	ENPP7P4	turquoise	--
ENSG00000255319	ENPP7P8	turquoise	--
ENSG00000054179	ENTPD2	turquoise	ACC
ENSG00000185684	EP400NL	turquoise	ACC
ENSG00000116016	EPAS1	turquoise	ACC/NAC
ENSG00000079819	EPB41L2	turquoise	--
ENSG00000224032	EPB41L4A-AS1	turquoise	ACC
ENSG00000152223	EPG5	turquoise	--
ENSG00000142627	EPHA2	turquoise	--
ENSG00000196411	EPHB4	turquoise	ACC
ENSG00000178567	EPM2AIP1	turquoise	ACC/NAC
ENSG00000136628	EPRS	turquoise	ACC/NAC
ENSG00000085832	EPS15	turquoise	ACC
ENSG00000164307	ERAP1	turquoise	--
ENSG00000187672	ERC2	turquoise	--
ENSG00000125991	ERGIC3	turquoise	ACC
ENSG00000100632	ERH	turquoise	ACC
ENSG00000068912	ERLEC1	turquoise	ACC/NAC
ENSG00000197930	ERO1L	turquoise	ACC
ENSG00000086619	ERO1LB	turquoise	--
ENSG00000139684	ESD	turquoise	ACC/NAC
ENSG00000006468	ETV1	turquoise	--
ENSG00000112685	EXOC2	turquoise	ACC/NAC
ENSG00000131558	EXOC4	turquoise	ACC
ENSG00000070367	EXOC5	turquoise	ACC/NAC
ENSG00000138190	EXOC6	turquoise	ACC
ENSG00000157036	EXOG	turquoise	--
ENSG00000121769	FABP3	turquoise	ACC
ENSG00000164687	FABP5	turquoise	NAC
ENSG00000170231	FABP6	turquoise	ACC
ENSG00000168040	FADD	turquoise	--
ENSG00000169612	FAM103A1	turquoise	ACC
ENSG00000154153	FAM134B	turquoise	--
ENSG00000031003	FAM13B	turquoise	ACC
ENSG00000151553	FAM160B1	turquoise	ACC

ENSG00000158863	FAM160B2	turquoise	ACC
ENSG00000198780	FAM169A	turquoise	ACC/NAC
ENSG00000185087	FAM169B	turquoise	--
ENSG00000144369	FAM171B	turquoise	--
ENSG00000165660	FAM175B	turquoise	ACC/NAC
ENSG00000198718	FAM179B	turquoise	ACC
ENSG00000148481	FAM188A	turquoise	NAC
ENSG00000172775	FAM192A	turquoise	NAC
ENSG00000177150	FAM210A	turquoise	ACC
ENSG00000183508	FAM46C	turquoise	--
ENSG00000225725	FAM66E	turquoise	--
ENSG00000009780	FAM76A	turquoise	NAC
ENSG00000255495	FAM85A	turquoise	--
ENSG00000253893	FAM85B	turquoise	--
ENSG00000182366	FAM87A	turquoise	--
ENSG00000137414	FAM8A1	turquoise	ACC/NAC
ENSG00000176853	FAM91A1	turquoise	--
ENSG00000119812	FAM98A	turquoise	ACC
ENSG00000187790	FANCM	turquoise	--
ENSG00000145743	FBXL17	turquoise	ACC
ENSG00000005812	FBXL3	turquoise	ACC/NAC
ENSG00000138081	FBXO11	turquoise	ACC
ENSG00000135108	FBXO21	turquoise	ACC/NAC
ENSG00000110429	FBXO3	turquoise	ACC
ENSG00000109670	FBXW7	turquoise	ACC/NAC
ENSG00000079459	FDFT1	turquoise	ACC
ENSG00000160752	FDPS	turquoise	ACC
ENSG00000258872	FDPSP3	turquoise	NAC
ENSG00000066926	FECH	turquoise	NAC
ENSG00000149557	FEZ1	turquoise	--
ENSG00000171055	FEZ2	turquoise	--
ENSG00000070193	FGF10	turquoise	--
ENSG00000111790	FGFR1OP2	turquoise	--
ENSG00000127418	FGFRL1	turquoise	ACC
ENSG00000183386	FHL3	turquoise	--
ENSG00000112367	FIG4	turquoise	ACC
ENSG00000132436	FIGNL1	turquoise	--
ENSG00000279007	FKSG56	turquoise	NAC
ENSG00000280252	FKSG63	turquoise	--
ENSG00000224023	FLJ37035	turquoise	--
ENSG00000196924	FLNA	turquoise	--
ENSG00000162769	FLVCR1	turquoise	--
ENSG00000161791	FMNL3	turquoise	ACC/NAC
ENSG00000236337	FMR1-IT1	turquoise	NAC
ENSG00000102531	FNDC3A	turquoise	--

ENSG00000103241	FOXF1	turquoise	--
ENSG00000109536	FRG1	turquoise	NAC
ENSG00000172159	FRMD3	turquoise	ACC
ENSG00000106701	FSD1L	turquoise	ACC
ENSG00000070404	FSTL3	turquoise	ACC
ENSG00000226124	FTCDNL1	turquoise	--
ENSG00000122687	FTSJ2	turquoise	ACC
ENSG00000123689	G0S2	turquoise	--
ENSG00000099860	GADD45B	turquoise	--
ENSG00000054983	GALC	turquoise	--
ENSG00000141429	GALNT1	turquoise	--
ENSG00000158089	GALNT14	turquoise	--
ENSG00000111640	GAPDH	turquoise	ACC
ENSG00000106105	GARS	turquoise	ACC
ENSG00000141013	GAS8	turquoise	NAC
ENSG00000179348	GATA2	turquoise	--
ENSG00000148288	GBGT1	turquoise	ACC
ENSG00000135968	GCC2	turquoise	--
ENSG00000057608	GDI2	turquoise	ACC
ENSG00000092208	GEMIN2	turquoise	ACC/NAC
ENSG00000164347	GFM2	turquoise	ACC/NAC
ENSG00000278311	GGNBP2	turquoise	ACC/NAC
ENSG00000165678	GHITM	turquoise	ACC/NAC
ENSG00000133574	GIMAP4	turquoise	ACC
ENSG00000133561	GIMAP6	turquoise	--
ENSG00000119392	GLE1	turquoise	--
ENSG00000139278	GLIPR1	turquoise	--
ENSG00000124767	GLO1	turquoise	ACC/NAC
ENSG00000109738	GLRB	turquoise	ACC
ENSG00000135423	GLS2	turquoise	--
ENSG00000197045	GMFB	turquoise	ACC
ENSG00000100938	GMPR2	turquoise	ACC/NAC
ENSG00000127955	GNAI1	turquoise	--
ENSG00000116906	GNPAT	turquoise	--
ENSG00000066455	GOLGA5	turquoise	ACC
ENSG00000143457	GOLPH3L	turquoise	NAC
ENSG00000152133	GPATCH11	turquoise	ACC
ENSG00000062194	GPBP1	turquoise	ACC/NAC
ENSG00000115159	GPD2	turquoise	ACC
ENSG00000150625	GPM6A	turquoise	ACC
ENSG00000111231	GPN3	turquoise	--
ENSG00000211445	GPX3	turquoise	--
ENSG00000189152	GRAPL	turquoise	--
ENSG00000196208	GREB1	turquoise	--
ENSG00000179603	GRM8	turquoise	--

ENSG00000109519	GRPEL1	turquoise	ACC/NAC
ENSG00000164284	GRPEL2	turquoise	ACC/NAC
ENSG00000132463	GRSF1	turquoise	ACC/NAC
ENSG00000100744	GSKIP	turquoise	ACC
ENSG00000104687	GSR	turquoise	--
ENSG00000170899	GSTA4	turquoise	ACC
ENSG00000148834	GSTO1	turquoise	ACC/NAC
ENSG00000272047	GTF2H5	turquoise	--
ENSG00000163607	GTPBP8	turquoise	NAC
ENSG00000138867	GUCD1	turquoise	--
ENSG00000151806	GUF1	turquoise	ACC/NAC
ENSG00000169919	GUSB	turquoise	ACC
ENSG00000105968	H2AFV	turquoise	ACC
ENSG00000164032	H2AFZ	turquoise	ACC
ENSG00000137814	HAUS2	turquoise	--
ENSG00000137252	HCRT2	turquoise	--
ENSG00000196591	HDAC2	turquoise	ACC/NAC
ENSG00000094631	HDAC6	turquoise	--
ENSG00000061273	HDAC7	turquoise	ACC/NAC
ENSG00000103657	HERC1	turquoise	ACC
ENSG00000206149	HERC2P9	turquoise	--
ENSG00000148634	HERC4	turquoise	--
ENSG00000169567	HINT1	turquoise	ACC/NAC
ENSG00000230398	HINT2P1	turquoise	--
ENSG00000111911	HINT3	turquoise	ACC
ENSG00000124610	HIST1H1A	turquoise	--
ENSG00000278463	HIST1H2AB	turquoise	--
ENSG00000275713	HIST1H2BH	turquoise	ACC/NAC
ENSG00000274267	HIST1H3B	turquoise	--
ENSG00000158406	HIST1H4H	turquoise	ACC
ENSG00000204252	HLA-DOA	turquoise	--
ENSG00000204592	HLA-E	turquoise	ACC
ENSG00000136630	HLX	turquoise	ACC
ENSG00000146151	HMGCLL1	turquoise	ACC
ENSG00000112972	HMGCS1	turquoise	ACC
ENSG00000182952	HMGN4	turquoise	ACC/NAC
ENSG00000173083	HPSE	turquoise	ACC
ENSG00000134489	HRH4	turquoise	--
ENSG00000118960	HS1BP3	turquoise	--
ENSG00000171004	HS6ST2	turquoise	ACC
ENSG00000230989	HSBP1	turquoise	ACC
ENSG00000103160	HSDL1	turquoise	ACC/NAC
ENSG00000025156	HSF2	turquoise	NAC
ENSG00000176160	HSF5	turquoise	--
ENSG00000080824	HSP90AA1	turquoise	ACC/NAC

ENSG00000155304	HSPA13	turquoise	ACC/NAC
ENSG00000187522	HSPA14	turquoise	--
ENSG00000164070	HSPA4L	turquoise	ACC
ENSG00000113013	HSPA9	turquoise	ACC/NAC
ENSG00000109854	HTATIP2	turquoise	ACC
ENSG00000102241	HTATSF1	turquoise	ACC/NAC
ENSG00000196305	IARS	turquoise	ACC/NAC
ENSG00000067704	IARS2	turquoise	ACC/NAC
ENSG00000164151	ICE1	turquoise	--
ENSG00000115738	ID2	turquoise	ACC
ENSG00000117318	ID3	turquoise	ACC
ENSG00000166411	IDH3A	turquoise	ACC/NAC
ENSG00000067064	IDI1	turquoise	ACC
ENSG00000148057	IDNK	turquoise	--
ENSG00000068079	IFI35	turquoise	ACC
ENSG00000185745	IFIT1	turquoise	ACC/NAC
ENSG00000101052	IFT52	turquoise	ACC/NAC
ENSG00000114446	IFT57	turquoise	ACC
ENSG00000089289	IGBP1	turquoise	ACC/NAC
ENSG00000254017	IGHEP2	turquoise	NAC
ENSG00000142549	IGLON5	turquoise	--
ENSG00000160712	IL6R	turquoise	ACC
ENSG00000143621	ILF2	turquoise	ACC/NAC
ENSG00000132305	IMMT	turquoise	ACC/NAC
ENSG00000177971	IMP3	turquoise	NAC
ENSG00000133731	IMPA1	turquoise	ACC
ENSG00000151689	INPP1	turquoise	--
ENSG00000068745	IP6K2	turquoise	--
ENSG00000205339	IPO7	turquoise	ACC/NAC
ENSG00000133704	IPO8	turquoise	--
ENSG00000134070	IRAK2	turquoise	--
ENSG00000165898	ISCA2	turquoise	NAC
ENSG00000136003	ISCU	turquoise	ACC
ENSG00000078747	ITCH	turquoise	ACC
ENSG00000143127	ITGA10	turquoise	ACC
ENSG00000161638	ITGA5	turquoise	NAC
ENSG00000135424	ITGA7	turquoise	NAC
ENSG00000082781	ITGB5	turquoise	--
ENSG00000136156	ITM2B	turquoise	--
ENSG00000096433	ITPR3	turquoise	ACC/NAC
ENSG00000101384	JAG1	turquoise	--
ENSG00000171135	JAGN1	turquoise	--
ENSG00000008083	JARID2	turquoise	ACC/NAC
ENSG00000140044	JDP2	turquoise	--
ENSG00000050130	JKAMP	turquoise	ACC

ENSG00000149596	JPH2	turquoise	--
ENSG00000234616	JRK	turquoise	--
ENSG00000139620	KANSL2	turquoise	ACC
ENSG00000260640	KB-1000E4.2	turquoise	--
ENSG00000131398	KCNC3	turquoise	--
ENSG00000121361	KCNJ8	turquoise	--
ENSG00000082482	KCNK2	turquoise	ACC
ENSG00000145936	KCNMB1	turquoise	ACC
ENSG00000107147	KCNT1	turquoise	--
ENSG00000004487	KDM1A	turquoise	ACC/NAC
ENSG00000100441	KHNYN	turquoise	--
ENSG00000164961	KIAA0196	turquoise	ACC
ENSG00000170871	KIAA0232	turquoise	ACC
ENSG00000136813	KIAA0368	turquoise	ACC
ENSG00000164542	KIAA0895	turquoise	ACC
ENSG00000138688	KIAA1109	turquoise	ACC
ENSG00000163807	KIAA1143	turquoise	ACC
ENSG00000198954	KIAA1279	turquoise	ACC/NAC
ENSG00000135835	KIAA1614	turquoise	--
ENSG00000144320	KIAA1715	turquoise	ACC/NAC
ENSG00000131437	KIF3A	turquoise	ACC/NAC
ENSG00000075945	KIFAP3	turquoise	ACC/NAC
ENSG00000133116	KL	turquoise	--
ENSG00000165516	KLHDC2	turquoise	ACC/NAC
ENSG00000117153	KLHL12	turquoise	ACC/NAC
ENSG00000179454	KLHL28	turquoise	--
ENSG00000168427	KLHL30	turquoise	--
ENSG00000279484	KLHL30-AS1	turquoise	--
ENSG00000102271	KLHL4	turquoise	--
ENSG00000172578	KLHL6	turquoise	--
ENSG00000198642	KLHL9	turquoise	ACC
ENSG00000186432	KPNA4	turquoise	ACC/NAC
ENSG00000108424	KPNB1	turquoise	ACC/NAC
ENSG00000186395	KRT10	turquoise	--
ENSG00000249850	KRT18P31	turquoise	--
ENSG00000229320	KRT8P12	turquoise	--
ENSG00000260316	LA16c-306A4.2	turquoise	ACC
ENSG00000261430	LA16c-390E6.3	turquoise	NAC
ENSG00000172037	LAMB2	turquoise	--
ENSG00000115365	LANCL1	turquoise	NAC
ENSG00000172954	LCLAT1	turquoise	NAC
ENSG00000250257	LDHAL6DP	turquoise	--
ENSG00000138795	LEF1	turquoise	--
ENSG00000161904	LEMD2	turquoise	ACC
ENSG00000117385	LEPRE1	turquoise	ACC

ENSG00000090530	LEPREL1	turquoise	--
ENSG00000050426	LETMD1	turquoise	ACC
ENSG00000116977	LGALS8	turquoise	--
ENSG00000174405	LIG4	turquoise	ACC/NAC
ENSG00000189308	LIN54	turquoise	NAC
ENSG00000230448	LINC00276	turquoise	ACC
ENSG00000179219	LINC00311	turquoise	--
ENSG00000237585	LINC00407	turquoise	--
ENSG00000254275	LINC00824	turquoise	ACC
ENSG00000243083	LINC00870	turquoise	--
ENSG00000228393	LINC01004	turquoise	--
ENSG00000204272	LINC01420	turquoise	ACC/NAC
ENSG00000264301	LINC01444	turquoise	ACC
ENSG00000175536	LIPT2	turquoise	--
ENSG00000234405	LL0XNC01-250H12.3	turquoise	--
ENSG00000270041	LL22NC03-N27C7.1	turquoise	ACC/NAC
ENSG00000139636	LMBR1L	turquoise	NAC
ENSG00000154359	LONRF1	turquoise	ACC
ENSG00000123684	LPGAT1	turquoise	NAC
ENSG00000136141	LRCH1	turquoise	--
ENSG00000197324	LRP10	turquoise	ACC
ENSG00000134569	LRP4	turquoise	--
ENSG00000070018	LRP6	turquoise	--
ENSG00000138095	LRPPRC	turquoise	ACC/NAC
ENSG00000137507	LRRC32	turquoise	ACC
ENSG00000176681	LRRC37A	turquoise	--
ENSG00000238083	LRRC37A2	turquoise	--
ENSG00000116212	LRRC42	turquoise	--
ENSG00000163428	LRRC58	turquoise	--
ENSG00000175324	LSM1	turquoise	ACC
ENSG00000257103	LSM14A	turquoise	--
ENSG00000170860	LSM3	turquoise	ACC/NAC
ENSG00000186687	LYRM7	turquoise	NAC
ENSG00000163155	LYSMD1	turquoise	--
ENSG00000140280	LYSMD2	turquoise	ACC/NAC
ENSG00000164109	MAD2L1	turquoise	ACC
ENSG00000124688	MAD2L1BP	turquoise	ACC/NAC
ENSG00000178573	MAF	turquoise	--
ENSG00000102316	MAGED2	turquoise	ACC
ENSG00000065559	MAP2K4	turquoise	ACC/NAC
ENSG00000142733	MAP3K6	turquoise	ACC
ENSG00000104814	MAP4K1	turquoise	--
ENSG00000168175	MAPK1IP1L	turquoise	--
ENSG00000162889	MAPKAPK2	turquoise	--

ENSG00000155254	MARVELD1	turquoise	--
ENSG00000015479	MATR3	turquoise	ACC/NAC
ENSG000000129933	MAU2	turquoise	ACC
ENSG000000125952	MAX	turquoise	--
ENSG000000129071	MBD4	turquoise	--
ENSG000000166987	MBD6	turquoise	NAC
ENSG000000139793	MBNL2	turquoise	ACC/NAC
ENSG000000143797	MBOAT2	turquoise	--
ENSG000000101977	MCF2	turquoise	ACC
ENSG000000126217	MCF2L	turquoise	NAC
ENSG000000104738	MCM4	turquoise	NAC
ENSG000000156026	MCU	turquoise	--
ENSG000000050393	MCUR1	turquoise	--
ENSG000000139915	MDGA2	turquoise	--
ENSG000000014641	MDH1	turquoise	ACC/NAC
ENSG000000065833	ME1	turquoise	--
ENSG000000124733	MEA1	turquoise	NAC
ENSG000000106780	MEGF9	turquoise	--
ENSG000000164024	METAP1	turquoise	ACC/NAC
ENSG000000277605	Metazoa_SRP	turquoise	--
ENSG000000171806	METTL18	turquoise	--
ENSG000000138382	METTL5	turquoise	ACC/NAC
ENSG000000197006	METTL9	turquoise	ACC
ENSG000000228109	MF12-AS1	turquoise	ACC/NAC
ENSG000000100060	MFNG	turquoise	ACC
ENSG000000168389	MFSD2A	turquoise	--
ENSG000000085871	MGST2	turquoise	--
ENSG000000154305	MIA3	turquoise	--
ENSG000000101752	MIB1	turquoise	ACC/NAC
ENSG000000204516	MICB	turquoise	--
ENSG000000229390	MICD	turquoise	--
ENSG000000125457	MIF4GD	turquoise	--
ENSG000000270714	MINOS1P2	turquoise	--
ENSG000000221261	MIR1208	turquoise	--
ENSG000000207980	MIR23A	turquoise	ACC
ENSG000000268471	MIR4453	turquoise	--
ENSG000000264279	MIR4786	turquoise	--
ENSG000000276147	MIR548AY	turquoise	--
ENSG000000274056	MIR6507	turquoise	NAC
ENSG000000076242	MLH1	turquoise	--
ENSG000000275023	MLLT6	turquoise	NAC
ENSG000000175727	MLXIP	turquoise	ACC/NAC
ENSG000000009950	MLXIPL	turquoise	ACC
ENSG000000168288	MMADHC	turquoise	ACC/NAC
ENSG000000169446	MMGT1	turquoise	ACC/NAC

ENSG00000182208	MOB2	turquoise	ACC/NAC
ENSG00000185787	MORF4L1	turquoise	ACC/NAC
ENSG00000123562	MORF4L2	turquoise	ACC/NAC
ENSG00000079931	MOXD1	turquoise	--
ENSG00000072415	MPP5	turquoise	ACC
ENSG00000197965	MPZL1	turquoise	ACC
ENSG00000178988	MRFAP1L1	turquoise	ACC/NAC
ENSG00000204839	MROH6	turquoise	ACC/NAC
ENSG00000112110	MRPL18	turquoise	NAC
ENSG00000132313	MRPL35	turquoise	ACC/NAC
ENSG00000171421	MRPL36	turquoise	--
ENSG00000185608	MRPL40	turquoise	ACC
ENSG00000135900	MRPL44	turquoise	ACC/NAC
ENSG00000175581	MRPL48	turquoise	--
ENSG00000183617	MRPL54	turquoise	ACC/NAC
ENSG00000204568	MRPS18B	turquoise	ACC
ENSG00000266472	MRPS21	turquoise	ACC/NAC
ENSG00000113048	MRPS27	turquoise	ACC/NAC
ENSG00000061794	MRPS35	turquoise	ACC/NAC
ENSG00000125445	MRPS7	turquoise	ACC/NAC
ENSG00000052802	MSMO1	turquoise	ACC
ENSG00000198736	MSRB1	turquoise	ACC/NAC
ENSG00000260549	MT1L	turquoise	--
ENSG00000085760	MTIF2	turquoise	ACC/NAC
ENSG00000087053	MTMR2	turquoise	--
ENSG00000139505	MTMR6	turquoise	ACC/NAC
ENSG00000112031	MTRF1L	turquoise	--
ENSG00000128654	MTX2	turquoise	ACC
ENSG00000237906	MUPP	turquoise	--
ENSG00000136449	MYCBPAP	turquoise	--
ENSG00000120279	MYCT1	turquoise	--
ENSG00000172936	MYD88	turquoise	ACC
ENSG00000118680	MYL12B	turquoise	ACC/NAC
ENSG00000066933	MYO9A	turquoise	ACC
ENSG00000138347	MYPN	turquoise	--
ENSG00000170011	MYRIP	turquoise	ACC
ENSG00000110583	NAA40	turquoise	NAC
ENSG00000139579	NABP2	turquoise	--
ENSG00000198951	NAGA	turquoise	--
ENSG00000102452	NALCN	turquoise	ACC/NAC
ENSG00000187109	NAP1L1	turquoise	--
ENSG00000186462	NAP1L2	turquoise	ACC
ENSG00000134265	NAPG	turquoise	ACC/NAC
ENSG00000134440	NARS	turquoise	ACC/NAC
ENSG00000137513	NARS2	turquoise	--

ENSG00000160796	NBEAL2	turquoise	ACC/NAC
ENSG00000146918	NCAPG2	turquoise	ACC
ENSG00000115053	NCL	turquoise	--
ENSG00000084676	NCOA1	turquoise	--
ENSG00000124151	NCOA3	turquoise	--
ENSG00000266412	NCOA4	turquoise	ACC
ENSG00000162736	NCSTN	turquoise	--
ENSG00000125356	NDUFA1	turquoise	ACC/NAC
ENSG00000131495	NDUFA2	turquoise	ACC/NAC
ENSG00000259262	NDUFA3P4	turquoise	--
ENSG00000128609	NDUFA5	turquoise	ACC/NAC
ENSG00000119421	NDUFA8	turquoise	ACC/NAC
ENSG00000004779	NDUFAB1	turquoise	ACC/NAC
ENSG00000137806	NDUFAF1	turquoise	ACC/NAC
ENSG00000123545	NDUFAF4	turquoise	ACC/NAC
ENSG00000101247	NDUFAF5	turquoise	--
ENSG00000140990	NDUFB10	turquoise	ACC/NAC
ENSG00000136521	NDUFB5	turquoise	ACC/NAC
ENSG00000165264	NDUFB6	turquoise	ACC/NAC
ENSG00000158864	NDUFS2	turquoise	ACC
ENSG00000123119	NECAB1	turquoise	ACC/NAC
ENSG00000117691	NENF	turquoise	NAC
ENSG00000101096	NFATC2	turquoise	ACC
ENSG00000123405	NFE2	turquoise	--
ENSG00000141905	NFIC	turquoise	--
ENSG00000120837	NFYB	turquoise	ACC
ENSG00000151092	NGLY1	turquoise	--
ENSG00000196290	NIF3L1	turquoise	ACC/NAC
ENSG00000101004	NINL	turquoise	--
ENSG00000140157	NIPA2	turquoise	ACC/NAC
ENSG00000197885	NKIRAS1	turquoise	ACC/NAC
ENSG00000165066	NKX6-3	turquoise	--
ENSG00000162711	NLRP3	turquoise	--
ENSG00000182117	NOP10	turquoise	NAC
ENSG00000164867	NOS3	turquoise	ACC/NAC
ENSG00000198064	NPIP	turquoise	NAC
ENSG00000181163	NPM1	turquoise	ACC
ENSG00000169418	NPR1	turquoise	--
ENSG00000025434	NR1H3	turquoise	ACC
ENSG00000091129	NRCAM	turquoise	ACC
ENSG00000225377	NRSN2-AS1	turquoise	--
ENSG00000169189	NSMCE1	turquoise	ACC
ENSG00000122643	NT5C3A	turquoise	ACC/NAC
ENSG00000164978	NUDT2	turquoise	ACC
ENSG00000167005	NUDT21	turquoise	ACC/NAC

ENSG00000124789	NUP153	turquoise	ACC/NAC
ENSG00000132182	NUP210	turquoise	--
ENSG00000120253	NUP43	turquoise	--
ENSG00000139496	NUPL1	turquoise	ACC/NAC
ENSG00000065154	OAT	turquoise	ACC/NAC
ENSG00000109180	OCIAD1	turquoise	ACC/NAC
ENSG00000115758	ODC1	turquoise	ACC/NAC
ENSG00000126861	OMG	turquoise	ACC
ENSG00000082556	OPRK1	turquoise	--
ENSG00000123240	OPTN	turquoise	ACC
ENSG00000091039	OSBPL8	turquoise	ACC
ENSG00000081087	OSTM1	turquoise	NAC
ENSG00000115507	OTX1	turquoise	--
ENSG00000135124	P2RX4	turquoise	ACC
ENSG00000169860	P2RY1	turquoise	--
ENSG00000181631	P2RY13	turquoise	--
ENSG00000234161	PABPC5-AS1	turquoise	--
ENSG00000159339	PADI4	turquoise	--
ENSG00000168092	PAFAH1B2	turquoise	ACC
ENSG00000172239	PAIP1	turquoise	ACC/NAC
ENSG00000120727	PAIP2	turquoise	ACC
ENSG00000138801	PAPSS1	turquoise	ACC/NAC
ENSG00000227345	PARG	turquoise	ACC/NAC
ENSG00000116288	PARK7	turquoise	ACC/NAC
ENSG00000196844	PATE2	turquoise	--
ENSG00000238197	PAXBP1-AS1	turquoise	--
ENSG00000166228	PCBD1	turquoise	--
ENSG00000114054	PCCB	turquoise	--
ENSG00000197479	PCDHB11	turquoise	--
ENSG00000179715	PCED1B	turquoise	ACC
ENSG00000120265	PCMT1	turquoise	ACC/NAC
ENSG00000132646	PCNA	turquoise	ACC
ENSG00000170248	PDCD6IP	turquoise	--
ENSG00000213089	PDCL3P5	turquoise	--
ENSG00000115252	PDE1A	turquoise	ACC
ENSG00000110435	PDHX	turquoise	ACC/NAC
ENSG00000185615	PDIA2	turquoise	ACC
ENSG00000143870	PDIA6	turquoise	--
ENSG00000175087	PDIK1L	turquoise	ACC
ENSG00000120509	PDZD11	turquoise	--
ENSG00000165966	PDZRN4	turquoise	--
ENSG00000187800	PEAR1	turquoise	--
ENSG00000089220	PEBP1	turquoise	ACC/NAC
ENSG00000113068	PFDN1	turquoise	NAC
ENSG00000171314	PGAM1	turquoise	ACC/NAC

ENSG00000164040	PGRMC2	turquoise	ACC/NAC
ENSG00000164902	PHAX	turquoise	ACC/NAC
ENSG00000109118	PHF12	turquoise	--
ENSG00000056487	PHF21B	turquoise	--
ENSG00000156531	PHF6	turquoise	ACC
ENSG00000175309	PHYKPL	turquoise	ACC
ENSG00000142892	PIGK	turquoise	ACC/NAC
ENSG00000196455	PIK3R4	turquoise	ACC/NAC
ENSG00000167103	PIP5KL1	turquoise	NAC
ENSG00000198961	PJA2	turquoise	ACC/NAC
ENSG00000160447	PKN3	turquoise	--
ENSG00000011422	PLAUR	turquoise	--
ENSG00000107679	PLEKHA1	turquoise	--
ENSG00000166851	PLK1	turquoise	--
ENSG00000185988	PLK5	turquoise	--
ENSG00000100979	PLTP	turquoise	--
ENSG00000122512	PMS2	turquoise	ACC
ENSG00000146453	PNLDC1	turquoise	--
ENSG00000189266	PNRC2	turquoise	--
ENSG00000128567	PODXL	turquoise	--
ENSG00000186866	POFUT2	turquoise	--
ENSG00000177084	POLE	turquoise	NAC
ENSG00000148229	POLE3	turquoise	ACC/NAC
ENSG00000166169	POLL	turquoise	ACC/NAC
ENSG00000047315	POLR2B	turquoise	ACC/NAC
ENSG00000168002	POLR2G	turquoise	ACC
ENSG00000214626	POLR3DP1	turquoise	--
ENSG00000105171	POP4	turquoise	ACC
ENSG00000132429	POPDC3	turquoise	--
ENSG00000196767	POU3F4	turquoise	--
ENSG00000196262	PPIA	turquoise	ACC/NAC
ENSG00000171497	PPID	turquoise	ACC/NAC
ENSG00000131013	PPIL4	turquoise	--
ENSG00000100614	PPM1A	turquoise	ACC/NAC
ENSG00000138032	PPM1B	turquoise	ACC
ENSG00000184203	PPP1R2	turquoise	ACC/NAC
ENSG00000162869	PPP1R21	turquoise	ACC
ENSG00000117751	PPP1R8	turquoise	ACC/NAC
ENSG00000221914	PPP2R2A	turquoise	ACC
ENSG00000066027	PPP2R5A	turquoise	--
ENSG00000119414	PPP6C	turquoise	ACC/NAC
ENSG00000135617	PRADC1	turquoise	NAC
ENSG00000057657	PRDM1	turquoise	ACC/NAC
ENSG00000142611	PRDM16	turquoise	NAC
ENSG00000126432	PRDX5	turquoise	--

ENSG00000138078	PREPL	turquoise	ACC
ENSG00000111725	PRKAB1	turquoise	--
ENSG00000005249	PRKAR2B	turquoise	ACC
ENSG00000065675	PRKCQ	turquoise	--
ENSG00000180228	PRKRA	turquoise	ACC/NAC
ENSG00000230665	PRKRIRP1	turquoise	ACC
ENSG00000113494	PRLR	turquoise	--
ENSG00000160310	PRMT2	turquoise	--
ENSG00000148426	PROSER2	turquoise	--
ENSG00000254884	PRR13P2	turquoise	--
ENSG00000184647	PRSS55	turquoise	--
ENSG00000105227	PRX	turquoise	--
ENSG00000159792	PSKH1	turquoise	ACC
ENSG00000041357	PSMA4	turquoise	ACC/NAC
ENSG00000143106	PSMA5	turquoise	ACC/NAC
ENSG00000101182	PSMA7	turquoise	ACC
ENSG00000126067	PSMB2	turquoise	--
ENSG00000159377	PSMB4	turquoise	ACC/NAC
ENSG00000136930	PSMB7	turquoise	ACC/NAC
ENSG00000100764	PSMC1	turquoise	ACC/NAC
ENSG00000241506	PSMC1P1	turquoise	ACC/NAC
ENSG00000161057	PSMC2	turquoise	ACC/NAC
ENSG00000100519	PSMC6	turquoise	ACC/NAC
ENSG00000173692	PSMD1	turquoise	ACC/NAC
ENSG00000101843	PSMD10	turquoise	ACC/NAC
ENSG00000185627	PSMD13	turquoise	--
ENSG00000095261	PSMD5	turquoise	ACC
ENSG00000163636	PSMD6	turquoise	ACC/NAC
ENSG00000103035	PSMD7	turquoise	ACC/NAC
ENSG00000128789	PSMG2	turquoise	ACC
ENSG00000180822	PSMG4	turquoise	--
ENSG00000117569	PTBP2	turquoise	ACC
ENSG00000110958	PTGES3	turquoise	ACC
ENSG00000106853	PTGR1	turquoise	ACC
ENSG00000269352	PTOV1-AS2	turquoise	--
ENSG00000088179	PTPN4	turquoise	--
ENSG00000153707	PTPRD	turquoise	--
ENSG00000132334	PTPRE	turquoise	--
ENSG00000241472	PTPRG-AS1	turquoise	--
ENSG00000163564	PYHIN1	turquoise	--
ENSG00000115828	QPCT	turquoise	ACC
ENSG00000129646	QRICH2	turquoise	ACC
ENSG00000103769	RAB11A	turquoise	ACC/NAC
ENSG00000206418	RAB12	turquoise	ACC
ENSG00000112210	RAB23	turquoise	ACC

ENSG00000104388	RAB2A	turquoise	ACC/NAC
ENSG00000129472	RAB2B	turquoise	--
ENSG00000134594	RAB33A	turquoise	--
ENSG00000172007	RAB33B	turquoise	--
ENSG00000029725	RABEP1	turquoise	ACC
ENSG00000136933	RABEPK	turquoise	ACC/NAC
ENSG00000152942	RAD17	turquoise	ACC/NAC
ENSG00000108384	RAD51C	turquoise	--
ENSG00000006451	RALA	turquoise	ACC/NAC
ENSG00000144118	RALB	turquoise	--
ENSG00000132341	RAN	turquoise	ACC/NAC
ENSG00000153201	RANBP2	turquoise	ACC
ENSG00000010017	RANBP9	turquoise	ACC/NAC
ENSG00000138698	RAP1GDS1	turquoise	ACC/NAC
ENSG00000091428	RAPGEF4	turquoise	NAC
ENSG00000145715	RASA1	turquoise	ACC
ENSG00000172575	RASGRP1	turquoise	--
ENSG00000068028	RASSF1	turquoise	ACC
ENSG00000102054	RBBP7	turquoise	ACC/NAC
ENSG00000119446	RBM18	turquoise	ACC/NAC
ENSG00000086589	RBM22	turquoise	ACC
ENSG00000117906	RCN2	turquoise	ACC/NAC
ENSG00000164620	RELL2	turquoise	--
ENSG00000035928	RFC1	turquoise	ACC
ENSG00000049541	RFC2	turquoise	ACC
ENSG00000135002	RFK	turquoise	ACC
ENSG00000153165	RGPD3	turquoise	--
ENSG00000076344	RGS11	turquoise	ACC
ENSG00000164327	RICTOR	turquoise	--
ENSG00000080345	RIF1	turquoise	ACC
ENSG00000101782	RIOK3	turquoise	--
ENSG00000155906	RMND1	turquoise	ACC/NAC
ENSG00000201782	RN7SKP226	turquoise	--
ENSG00000252757	RN7SKP96	turquoise	--
ENSG00000239494	RN7SL333P	turquoise	--
ENSG00000241230	RN7SL801P	turquoise	--
ENSG00000265491	RNF115	turquoise	--
ENSG00000133135	RNF128	turquoise	--
ENSG00000013561	RNF14	turquoise	ACC/NAC
ENSG00000137393	RNF144B	turquoise	ACC
ENSG00000118518	RNF146	turquoise	ACC
ENSG00000163961	RNF168	turquoise	ACC
ENSG00000152193	RNF219	turquoise	ACC/NAC
ENSG00000170633	RNF34	turquoise	ACC
ENSG00000114125	RNF7	turquoise	--

ENSG00000111880	RNGTT	turquoise	ACC/NAC
ENSG00000176393	RNPEP	turquoise	ACC
ENSG00000252922	RNU6-365P	turquoise	--
ENSG00000206681	RNU6-730P	turquoise	--
ENSG00000207359	RNU6-925P	turquoise	--
ENSG00000238735	RNU7-113P	turquoise	--
ENSG00000206617	RNY1P5	turquoise	--
ENSG00000154133	ROBO4	turquoise	--
ENSG00000278175	RP11-104G3.8	turquoise	--
ENSG00000274627	RP11-104N10.2	turquoise	ACC/NAC
ENSG00000259370	RP11-1069G10.1	turquoise	--
ENSG00000245213	RP11-10K16.1	turquoise	ACC
ENSG00000279179	RP11-131M11.3	turquoise	NAC
ENSG00000279148	RP11-135F9.4	turquoise	--
ENSG00000266371	RP11-142O6.1	turquoise	ACC
ENSG00000254362	RP11-14I17.3	turquoise	--
ENSG00000227373	RP11-160H22.5	turquoise	ACC
ENSG00000274929	RP11-165D7.5	turquoise	ACC
ENSG00000225513	RP11-165N19.2	turquoise	--
ENSG00000234719	RP11-166B2.1	turquoise	--
ENSG00000263307	RP11-166B2.8	turquoise	ACC
ENSG00000228444	RP11-173B14.4	turquoise	--
ENSG00000257696	RP11-175P13.2	turquoise	ACC
ENSG00000279696	RP11-178H8.7	turquoise	--
ENSG00000278133	RP11-196G11.5	turquoise	--
ENSG00000265451	RP11-204L24.2	turquoise	ACC
ENSG00000261033	RP11-209D14.2	turquoise	--
ENSG00000279520	RP11-20I23.2	turquoise	ACC
ENSG00000277288	RP11-20J15.5	turquoise	--
ENSG00000250756	RP11-225B17.1	turquoise	--
ENSG00000225032	RP11-228B15.4	turquoise	NAC
ENSG00000243081	RP11-231E6.1	turquoise	--
ENSG00000257279	RP11-231I16.1	turquoise	--
ENSG00000270273	RP11-242C24.3	turquoise	--
ENSG00000267919	RP11-256I23.3	turquoise	ACC
ENSG00000266677	RP11-258F1.1	turquoise	--
ENSG00000271752	RP11-269M20.3	turquoise	ACC
ENSG00000279294	RP11-274A11.3	turquoise	NAC
ENSG00000272405	RP11-284F21.10	turquoise	ACC
ENSG00000213073	RP11-288H12.3	turquoise	ACC
ENSG00000280063	RP11-295D4.3	turquoise	ACC
ENSG00000272902	RP11-299H21.1	turquoise	--
ENSG00000204584	RP11-304F15.3	turquoise	--
ENSG00000224593	RP11-30B1.1	turquoise	NAC
ENSG00000275512	RP11-322E11.2	turquoise	NAC

ENSG00000269952	RP11-324I22.3	turquoise	--
ENSG00000272861	RP11-332H14.1	turquoise	--
ENSG00000270589	RP11-348N5.7	turquoise	--
ENSG00000219433	RP11-350J20.4	turquoise	--
ENSG00000254061	RP11-359B20.1	turquoise	ACC
ENSG00000272631	RP11-359E3.4	turquoise	--
ENSG00000279361	RP11-360N9.3	turquoise	--
ENSG00000270640	RP11-373D23.2	turquoise	--
ENSG00000213613	RP11-380G5.3	turquoise	--
ENSG00000230026	RP11-382D8.5	turquoise	--
ENSG00000216802	RP11-390P2.2	turquoise	--
ENSG00000219926	RP11-394A14.2	turquoise	ACC
ENSG00000233369	RP11-396K3.1	turquoise	--
ENSG00000233052	RP11-398B16.2	turquoise	--
ENSG00000254258	RP11-398H6.1	turquoise	--
ENSG00000225399	RP11-3B7.1	turquoise	--
ENSG00000225092	RP11-405O10.2	turquoise	--
ENSG00000243199	RP11-408P14.1	turquoise	--
ENSG00000260329	RP11-412D9.4	turquoise	--
ENSG00000270115	RP11-415J8.7	turquoise	--
ENSG00000270154	RP11-419I17.1	turquoise	--
ENSG00000248050	RP11-422N16.3	turquoise	ACC
ENSG00000279555	RP11-426D19.1	turquoise	--
ENSG00000273062	RP11-428K3.1	turquoise	--
ENSG00000224934	RP11-441O15.3	turquoise	--
ENSG00000278949	RP11-46H11.11	turquoise	ACC/NAC
ENSG00000278400	RP11-474N8.9	turquoise	--
ENSG00000260228	RP11-483P21.2	turquoise	--
ENSG00000231551	RP11-495P10.1	turquoise	ACC
ENSG00000279433	RP11-4B16.1	turquoise	--
ENSG00000227076	RP11-4C20.4	turquoise	--
ENSG00000280389	RP11-512M8.11	turquoise	--
ENSG00000240518	RP11-515C16.1	turquoise	--
ENSG00000261568	RP11-524C21.2	turquoise	ACC
ENSG00000219712	RP11-532F6.2	turquoise	--
ENSG00000251161	RP11-540O11.1	turquoise	--
ENSG00000280036	RP11-540O11.8	turquoise	--
ENSG00000233542	RP11-547D24.1	turquoise	--
ENSG00000260511	RP11-556H2.2	turquoise	--
ENSG00000272777	RP11-571L19.8	turquoise	--
ENSG00000261671	RP11-573G6.6	turquoise	--
ENSG00000264057	RP11-583F2.1	turquoise	--
ENSG00000266805	RP11-61L19.1	turquoise	--
ENSG00000273335	RP11-61L19.2	turquoise	--
ENSG00000271392	RP1-161P9.5	turquoise	--

ENSG00000277152	RP11-622C24.2	turquoise	--
ENSG00000251682	RP11-631M6.3	turquoise	--
ENSG00000279885	RP11-637N19.1	turquoise	--
ENSG00000235051	RP11-637O19.2	turquoise	--
ENSG00000280303	RP11-642A1.3	turquoise	--
ENSG00000270277	RP11-65L3.2	turquoise	--
ENSG00000273618	RP11-66N24.7	turquoise	--
ENSG00000254612	RP11-676M6.1	turquoise	NAC
ENSG00000264290	RP11-68I3.4	turquoise	--
ENSG00000259286	RP11-696L21.2	turquoise	ACC
ENSG00000271474	RP11-710C12.1	turquoise	--
ENSG00000259895	RP11-715J22.2	turquoise	--
ENSG00000280042	RP11-71H17.8	turquoise	ACC
ENSG00000279199	RP11-749I16.3	turquoise	--
ENSG00000256537	RP11-785H5.1	turquoise	--
ENSG00000266947	RP11-799D4.4	turquoise	ACC
ENSG00000273729	RP11-7F17.8	turquoise	--
ENSG00000279491	RP11-810P12.7	turquoise	ACC
ENSG00000248227	RP11-83C7.1	turquoise	--
ENSG00000270720	RP11-84C13.2	turquoise	--
ENSG00000279573	RP11-855A2.1	turquoise	ACC
ENSG00000255468	RP11-867G23.8	turquoise	--
ENSG00000277159	RP11-88E10.4	turquoise	--
ENSG00000196979	RP11-88G17.6	turquoise	--
ENSG00000261959	RP11-893F2.14	turquoise	--
ENSG00000250815	RP11-89B16.2	turquoise	--
ENSG00000229235	RP11-8L18.3	turquoise	--
ENSG00000279852	RP11-91J19.2	turquoise	--
ENSG00000250995	RP13-128O4.3	turquoise	--
ENSG00000225008	RP13-228J13.6	turquoise	ACC
ENSG00000254739	RP13-46H24.1	turquoise	NAC
ENSG00000259943	RP1-39G22.7	turquoise	NAC
ENSG00000266803	RP1-77H15.1	turquoise	--
ENSG00000272403	RP1-93H18.7	turquoise	--
ENSG00000272189	RP3-325F22.5	turquoise	--
ENSG00000279312	RP3-331H24.7	turquoise	--
ENSG00000196114	RP3-391O22.3	turquoise	--
ENSG00000260000	RP3-467N11.1	turquoise	--
ENSG00000247925	RP3-510L9.1	turquoise	--
ENSG00000227541	RP3-525N14.2	turquoise	--
ENSG00000248458	RP4-598P13.1	turquoise	--
ENSG00000269202	RP4-614O4.12	turquoise	ACC
ENSG00000235501	RP4-639F20.1	turquoise	ACC
ENSG00000236915	RP4-651E10.4	turquoise	--
ENSG00000278254	RP4-668E10.4	turquoise	--

ENSG00000226824	RP4-756H11.3	turquoise	NAC
ENSG00000268333	RP4-806M20.3	turquoise	ACC
ENSG00000224950	RP5-1086K13.1	turquoise	ACC
ENSG00000270605	RP5-1092A3.4	turquoise	--
ENSG00000263120	RP5-1107A17.4	turquoise	--
ENSG00000272356	RP5-1112D6.8	turquoise	ACC
ENSG00000183239	RP5-1120P11.4	turquoise	NAC
ENSG00000255306	RP5-901A4.1	turquoise	--
ENSG00000132383	RPA1	turquoise	NAC
ENSG00000117748	RPA2	turquoise	ACC/NAC
ENSG00000198755	RPL10A	turquoise	ACC
ENSG00000197958	RPL12	turquoise	--
ENSG00000174748	RPL15	turquoise	ACC/NAC
ENSG00000213442	RPL18AP3	turquoise	--
ENSG00000224415	RPL19P12	turquoise	NAC
ENSG00000116251	RPL22	turquoise	ACC/NAC
ENSG00000184319	RPL23AP82	turquoise	ACC
ENSG00000241112	RPL29P14	turquoise	--
ENSG00000165502	RPL36AL	turquoise	ACC/NAC
ENSG00000243914	RPL5P14	turquoise	--
ENSG00000089009	RPL6	turquoise	--
ENSG00000147604	RPL7	turquoise	ACC/NAC
ENSG00000118705	RPN2	turquoise	--
ENSG00000148688	RPP30	turquoise	ACC/NAC
ENSG00000141425	RPRD1A	turquoise	ACC/NAC
ENSG00000101413	RPRD1B	turquoise	ACC/NAC
ENSG00000242085	RPS20P33	turquoise	--
ENSG00000138326	RPS24	turquoise	--
ENSG00000223416	RPS26P15	turquoise	--
ENSG00000244289	RPS3AP35	turquoise	--
ENSG00000100784	RPS6KA5	turquoise	ACC
ENSG00000083750	RRAGB	turquoise	ACC/NAC
ENSG00000124782	RREB1	turquoise	ACC
ENSG00000167325	RRM1	turquoise	ACC/NAC
ENSG00000081019	RSBN1	turquoise	NAC
ENSG00000187257	RSBN1L	turquoise	--
ENSG00000171490	RSL1D1	turquoise	NAC
ENSG00000137996	RTCA	turquoise	ACC/NAC
ENSG00000115310	RTN4	turquoise	ACC/NAC
ENSG00000018189	RUFY3	turquoise	ACC/NAC
ENSG00000188282	RUFY4	turquoise	ACC
ENSG00000105784	RUNDC3B	turquoise	ACC
ENSG00000182552	RWDD4	turquoise	ACC
ENSG00000171509	RXFP1	turquoise	ACC
ENSG00000211456	SACM1L	turquoise	ACC/NAC

ENSG00000151835	SACS	turquoise	ACC
ENSG00000156671	SAMD8	turquoise	--
ENSG00000150459	SAP18	turquoise	ACC
ENSG00000164576	SAP30L	turquoise	--
ENSG00000119042	SATB2	turquoise	--
ENSG00000126524	SBDS	turquoise	ACC
ENSG00000225648	SBDSP1	turquoise	--
ENSG00000246273	SBF2-AS1	turquoise	--
ENSG00000188322	SBK1	turquoise	--
ENSG00000109929	SC5D	turquoise	ACC
ENSG00000085365	SCAMP1	turquoise	ACC/NAC
ENSG00000138760	SCARB2	turquoise	--
ENSG00000153130	SCOC	turquoise	ACC/NAC
ENSG00000144306	SCRN3	turquoise	ACC/NAC
ENSG00000261678	SCRT1	turquoise	--
ENSG00000136021	SCYL2	turquoise	ACC/NAC
ENSG00000137575	SDCBP	turquoise	--
ENSG00000132581	SDF2	turquoise	--
ENSG00000117118	SDHB	turquoise	NAC
ENSG00000100934	SEC23A	turquoise	ACC
ENSG00000138593	SECISBP2L	turquoise	--
ENSG00000091490	SEL1L3	turquoise	ACC
ENSG00000198843	SELT	turquoise	ACC/NAC
ENSG00000185033	SEMA4B	turquoise	ACC
ENSG00000178980	SEPW1	turquoise	--
ENSG00000122335	SERAC1	turquoise	NAC
ENSG00000142864	SERBP1	turquoise	ACC
ENSG00000111897	SERINC1	turquoise	ACC/NAC
ENSG00000170542	SERPINB9	turquoise	ACC
ENSG00000163536	SERPINI1	turquoise	ACC
ENSG00000149212	SESN3	turquoise	--
ENSG00000119335	SET	turquoise	ACC
ENSG00000136169	SETDB2	turquoise	--
ENSG00000170364	SETMAR	turquoise	--
ENSG00000183431	SF3A3	turquoise	ACC/NAC
ENSG00000169976	SF3B5	turquoise	--
ENSG00000197860	SGTB	turquoise	--
ENSG00000125731	SH2D3A	turquoise	--
ENSG00000266777	SH3GL1P1	turquoise	ACC/NAC
ENSG00000188803	SHISA6	turquoise	--
ENSG00000144736	SHQ1	turquoise	ACC
ENSG00000169375	SIN3A	turquoise	--
ENSG00000124523	SIRT5	turquoise	--
ENSG00000005020	SKAP2	turquoise	--
ENSG00000145283	SLC10A6	turquoise	--

ENSG00000179520	SLC17A8	turquoise	--
ENSG00000175003	SLC22A1	turquoise	ACC
ENSG00000100372	SLC25A17	turquoise	ACC/NAC
ENSG00000144741	SLC25A26	turquoise	--
ENSG00000162461	SLC25A34	turquoise	NAC
ENSG00000147454	SLC25A37	turquoise	ACC
ENSG00000164209	SLC25A46	turquoise	ACC/NAC
ENSG00000135502	SLC26A10	turquoise	--
ENSG00000014824	SLC30A9	turquoise	ACC/NAC
ENSG00000176087	SLC35A4	turquoise	NAC
ENSG00000138459	SLC35A5	turquoise	ACC
ENSG00000168917	SLC35G2	turquoise	NAC
ENSG00000177710	SLC35G5	turquoise	--
ENSG00000180773	SLC36A4	turquoise	--
ENSG00000163798	SLC4A1AP	turquoise	ACC/NAC
ENSG00000101276	SLC52A3	turquoise	ACC
ENSG00000063127	SLC6A16	turquoise	--
ENSG00000021488	SLC7A9	turquoise	NAC
ENSG00000174640	SLCO2A1	turquoise	--
ENSG00000163681	SLMAP	turquoise	ACC
ENSG00000164609	SLU7	turquoise	ACC/NAC
ENSG00000175387	SMAD2	turquoise	--
ENSG00000137834	SMAD6	turquoise	ACC
ENSG00000112305	SMAP1	turquoise	ACC/NAC
ENSG00000163683	SMIM14	turquoise	ACC/NAC
ENSG00000253457	SMIM18	turquoise	ACC/NAC
ENSG00000172594	SMPDL3A	turquoise	--
ENSG00000102172	SMS	turquoise	ACC/NAC
ENSG00000132639	SNAP25	turquoise	ACC
ENSG00000162804	SNED1	turquoise	ACC
ENSG00000267322	SNHG22	turquoise	--
ENSG00000207523	SNORA66	turquoise	--
ENSG00000200949	SNORD115-32	turquoise	--
ENSG00000207063	SNORD116-1	turquoise	--
ENSG00000239039	SNORD13	turquoise	--
ENSG00000100603	SNW1	turquoise	ACC
ENSG00000086300	SNX10	turquoise	ACC
ENSG00000104497	SNX16	turquoise	ACC
ENSG00000109762	SNX25	turquoise	ACC
ENSG00000173548	SNX33	turquoise	ACC
ENSG00000114520	SNX4	turquoise	ACC/NAC
ENSG00000057252	SOAT1	turquoise	--
ENSG00000142168	SOD1	turquoise	ACC/NAC
ENSG00000165643	SOHLH1	turquoise	--
ENSG00000120896	SORBS3	turquoise	--

ENSG00000259479	SORD2P	turquoise	--
ENSG00000143842	SOX13	turquoise	ACC
ENSG00000134532	SOX5	turquoise	--
ENSG00000125398	SOX9	turquoise	--
ENSG00000105866	SP4	turquoise	--
ENSG00000021574	SPAST	turquoise	ACC
ENSG00000162814	SPATA17	turquoise	--
ENSG00000121067	SPOP	turquoise	--
ENSG00000168939	SPRY3	turquoise	ACC
ENSG00000176422	SPRYD4	turquoise	--
ENSG00000090054	SPTLC1	turquoise	ACC/NAC
ENSG00000104549	SQLE	turquoise	ACC
ENSG00000128039	SRD5A3	turquoise	--
ENSG00000174780	SRP72	turquoise	ACC/NAC
ENSG00000177679	SRRM3	turquoise	--
ENSG00000111786	SRSF9	turquoise	--
ENSG00000008324	SS18L2	turquoise	ACC/NAC
ENSG00000138385	SSB	turquoise	ACC/NAC
ENSG00000130052	STARD8	turquoise	ACC
ENSG00000115415	STAT1	turquoise	ACC/NAC
ENSG00000115107	STEAP3	turquoise	ACC
ENSG00000256762	STH	turquoise	ACC
ENSG00000072786	STK10	turquoise	ACC/NAC
ENSG00000164543	STK17A	turquoise	NAC
ENSG00000276058	STMN1P1	turquoise	NAC
ENSG00000165283	STOML2	turquoise	ACC/NAC
ENSG00000023734	STRAP	turquoise	ACC/NAC
ENSG00000163527	STT3B	turquoise	ACC
ENSG00000104915	STX10	turquoise	--
ENSG00000117758	STX12	turquoise	ACC/NAC
ENSG00000079950	STX7	turquoise	ACC
ENSG00000113387	SUB1	turquoise	ACC
ENSG00000136143	SUCLA2	turquoise	ACC/NAC
ENSG00000163541	SUCLG1	turquoise	ACC/NAC
ENSG00000137573	SULF1	turquoise	--
ENSG00000116030	SUMO1	turquoise	ACC/NAC
ENSG00000177688	SUMO4	turquoise	NAC
ENSG00000197321	SVIL	turquoise	--
ENSG00000198168	SVIP	turquoise	ACC
ENSG00000175854	SWI5	turquoise	--
ENSG00000105137	SYDE1	turquoise	--
ENSG00000172403	SYNPO2	turquoise	--
ENSG00000143028	SYPL2	turquoise	--
ENSG00000132872	SYT4	turquoise	ACC
ENSG00000064995	TAF11	turquoise	--

ENSG00000178913	TAF7	turquoise	ACC/NAC
ENSG00000187325	TAF9B	turquoise	ACC/NAC
ENSG00000168394	TAP1	turquoise	--
ENSG00000212124	TAS2R19	turquoise	--
ENSG00000106052	TAX1BP1	turquoise	ACC/NAC
ENSG00000167291	TBC1D16	turquoise	--
ENSG00000054611	TBC1D22A	turquoise	NAC
ENSG00000183735	TBK1	turquoise	ACC
ENSG00000177565	TBL1XR1	turquoise	ACC/NAC
ENSG00000143178	TBX19	turquoise	ACC
ENSG00000135111	TBX3	turquoise	--
ENSG00000133142	TCEAL4	turquoise	ACC
ENSG00000182916	TCEAL7	turquoise	ACC
ENSG00000271278	TCEB1P33	turquoise	ACC
ENSG00000042088	TDP1	turquoise	--
ENSG00000007866	TEAD3	turquoise	--
ENSG00000136891	TEX10	turquoise	ACC/NAC
ENSG00000115112	TFCP2L1	turquoise	ACC
ENSG00000114354	TFG	turquoise	ACC/NAC
ENSG00000172673	THEMIS	turquoise	--
ENSG00000187720	THSD4	turquoise	ACC
ENSG00000066654	THUMPD1	turquoise	ACC/NAC
ENSG00000134077	THUMPD3	turquoise	ACC
ENSG00000151500	THYN1	turquoise	ACC/NAC
ENSG00000066056	TIE1	turquoise	NAC
ENSG00000140993	TIGD7	turquoise	--
ENSG00000111602	TIMELESS	turquoise	ACC
ENSG00000134375	TIMM17A	turquoise	ACC/NAC
ENSG00000265354	TIMM23	turquoise	ACC/NAC
ENSG00000102265	TIMP1	turquoise	--
ENSG00000142910	TINAGL1	turquoise	ACC
ENSG00000143155	TIPRL	turquoise	ACC/NAC
ENSG00000065717	TLE2	turquoise	ACC
ENSG00000198586	TLK1	turquoise	ACC
ENSG00000038295	TLL1	turquoise	--
ENSG00000169908	TM4SF1	turquoise	ACC
ENSG00000163762	TM4SF18	turquoise	--
ENSG00000125304	TM9SF2	turquoise	ACC/NAC
ENSG00000077147	TM9SF3	turquoise	ACC/NAC
ENSG00000167895	TMC8	turquoise	--
ENSG00000271270	TMCC1-AS1	turquoise	--
ENSG00000086598	TMED2	turquoise	ACC/NAC
ENSG00000134291	TMEM106C	turquoise	--
ENSG00000167619	TMEM145	turquoise	--
ENSG00000096092	TMEM14A	turquoise	ACC/NAC

ENSG00000164112	TMEM155	turquoise	--
ENSG00000121895	TMEM156	turquoise	ACC
ENSG00000174695	TMEM167A	turquoise	NAC
ENSG00000215717	TMEM167B	turquoise	ACC/NAC
ENSG00000184584	TMEM173	turquoise	ACC
ENSG00000164168	TMEM184C	turquoise	--
ENSG00000168701	TMEM208	turquoise	ACC
ENSG00000160055	TMEM234	turquoise	--
ENSG00000137038	TMEM261	turquoise	ACC/NAC
ENSG00000151135	TMEM263	turquoise	ACC/NAC
ENSG00000121775	TMEM39B	turquoise	--
ENSG00000166471	TMEM41B	turquoise	--
ENSG00000145014	TMEM44	turquoise	ACC
ENSG00000171729	TMEM51	turquoise	--
ENSG00000204178	TMEM57	turquoise	ACC
ENSG00000135211	TMEM60	turquoise	--
ENSG00000180694	TMEM64	turquoise	--
ENSG00000164841	TMEM74	turquoise	ACC
ENSG00000177042	TMEM80	turquoise	--
ENSG00000175348	TMEM9B	turquoise	--
ENSG00000166479	TMX3	turquoise	ACC
ENSG00000183578	TNFAIP8L3	turquoise	--
ENSG00000157873	TNFRSF14	turquoise	--
ENSG00000067182	TNFRSF1A	turquoise	ACC
ENSG00000107854	TNKS2	turquoise	ACC/NAC
ENSG00000196683	TOMM7	turquoise	ACC/NAC
ENSG00000154174	TOMM70A	turquoise	ACC
ENSG00000163781	TOPBP1	turquoise	ACC/NAC
ENSG00000198846	TOX	turquoise	ACC
ENSG00000111669	TPI1	turquoise	ACC/NAC
ENSG00000188001	TPRG1	turquoise	--
ENSG00000214108	TPT1P5	turquoise	--
ENSG00000171853	TRAPPC12	turquoise	ACC/NAC
ENSG00000182400	TRAPPC6B	turquoise	ACC
ENSG00000153339	TRAPPC8	turquoise	ACC/NAC
ENSG00000256379	TRAV8-5	turquoise	--
ENSG00000109654	TRIM2	turquoise	--
ENSG00000113595	TRIM23	turquoise	ACC/NAC
ENSG00000152503	TRIM36	turquoise	ACC
ENSG00000108395	TRIM37	turquoise	ACC
ENSG00000112343	TRIM38	turquoise	--
ENSG00000153827	TRIP12	turquoise	ACC
ENSG00000205133	TRIQK	turquoise	NAC
ENSG00000121486	TRMT1L	turquoise	NAC
ENSG00000089195	TRMT6	turquoise	ACC/NAC

ENSG00000072756	TRNT1	turquoise	ACC/NAC
ENSG00000278156	TSC22D1-AS1	turquoise	--
ENSG00000182173	TSEN54	turquoise	ACC
ENSG00000211460	TSN	turquoise	ACC/NAC
ENSG00000140391	TSPAN3	turquoise	ACC/NAC
ENSG00000214063	TSPAN4	turquoise	--
ENSG00000011105	TSPAN9	turquoise	--
ENSG00000158526	TSR2	turquoise	ACC/NAC
ENSG00000113312	TTC1	turquoise	ACC/NAC
ENSG00000143643	TTC13	turquoise	--
ENSG00000115282	TTC31	turquoise	ACC
ENSG00000215912	TTC34	turquoise	NAC
ENSG00000075234	TTC38	turquoise	--
ENSG00000215105	TTC3P1	turquoise	--
ENSG00000137941	TTLL7	turquoise	--
ENSG00000118271	TTR	turquoise	--
ENSG00000275835	TUBGCP5	turquoise	--
ENSG00000105849	TWISTNB	turquoise	ACC/NAC
ENSG00000136810	TXN	turquoise	ACC/NAC
ENSG00000091164	TXNL1	turquoise	ACC
ENSG00000198431	TXNRD1	turquoise	NAC
ENSG00000162623	TYW3	turquoise	NAC
ENSG00000117143	UAP1	turquoise	ACC/NAC
ENSG00000150991	UBC	turquoise	--
ENSG00000119048	UBE2B	turquoise	ACC
ENSG00000131508	UBE2D2	turquoise	ACC/NAC
ENSG00000261199	UBE2FP2	turquoise	ACC
ENSG00000132388	UBE2G1	turquoise	--
ENSG00000077152	UBE2T	turquoise	--
ENSG00000169139	UBE2V2	turquoise	ACC
ENSG00000114062	UBE3A	turquoise	ACC/NAC
ENSG00000118420	UBE3D	turquoise	--
ENSG00000120942	UBIAD1	turquoise	--
ENSG00000122042	UBL3	turquoise	ACC/NAC
ENSG00000198258	UBL5	turquoise	ACC/NAC
ENSG00000164332	UBLCP1	turquoise	ACC/NAC
ENSG00000144357	UBR3	turquoise	ACC/NAC
ENSG00000168246	UBTD2	turquoise	--
ENSG00000104691	UBXN8	turquoise	ACC/NAC
ENSG00000116750	UCHL5	turquoise	ACC/NAC
ENSG00000120686	UFM1	turquoise	ACC
ENSG00000178081	ULK4P3	turquoise	--
ENSG00000115446	UNC50	turquoise	--
ENSG00000184076	UQCR10	turquoise	ACC/NAC
ENSG00000140740	UQCRC2	turquoise	ACC/NAC

ENSG00000169021	UQCRFS1	turquoise	ACC/NAC
ENSG00000173660	UQCRH	turquoise	ACC/NAC
ENSG00000164405	UQCRQ	turquoise	ACC
ENSG00000105176	URI1	turquoise	--
ENSG00000226501	USF1P1	turquoise	--
ENSG00000101557	USP14	turquoise	ACC/NAC
ENSG00000077254	USP33	turquoise	ACC/NAC
ENSG00000135913	USP37	turquoise	--
ENSG00000170242	USP47	turquoise	ACC
ENSG00000183520	UTP11L	turquoise	ACC
ENSG00000011260	UTP18	turquoise	ACC/NAC
ENSG00000132467	UTP3	turquoise	--
ENSG00000117533	VAMP4	turquoise	ACC/NAC
ENSG00000168899	VAMP5	turquoise	--
ENSG00000124333	VAMP7	turquoise	ACC
ENSG00000101558	VAPA	turquoise	ACC/NAC
ENSG00000125753	VASP	turquoise	--
ENSG00000155959	VBP1	turquoise	ACC/NAC
ENSG00000165637	VDAC2	turquoise	ACC/NAC
ENSG00000078668	VDAC3	turquoise	ACC/NAC
ENSG00000151650	VENTX	turquoise	--
ENSG00000048707	VPS13D	turquoise	ACC
ENSG00000136100	VPS36	turquoise	--
ENSG00000006715	VPS41	turquoise	ACC/NAC
ENSG00000119541	VPS4B	turquoise	ACC
ENSG00000214376	VSTM5	turquoise	--
ENSG00000009844	VT A1	turquoise	ACC/NAC
ENSG00000167992	VWCE	turquoise	--
ENSG00000254635	WAC-AS1	turquoise	ACC
ENSG00000106299	WASL	turquoise	ACC
ENSG00000084463	WBP11	turquoise	ACC
ENSG00000163625	WDFY3	turquoise	--
ENSG00000198554	WDHD1	turquoise	--
ENSG00000150627	WDR17	turquoise	--
ENSG00000134987	WDR36	turquoise	ACC
ENSG00000164253	WDR41	turquoise	ACC/NAC
ENSG00000163811	WDR43	turquoise	ACC
ENSG00000085433	WDR47	turquoise	ACC
ENSG00000114742	WDR48	turquoise	ACC/NAC
ENSG00000120314	WDR55	turquoise	ACC
ENSG00000105875	WDR91	turquoise	--
ENSG00000156795	WDYHV1	turquoise	--
ENSG00000147548	WHSC1L1	turquoise	--
ENSG00000196632	WNK3	turquoise	--
ENSG00000114251	WNT5A	turquoise	ACC

ENSG00000182093	WRB	turquoise	ACC/NAC
ENSG00000146457	WTAP	turquoise	NAC
ENSG00000123124	WWP1	turquoise	ACC
ENSG00000154767	XPC	turquoise	ACC
ENSG0000015153	YAF2	turquoise	NAC
ENSG00000145817	YIPF5	turquoise	ACC/NAC
ENSG00000136758	YME1L1	turquoise	ACC/NAC
ENSG00000119801	YPEL5	turquoise	ACC/NAC
ENSG00000134308	YWHAQ	turquoise	ACC
ENSG00000232040	ZBED9	turquoise	--
ENSG00000066422	ZBTB11	turquoise	ACC/NAC
ENSG00000065548	ZC3H15	turquoise	ACC/NAC
ENSG00000100403	ZC3H7B	turquoise	--
ENSG00000126970	ZC4H2	turquoise	NAC
ENSG00000121766	ZCCHC17	turquoise	ACC/NAC
ENSG00000204186	ZDBF2	turquoise	ACC
ENSG00000186908	ZDHHC17	turquoise	ACC/NAC
ENSG00000133519	ZDHHC8P1	turquoise	--
ENSG00000128016	ZFP36	turquoise	--
ENSG00000157077	ZFYVE9	turquoise	ACC
ENSG00000084073	ZMPSTE24	turquoise	ACC
ENSG0000015171	ZMYND11	turquoise	NAC
ENSG00000164631	ZNF12	turquoise	--
ENSG00000175395	ZNF25	turquoise	--
ENSG00000257267	ZNF271P	turquoise	--
ENSG00000158805	ZNF276	turquoise	--
ENSG00000130844	ZNF331	turquoise	ACC
ENSG00000160094	ZNF362	turquoise	ACC/NAC
ENSG00000161642	ZNF385A	turquoise	--
ENSG00000197050	ZNF420	turquoise	ACC/NAC
ENSG00000125945	ZNF436	turquoise	ACC/NAC
ENSG00000198298	ZNF485	turquoise	--
ENSG00000186020	ZNF529	turquoise	NAC
ENSG00000240225	ZNF542P	turquoise	ACC
ENSG00000172000	ZNF556	turquoise	--
ENSG00000196437	ZNF569	turquoise	ACC/NAC
ENSG00000197619	ZNF615	turquoise	--
ENSG00000121864	ZNF639	turquoise	ACC/NAC
ENSG00000198416	ZNF658B	turquoise	--
ENSG00000166770	ZNF667-AS1	turquoise	--
ENSG00000170100	ZNF778	turquoise	ACC
ENSG00000185869	ZNF829	turquoise	--
ENSG00000198783	ZNF830	turquoise	--
ENSG00000273611	ZNHIT3	turquoise	ACC/NAC
ENSG00000121988	ZRANB3	turquoise	--

ENSG00000130449	ZSWIM6	turquoise	--
ENSG00000214941	ZSWIM7	turquoise	--
ENSG00000153975	ZUFSP	turquoise	--
ENSG00000070476	ZXDC	turquoise	--
ENSG00000159840	ZYX	turquoise	ACC
ENSG00000036549	ZZZ3	turquoise	--
Ensembl_gene (TOC)	gene_name	Módulo	HUB
ENSG00000166535	A2ML1	purple	--
ENSG00000250420	AACSP1	purple	--
ENSG00000131043	AAR2	purple	--
ENSG00000146109	ABT1	purple	--
ENSG00000229492	AC004019.10	purple	--
ENSG00000196656	AC004057.1	purple	--
ENSG00000222482	AC005071.1	purple	ACC
ENSG00000268565	AC005339.2	purple	ACC
ENSG00000224903	AC005534.8	purple	--
ENSG00000269296	AC005614.3	purple	--
ENSG00000261342	AC006538.1	purple	--
ENSG00000249930	AC007016.3	purple	--
ENSG00000237638	AC007386.2	purple	--
ENSG00000235934	AC007405.8	purple	--
ENSG00000223754	AC008073.9	purple	--
ENSG00000271824	AC009014.3	purple	--
ENSG00000276989	AC009060.1	purple	--
ENSG00000224967	AC009303.3	purple	--
ENSG00000214369	AC009967.3	purple	--
ENSG00000274044	AC011718.2	purple	--
ENSG00000231189	AC013448.1	purple	--
ENSG00000224911	AC015936.3	purple	--
ENSG00000221179	AC016670.1	purple	--
ENSG00000268913	AC026806.2	purple	--
ENSG00000228446	AC073052.1	purple	--
ENSG00000228335	AC073063.10	purple	--
ENSG00000228540	AC073326.3	purple	--
ENSG00000259605	AC074212.5	purple	--
ENSG00000267395	AC074212.6	purple	ACC
ENSG00000275369	AC091978.1	purple	--
ENSG00000225386	AC099754.1	purple	--
ENSG00000232555	AC104088.1	purple	--
ENSG00000241525	AC108004.3	purple	NAC
ENSG00000215023	AC114730.5	purple	ACC
ENSG00000268218	AC137932.4	purple	--
ENSG00000253490	AC145110.1	purple	--
ENSG00000115361	ACADL	purple	--

ENSG00000102977	ACD	purple	--
ENSG00000130377	ACSBG2	purple	--
ENSG00000167107	ACSF2	purple	--
ENSG00000111058	ACSS3	purple	--
ENSG00000233125	ACTBP12	purple	--
ENSG00000215388	ACTG1P3	purple	--
ENSG00000115073	ACTR1B	purple	--
ENSG00000139985	ADAM21	purple	--
ENSG00000170425	ADORA2B	purple	--
ENSG00000280240	AL049794.1	purple	--
ENSG00000212101	AL080276.1	purple	--
ENSG00000214160	ALG3	purple	--
ENSG00000254450	ALG9-IT1	purple	--
ENSG00000110497	AMBRA1	purple	--
ENSG00000101280	ANGPT4	purple	--
ENSG00000153930	ANKFN1	purple	--
ENSG00000148513	ANKRD30A	purple	--
ENSG00000227757	AP000282.2	purple	--
ENSG00000224790	AP000704.5	purple	--
ENSG00000234268	AP000936.1	purple	--
ENSG00000228137	AP001469.7	purple	--
ENSG00000114790	ARHGEF26	purple	--
ENSG00000162980	ARL5A	purple	ACC
ENSG00000196372	ASB13	purple	--
ENSG00000110881	ASIC1	purple	--
ENSG00000123395	ATG101	purple	--
ENSG00000197548	ATG7	purple	--
ENSG00000187527	ATP13A5	purple	--
ENSG00000166377	ATP9B	purple	--
ENSG00000119986	AVPI1	purple	--
ENSG00000184809	B3GALT5-AS1	purple	ACC
ENSG00000186318	BACE1	purple	NAC
ENSG00000119866	BCL11A	purple	ACC
ENSG00000140379	BCL2A1	purple	--
ENSG00000231345	BEND3P1	purple	--
ENSG00000116985	BMP8B	purple	--
ENSG00000184100	BRD7P2	purple	--
ENSG00000213189	BTF3L4P2	purple	--
ENSG00000165810	BTNL9	purple	--
ENSG00000203808	BVES-AS1	purple	--
ENSG00000125319	C17orf53	purple	--
ENSG00000143633	C1orf131	purple	--
ENSG00000187889	C1orf168	purple	--
ENSG00000118292	C1orf54	purple	--
ENSG00000125462	C1orf61	purple	--

ENSG00000177994	C2orf73	purple	--
ENSG00000215217	C5orf49	purple	--
ENSG00000204661	C5orf60	purple	ACC/NAC
ENSG00000156172	C8orf37	purple	--
ENSG00000158966	CACHD1	purple	--
ENSG00000105767	CADM4	purple	NAC
ENSG00000148660	CAMK2G	purple	--
ENSG00000110888	CAPRIN2	purple	NAC
ENSG00000274276	CBS	purple	--
ENSG00000141570	CBX8	purple	NAC
ENSG00000048342	CC2D2A	purple	--
ENSG00000149548	CCDC15	purple	--
ENSG00000203799	CCDC162P	purple	--
ENSG00000163394	CCKAR	purple	--
ENSG00000277632	CCL3	purple	ACC
ENSG00000276085	CCL3L3	purple	ACC
ENSG00000205089	CCNI2	purple	--
ENSG00000217733	CCT7P1	purple	--
ENSG00000158473	CD1D	purple	--
ENSG00000007312	CD79B	purple	--
ENSG00000079335	CDC14A	purple	--
ENSG00000153879	CEBPG	purple	--
ENSG00000188931	CFAP126	purple	--
ENSG00000275585	CH17-118O6.3	purple	--
ENSG00000016391	CHDH	purple	--
ENSG00000109684	CLNK	purple	--
ENSG00000272958	CMP21-97G8.2	purple	ACC/NAC
ENSG00000158158	CNNM4	purple	ACC
ENSG00000108797	CNTNAP1	purple	--
ENSG00000215018	COL28A1	purple	--
ENSG00000112280	COL9A1	purple	--
ENSG00000158270	COLEC12	purple	--
ENSG00000254697	COPS8P3	purple	ACC
ENSG00000103647	CORO2B	purple	--
ENSG00000095713	CRTAC1	purple	--
ENSG00000121552	CSTA	purple	ACC
ENSG00000169551	CT55	purple	--
ENSG00000279927	CTA-212A2.4	purple	--
ENSG00000270812	CTA-326K9.1	purple	--
ENSG00000234884	CTA-407F11.8	purple	ACC/NAC
ENSG00000267114	CTB-129P6.11	purple	ACC
ENSG00000232174	CTB-164L20.1	purple	--
ENSG00000267383	CTC-260E6.6	purple	--
ENSG00000251031	CTC-367F4.1	purple	NAC
ENSG00000267871	CTC-444N24.6	purple	--

ENSG00000248268	CTC-499J9.1	purple	--
ENSG00000249876	CTC-563A5.4	purple	--
ENSG00000255489	CTC-830E23.1	purple	--
ENSG00000258847	CTD-2014B16.3	purple	--
ENSG00000248925	CTD-2083E4.6	purple	ACC
ENSG00000251189	CTD-2196P11.2	purple	ACC/NAC
ENSG00000249807	CTD-2199O4.1	purple	--
ENSG00000232633	CTD-2201G3.1	purple	--
ENSG00000185641	CTD-2287O16.1	purple	--
ENSG00000253532	CTD-2340D6.1	purple	--
ENSG00000265334	CTD-2349P21.11	purple	--
ENSG00000279400	CTD-2353F22.2	purple	--
ENSG00000270177	CTD-2410N18.3	purple	--
ENSG00000267096	CTD-2537I9.13	purple	--
ENSG00000261604	CTD-2636A23.2	purple	--
ENSG00000267115	CTD-3064H18.2	purple	--
ENSG00000215302	CTD-3092A11.1	purple	--
ENSG00000280121	CTD-3137H5.4	purple	--
ENSG00000150281	CTF1	purple	--
ENSG00000136943	CTSV	purple	--
ENSG00000095485	CWF19L1	purple	--
ENSG00000163735	CXCL5	purple	--
ENSG00000100197	CYP2D6	purple	--
ENSG00000230635	CYP4F60P	purple	--
ENSG00000186160	CYP4Z1	purple	--
ENSG00000173402	DAG1	purple	NAC
ENSG00000204209	DAXX	purple	ACC/NAC
ENSG00000185610	DBX2	purple	--
ENSG00000145358	DDIT4L	purple	--
ENSG00000168350	DEGS2	purple	--
ENSG00000116133	DHCR24	purple	--
ENSG00000151240	DIP2C	purple	ACC
ENSG00000187726	DNAJB13	purple	--
ENSG00000123992	DNPEP	purple	--
ENSG00000167130	DOLPP1	purple	NAC
ENSG00000142197	DOPEY2	purple	NAC
ENSG00000227855	DPY19L2P3	purple	NAC
ENSG00000188542	DUSP28	purple	--
ENSG00000204348	DXO	purple	--
ENSG00000170788	DYDC1	purple	ACC/NAC
ENSG00000184349	EFNA5	purple	--
ENSG00000122877	EGR2	purple	--
ENSG00000229704	EIF2S2P2	purple	ACC
ENSG00000155849	ELMO1	purple	--
ENSG00000170522	ELOVL6	purple	ACC

ENSG00000229847	EMX2OS	purple	--
ENSG00000082805	ERC1	purple	--
ENSG00000163161	ERCC3	purple	--
ENSG00000171503	ETFDH	purple	--
ENSG00000173040	EVC2	purple	--
ENSG00000164002	EXO5	purple	--
ENSG00000180104	EXOC3	purple	--
ENSG00000234964	FABP5P7	purple	--
ENSG00000172782	FADS6	purple	--
ENSG00000103876	FAH	purple	--
ENSG00000180185	FAHD1	purple	--
ENSG00000235272	FAM103A2P	purple	ACC
ENSG00000133193	FAM104A	purple	--
ENSG00000159784	FAM131B	purple	ACC
ENSG00000148468	FAM171A1	purple	--
ENSG00000140067	FAM181A	purple	NAC
ENSG00000258584	FAM181A-AS1	purple	--
ENSG00000197852	FAM212B	purple	--
ENSG00000196227	FAM217B	purple	--
ENSG00000139438	FAM222A	purple	--
ENSG00000184949	FAM227A	purple	--
ENSG00000153347	FAM81B	purple	--
ENSG00000253540	FAM86HP	purple	NAC
ENSG00000203780	FANK1	purple	--
ENSG00000145982	FARS2	purple	--
ENSG00000138829	FBN2	purple	--
ENSG00000198855	FICD	purple	NAC
ENSG00000276399	FLJ36000	purple	ACC/NAC
ENSG00000122025	FLT3	purple	--
ENSG00000164694	FNDC1	purple	--
ENSG00000176692	FOXC2	purple	--
ENSG00000164946	FREM1	purple	--
ENSG00000196968	FUT11	purple	--
ENSG00000166573	GALR1	purple	--
ENSG00000168546	GFRA2	purple	--
ENSG00000236187	GJA6P	purple	--
ENSG00000121742	GJB6	purple	--
ENSG00000176402	GJC3	purple	--
ENSG00000087338	GMCL1	purple	--
ENSG00000162419	GMEB1	purple	--
ENSG00000130119	GNL3L	purple	ACC
ENSG00000184206	GOLGA6L4	purple	--
ENSG00000175265	GOLGA8A	purple	--
ENSG00000179399	GPC5	purple	ACC/NAC
ENSG00000236240	GPC5-IT1	purple	NAC

ENSG00000151025	GPR158	purple	--
ENSG00000171657	GPR82	purple	--
ENSG00000164199	GPR98	purple	ACC
ENSG00000166123	GPT2	purple	--
ENSG00000178075	GRAMD1C	purple	ACC
ENSG00000271159	GS1-200K5.1	purple	--
ENSG00000167914	GSDMA	purple	ACC
ENSG00000174428	GTF2IRD2B	purple	--
ENSG00000227262	HCG4B	purple	NAC
ENSG00000122557	HERPUD2	purple	ACC
ENSG00000144485	HES6	purple	--
ENSG00000198130	HIBCH	purple	--
ENSG00000131097	HIGD1B	purple	--
ENSG00000185130	HIST1H2BL	purple	ACC
ENSG00000277157	HIST1H4D	purple	--
ENSG00000274618	HIST1H4F	purple	--
ENSG00000276180	HIST1H4I	purple	--
ENSG00000249503	HMGNI1P16	purple	--
ENSG00000118418	HMGNI3	purple	--
ENSG00000241388	HNF1A-AS1	purple	--
ENSG00000228653	HNRNPCP7	purple	--
ENSG00000171476	HOPX	purple	--
ENSG00000168453	HR	purple	--
ENSG00000044574	HSPA5	purple	--
ENSG00000225900	HSPE1P13	purple	ACC
ENSG00000168830	HTR1E	purple	--
ENSG00000116237	ICMT	purple	--
ENSG00000172201	ID4	purple	ACC
ENSG00000138413	IDH1	purple	ACC/NAC
ENSG00000096872	IFT74	purple	--
ENSG00000115457	IGFBP2	purple	--
ENSG00000183067	IGSF5	purple	NAC
ENSG00000144730	IL17RD	purple	--
ENSG00000115008	IL1A	purple	NAC
ENSG00000243468	INGX	purple	--
ENSG00000248099	INSL3	purple	ACC
ENSG00000226507	IPMKP1	purple	ACC
ENSG00000077943	ITGA8	purple	--
ENSG00000179577	KB-1552D7.2	purple	--
ENSG00000253923	KB-1980E6.2	purple	--
ENSG00000274225	KB-68A7.1	purple	--
ENSG00000104848	KCNA7	purple	--
ENSG00000153822	KCNJ16	purple	NAC
ENSG00000080709	KCNN2	purple	--
ENSG00000105438	KDELR1	purple	--

ENSG00000232586	KIAA1614-AS1	purple	--
ENSG00000104970	KIR3DX1	purple	--
ENSG00000137171	KLC4	purple	--
ENSG00000237892	KLF7-IT1	purple	--
ENSG00000213601	KRT18P19	purple	--
ENSG00000171345	KRT19	purple	--
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ENSG00000270207	RP11-157E16.1	purple	ACC
ENSG00000217767	RP11-160A9.2	purple	ACC
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ENSG00000279774	RP11-278H7.5	purple	--
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ENSG00000236673	RP11-69I8.2	purple	--
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ENSG00000161664	ASB16	royalblue	--
ENSG00000145692	BHMT	royalblue	NAC
ENSG00000276462	BX255923.3	royalblue	--
ENSG00000107815	C10orf2	royalblue	--
ENSG00000224877	C17orf89	royalblue	--
ENSG00000187624	C17orf97	royalblue	--
ENSG00000105072	C19orf44	royalblue	--
ENSG00000133466	C1QTNF6	royalblue	--
ENSG00000225556	C2CD4D	royalblue	ACC
ENSG00000114529	C3orf52	royalblue	--
ENSG00000205208	C4orf46	royalblue	NAC
ENSG00000105974	CAV1	royalblue	--
ENSG00000266405	CBX3P2	royalblue	--

ENSG00000166960	CCDC178	royalblue	--
ENSG00000256164	CCND2-AS1	royalblue	NAC
ENSG00000004468	CD38	royalblue	--
ENSG00000153563	CD8A	royalblue	NAC
ENSG00000172116	CD8B	royalblue	--
ENSG00000254126	CD8BP	royalblue	--
ENSG00000093009	CDC45	royalblue	--
ENSG00000185267	CDNF	royalblue	--
ENSG00000172216	CEBPB	royalblue	--
ENSG00000138778	CENPE	royalblue	--
ENSG00000147869	CER1	royalblue	--
ENSG00000275426	CH17-262A2.1	royalblue	--
ENSG00000160161	CILP2	royalblue	--
ENSG00000187912	CLEC17A	royalblue	--
ENSG00000198515	CNGA1	royalblue	--
ENSG00000176563	CNTD1	royalblue	--
ENSG00000154529	CNTNAP3B	royalblue	NAC
ENSG00000144550	CPNE9	royalblue	--
ENSG00000227684	CROCCP4	royalblue	--
ENSG00000127377	CRYGN	royalblue	--
ENSG00000121904	CSMD2	royalblue	--
ENSG00000273287	CTA-268H5.14	royalblue	NAC
ENSG00000251405	CTB-109A12.1	royalblue	--
ENSG00000275024	CTB-1144G6.6	royalblue	--
ENSG00000204850	CTB-158D10.3	royalblue	--
ENSG00000266903	CTB-171A8.1	royalblue	--
ENSG00000250284	CTB-1I21.1	royalblue	--
ENSG00000279197	CTB-3M24.1	royalblue	--
ENSG00000250080	CTB-88F18.2	royalblue	--
ENSG00000175029	CTBP2	royalblue	NAC
ENSG00000279039	CTC-260E6.3	royalblue	--
ENSG00000267405	CTC-296K1.4	royalblue	--
ENSG00000249637	CTC-329D1.2	royalblue	--
ENSG00000260848	CTD-2009A10.1	royalblue	ACC
ENSG00000232615	CTD-2012J19.1	royalblue	--
ENSG00000273557	CTD-2024I7.18	royalblue	--
ENSG00000261602	CTD-2033A16.1	royalblue	NAC
ENSG00000249572	CTD-2203K17.1	royalblue	--
ENSG00000279198	CTD-2231E14.2	royalblue	--
ENSG00000247121	CTD-2260A17.2	royalblue	--
ENSG00000265254	CTD-2350C19.2	royalblue	--
ENSG00000250140	CTD-2517O10.5	royalblue	--
ENSG00000272323	CTD-2517O10.6	royalblue	--
ENSG00000268518	CTD-2545M3.8	royalblue	--
ENSG00000279439	CTD-2576N18.1	royalblue	--

ENSG00000279611	CTD-2619J13.5	royalblue	--
ENSG00000268970	CTD-3099C6.11	royalblue	--
ENSG00000276508	CTD-3194G12.1	royalblue	--
ENSG00000214429	CYCSP6	royalblue	NAC
ENSG00000231852	CYP21A2	royalblue	ACC
ENSG00000186204	CYP4F12	royalblue	--
ENSG00000237737	DCTN1-AS1	royalblue	NAC
ENSG00000073737	DHRS9	royalblue	--
ENSG00000039139	DNAH5	royalblue	--
ENSG00000118997	DNAH7	royalblue	--
ENSG00000168724	DNAJC21	royalblue	--
ENSG00000224165	DNAJC27-AS1	royalblue	--
ENSG00000233540	DNM3-IT1	royalblue	--
ENSG00000213235	EEF1A1P16	royalblue	ACC
ENSG00000122547	EEPD1	royalblue	--
ENSG00000236493	EIF2S2P3	royalblue	--
ENSG00000163577	EIF5A2	royalblue	--
ENSG00000233602	ERI3-IT1	royalblue	--
ENSG00000116285	ERRFI1	royalblue	--
ENSG00000242950	ERVW-1	royalblue	--
ENSG00000253831	ETV3L	royalblue	--
ENSG00000174371	EXO1	royalblue	--
ENSG00000229007	EXOSC3P1	royalblue	--
ENSG00000221968	FADS3	royalblue	--
ENSG00000212747	FAM127C	royalblue	--
ENSG00000183807	FAM162B	royalblue	--
ENSG00000214439	FAM185BP	royalblue	--
ENSG00000184599	FAM19A3	royalblue	--
ENSG00000235618	FAM21EP	royalblue	--
ENSG00000188820	FAM26F	royalblue	--
ENSG00000226112	FCF1P4	royalblue	--
ENSG00000085265	FCN1	royalblue	--
ENSG00000132185	FCRLA	royalblue	--
ENSG00000077782	FGFR1	royalblue	NAC
ENSG00000160867	FGFR4	royalblue	--
ENSG00000079150	FKBP7	royalblue	--
ENSG00000122642	FKBP9	royalblue	--
ENSG00000204666	FLJ26850	royalblue	--
ENSG00000175967	FLJ34503	royalblue	NAC
ENSG00000279943	FLJ38576	royalblue	--
ENSG00000070601	FRMPD1	royalblue	--
ENSG00000218980	FTH1P15	royalblue	--
ENSG00000219507	FTH1P8	royalblue	--
ENSG00000087086	FTL	royalblue	--
ENSG00000226491	FTOP1	royalblue	ACC

ENSG00000236474	GCNT1P1	royalblue	--
ENSG00000156466	GDF6	royalblue	--
ENSG00000204136	GGTA1P	royalblue	--
ENSG00000145888	GLRA1	royalblue	--
ENSG00000112624	GLTSCR1L	royalblue	--
ENSG00000265630	GLUD1P8	royalblue	--
ENSG00000134183	GNAT2	royalblue	--
ENSG00000183671	GPR1	royalblue	ACC
ENSG00000183840	GPR39	royalblue	--
ENSG00000134317	GRHL1	royalblue	--
ENSG00000158055	GRHL3	royalblue	ACC
ENSG00000075218	GTSE1	royalblue	--
ENSG00000123201	GUCY1B2	royalblue	--
ENSG00000101812	H2BFM	royalblue	--
ENSG00000248690	HAS2-AS1	royalblue	NAC
ENSG00000176998	HCG4	royalblue	--
ENSG00000054392	HHAT	royalblue	ACC
ENSG00000172273	HINFP	royalblue	--
ENSG00000273703	HIST1H2BM	royalblue	--
ENSG00000216753	HMGA1P7	royalblue	--
ENSG00000250862	HMGB1P29	royalblue	--
ENSG00000100281	HMGXB4	royalblue	--
ENSG00000235092	ID2-AS1	royalblue	--
ENSG00000174498	IGDCC3	royalblue	--
ENSG00000223799	IL10RB-AS1	royalblue	ACC
ENSG00000123496	IL13RA2	royalblue	--
ENSG00000139269	INHBE	royalblue	ACC
ENSG00000170561	IRX2	royalblue	--
ENSG00000217416	ISCA1P1	royalblue	--
ENSG00000227895	ISX-AS1	royalblue	--
ENSG00000163166	IWS1	royalblue	--
ENSG00000214401	KANSL1-AS1	royalblue	--
ENSG00000177301	KCNA2	royalblue	--
ENSG00000181819	KCTD9P2	royalblue	ACC
ENSG00000100196	KDEL3	royalblue	--
ENSG00000155980	KIF5A	royalblue	--
ENSG00000134962	KLB	royalblue	--
ENSG00000197705	KLHL14	royalblue	--
ENSG00000169035	KLK7	royalblue	--
ENSG00000260425	LA16c-316G12.2	royalblue	ACC
ENSG00000262362	LA16c-380H5.2	royalblue	--
ENSG00000274367	LA16c-380H5.6	royalblue	--
ENSG00000196569	LAMA2	royalblue	--
ENSG00000078081	LAMP3	royalblue	--
ENSG00000168806	LCMT2	royalblue	--

ENSG00000273706	LHX1	royalblue	--
ENSG00000128342	LIF	royalblue	--
ENSG00000183814	LIN9	royalblue	--
ENSG00000218510	LINC00339	royalblue	--
ENSG00000230156	LINC00443	royalblue	--
ENSG00000246662	LINC00535	royalblue	--
ENSG00000232229	LINC00865	royalblue	--
ENSG00000226067	LINC00869	royalblue	--
ENSG00000227630	LINC01132	royalblue	ACC/NAC
ENSG00000215808	LINC01139	royalblue	--
ENSG00000258867	LINC01146	royalblue	--
ENSG00000233806	LINC01237	royalblue	--
ENSG00000228139	LINC01402	royalblue	--
ENSG00000271601	LIX1L	royalblue	--
ENSG00000260439	LMF1-AS1	royalblue	--
ENSG00000232832	LMLN-AS1	royalblue	ACC
ENSG00000156564	LRFN2	royalblue	--
ENSG00000128606	LRRC17	royalblue	--
ENSG00000159708	LRRC36	royalblue	--
ENSG00000260014	LSM3P5	royalblue	--
ENSG00000139329	LUM	royalblue	--
ENSG00000173926	3-Mar	royalblue	NAC
ENSG00000112118	MCM3	royalblue	--
ENSG00000130772	MED18	royalblue	NAC
ENSG00000236542	MED28P7	royalblue	ACC
ENSG00000103313	MEFV	royalblue	--
ENSG00000157890	MEGF11	royalblue	--
ENSG00000167077	MEI1	royalblue	--
ENSG00000197889	MEIG1	royalblue	--
ENSG00000112818	MEP1A	royalblue	--
ENSG00000268154	Metazoa_SRP	royalblue	--
ENSG00000272469	Metazoa_SRP	royalblue	--
ENSG00000276757	Metazoa_SRP	royalblue	--
ENSG00000071073	MGAT4A	royalblue	--
ENSG00000260083	MIR4519	royalblue	--
ENSG00000005381	MPO	royalblue	--
ENSG00000258990	MPPE1P1	royalblue	ACC
ENSG00000153029	MR1	royalblue	--
ENSG00000254305	MRPL9P1	royalblue	--
ENSG00000102043	MTMR8	royalblue	--
ENSG00000227730	MTND6P5	royalblue	--
ENSG00000185697	MYBL1	royalblue	NAC
ENSG00000160808	MYL3	royalblue	--
ENSG00000227242	NBPF13P	royalblue	--
ENSG00000121152	NCAPH	royalblue	ACC/NAC

ENSG00000101158	NELFCD	royalblue	NAC
ENSG00000173848	NET1	royalblue	--
ENSG00000163121	NEURL3	royalblue	--
ENSG00000050344	NFE2L3	royalblue	--
ENSG00000134259	NGF	royalblue	--
ENSG00000119508	NR4A3	royalblue	--
ENSG00000178694	NSUN3	royalblue	--
ENSG00000116981	NT5C1A	royalblue	--
ENSG00000074527	NTN4	royalblue	--
ENSG00000106268	NUDT1	royalblue	--
ENSG00000143228	NUF2	royalblue	--
ENSG00000145247	OCIAD2	royalblue	--
ENSG00000106809	OGN	royalblue	--
ENSG00000127780	OR1E2	royalblue	--
ENSG00000072682	P4HA2	royalblue	--
ENSG00000142623	PADI1	royalblue	--
ENSG00000108187	PBLD	royalblue	--
ENSG00000150275	PCDH15	royalblue	--
ENSG00000126773	PCNXL4	royalblue	--
ENSG00000132915	PDE6A	royalblue	--
ENSG00000155660	PDIA4	royalblue	NAC
ENSG00000162366	PDZK1IP1	royalblue	--
ENSG00000140451	PIF1	royalblue	--
ENSG00000100078	PLA2G3	royalblue	ACC
ENSG00000196155	PLEKHG4	royalblue	NAC
ENSG00000237951	PPIL1P1	royalblue	--
ENSG00000150722	PPP1R1C	royalblue	--
ENSG00000187534	PRR13P5	royalblue	ACC
ENSG00000246334	PRR7-AS1	royalblue	--
ENSG00000150687	PRSS23	royalblue	--
ENSG00000171522	PTGER4	royalblue	--
ENSG00000122420	PTGFR	royalblue	--
ENSG00000139304	PTPRQ	royalblue	--
ENSG00000250254	PTTG2	royalblue	--
ENSG00000111247	RAD51AP1	royalblue	--
ENSG00000163914	RHO	royalblue	--
ENSG00000072422	RHOBTB1	royalblue	--
ENSG00000223128	RN7SKP140	royalblue	--
ENSG00000200783	RN7SKP180	royalblue	--
ENSG00000222445	RN7SKP56	royalblue	--
ENSG00000240322	RN7SL481P	royalblue	--
ENSG00000239607	RN7SL573P	royalblue	--
ENSG00000242256	RN7SL57P	royalblue	--
ENSG00000265559	RN7SL652P	royalblue	--
ENSG00000243770	RN7SL65P	royalblue	ACC

ENSG00000243370	RN7SL775P	royalblue	--
ENSG00000226958	RNA28S5	royalblue	--
ENSG00000267128	RNF157-AS1	royalblue	--
ENSG00000207175	RNU1-67P	royalblue	ACC
ENSG00000199568	RNU5A-1	royalblue	--
ENSG00000199347	RNU5E-1	royalblue	--
ENSG00000199217	RNU6-1123P	royalblue	--
ENSG00000238941	RNU6-953P	royalblue	ACC
ENSG00000114547	ROPN1B	royalblue	--
ENSG00000273254	RP1-100J12.1	royalblue	--
ENSG00000258172	RP11-1105G2.4	royalblue	--
ENSG00000189332	RP11-113D6.10	royalblue	--
ENSG00000260776	RP11-114H24.2	royalblue	--
ENSG00000279146	RP11-117L5.3	royalblue	--
ENSG00000258368	RP11-125N22.2	royalblue	ACC
ENSG00000248750	RP11-131K17.1	royalblue	--
ENSG00000273264	RP11-131L23.2	royalblue	--
ENSG00000279104	RP11-138B9.1	royalblue	--
ENSG00000253816	RP11-1415C14.3	royalblue	--
ENSG00000269728	RP11-145M9.4	royalblue	--
ENSG00000254491	RP11-145O15.2	royalblue	ACC
ENSG00000248208	RP11-153M7.1	royalblue	--
ENSG00000254054	RP11-156K13.3	royalblue	ACC
ENSG00000280117	RP11-158L12.6	royalblue	--
ENSG00000254862	RP11-159H22.2	royalblue	--
ENSG00000246225	RP11-17A1.3	royalblue	--
ENSG00000244157	RP11-190P13.1	royalblue	--
ENSG00000229587	RP11-197P3.5	royalblue	--
ENSG00000274695	RP11-21K12.3	royalblue	--
ENSG00000260059	RP11-231E19.1	royalblue	--
ENSG00000250753	RP11-241F15.10	royalblue	--
ENSG00000227805	RP11-248J23.5	royalblue	ACC
ENSG00000275485	RP11-261P13.6	royalblue	ACC
ENSG00000277831	RP11-269C23.5	royalblue	--
ENSG00000230131	RP11-282I1.1	royalblue	--
ENSG00000278860	RP11-28A22.2	royalblue	ACC
ENSG00000228519	RP11-298C3.2	royalblue	--
ENSG00000276957	RP11-29B2.6	royalblue	--
ENSG00000255652	RP11-313F23.4	royalblue	NAC
ENSG00000258888	RP11-326A13.1	royalblue	ACC/NAC
ENSG00000231856	RP11-327P2.5	royalblue	--
ENSG00000275350	RP11-329N22.2	royalblue	--
ENSG00000254590	RP11-334E6.2	royalblue	--
ENSG00000270171	RP11-338N10.1	royalblue	--
ENSG00000217334	RP11-33E24.3	royalblue	--

ENSG00000228392	RP11-343J18.1	royalblue	--
ENSG00000261219	RP11-344A16.2	royalblue	--
ENSG00000272583	RP11-344P13.6	royalblue	--
ENSG00000280166	RP11-354E23.3	royalblue	--
ENSG00000260633	RP11-375I20.6	royalblue	--
ENSG00000246820	RP11-379P15.1	royalblue	ACC
ENSG00000230063	RP11-384C4.6	royalblue	--
ENSG00000273576	RP11-390P24.1	royalblue	--
ENSG00000235358	RP11-399E6.1	royalblue	--
ENSG00000254051	RP11-403D15.1	royalblue	--
ENSG00000260604	RP1-140K8.5	royalblue	--
ENSG00000225761	RP11-417O11.5	royalblue	ACC
ENSG00000263220	RP11-420A6.2	royalblue	--
ENSG00000233184	RP11-421L21.3	royalblue	NAC
ENSG00000259771	RP11-429D19.1	royalblue	ACC
ENSG00000272597	RP11-446H18.6	royalblue	--
ENSG00000272384	RP11-44N11.2	royalblue	--
ENSG00000260385	RP11-450H6.3	royalblue	--
ENSG00000278959	RP11-455I9.1	royalblue	--
ENSG00000253894	RP11-45K10.2	royalblue	ACC
ENSG00000278784	RP11-468E2.11	royalblue	--
ENSG00000217512	RP11-477E3.2	royalblue	--
ENSG00000273372	RP11-479O17.10	royalblue	NAC
ENSG00000258926	RP11-47I22.1	royalblue	--
ENSG00000259081	RP11-488C13.6	royalblue	--
ENSG00000279249	RP11-491F9.3	royalblue	--
ENSG00000275898	RP11-497G19.7	royalblue	--
ENSG00000274624	RP11-49G2.3	royalblue	--
ENSG00000279837	RP11-504G3.2	royalblue	ACC
ENSG00000278627	RP11-506H21.5	royalblue	--
ENSG00000257322	RP11-511B23.2	royalblue	--
ENSG00000271227	RP1-152L7.8	royalblue	--
ENSG00000234981	RP11-534L20.4	royalblue	--
ENSG00000251141	RP11-53O19.1	royalblue	NAC
ENSG00000198358	RP11-544M22.1	royalblue	--
ENSG00000258731	RP11-547D23.1	royalblue	--
ENSG00000231652	RP11-553A21.3	royalblue	--
ENSG00000257025	RP11-553N19.1	royalblue	--
ENSG00000232310	RP11-557H15.4	royalblue	--
ENSG00000274835	RP11-566K19.11	royalblue	--
ENSG00000197099	RP11-573D15.8	royalblue	ACC
ENSG00000253553	RP11-586K2.1	royalblue	--
ENSG00000258859	RP11-594C13.1	royalblue	--
ENSG00000213272	RP11-613M5.1	royalblue	--
ENSG00000264164	RP11-640N20.6	royalblue	--

ENSG00000272979	RP11-647K16.1	royalblue	--
ENSG00000272386	RP11-666A8.12	royalblue	--
ENSG00000262228	RP11-676J12.4	royalblue	--
ENSG00000278950	RP11-67H24.3	royalblue	NAC
ENSG00000253715	RP11-706C16.8	royalblue	--
ENSG00000245552	RP11-712B9.2	royalblue	--
ENSG00000223438	RP1-171K16.5	royalblue	--
ENSG00000259434	RP11-720L8.1	royalblue	ACC/NAC
ENSG00000253259	RP11-737F9.2	royalblue	--
ENSG00000272625	RP11-737O24.5	royalblue	ACC
ENSG00000256940	RP11-783K16.5	royalblue	--
ENSG00000280296	RP11-78J21.6	royalblue	--
ENSG00000236466	RP11-795J1.1	royalblue	--
ENSG00000246982	RP1-179N16.6	royalblue	--
ENSG00000272862	RP11-814H16.2	royalblue	--
ENSG00000266578	RP11-838N2.5	royalblue	--
ENSG00000262966	RP11-85B7.2	royalblue	--
ENSG00000228372	RP11-85L21.4	royalblue	--
ENSG00000267199	RP11-861E21.2	royalblue	--
ENSG00000255468	RP11-867G23.8	royalblue	--
ENSG00000233178	RP11-88I18.2	royalblue	--
ENSG00000275232	RP11-897M7.4	royalblue	--
ENSG00000255115	RP11-91P24.3	royalblue	ACC
ENSG00000253547	RP11-959F10.5	royalblue	--
ENSG00000275457	RP1-198K11.5	royalblue	--
ENSG00000223542	RP1-283K11.3	royalblue	NAC
ENSG00000224506	RP1-293L8.2	royalblue	ACC
ENSG00000278954	RP13-415G19.2	royalblue	ACC
ENSG00000280407	RP13-516M14.8	royalblue	ACC
ENSG00000256576	RP13-977J11.2	royalblue	--
ENSG00000276960	RP1-81D8.5	royalblue	--
ENSG00000237903	RP3-404F18.5	royalblue	--
ENSG00000230648	RP3-406P24.3	royalblue	--
ENSG00000235189	RP4-537K23.4	royalblue	--
ENSG00000273204	RP4-549L20.3	royalblue	--
ENSG00000280213	RP4-591C20.10	royalblue	--
ENSG00000228412	RP4-625H18.2	royalblue	--
ENSG00000278446	RP4-668E10.3	royalblue	--
ENSG00000258545	RP4-755D9.1	royalblue	ACC
ENSG00000273998	RP4-777L9.2	royalblue	--
ENSG00000259818	RP5-1024G6.7	royalblue	--
ENSG00000241913	RP5-1073F15.1	royalblue	--
ENSG00000279960	RP5-1181K21.4	royalblue	--
ENSG00000236772	RP5-1184F4.5	royalblue	ACC
ENSG00000276952	RP5-965G21.6	royalblue	--

ENSG00000103932	RPAP1	royalblue	--
ENSG00000269637	RPL12P41	royalblue	--
ENSG00000258640	RPL21P5	royalblue	--
ENSG00000241829	RPL21P54	royalblue	--
ENSG00000214914	RPL23AP3	royalblue	--
ENSG00000224796	RPL32P1	royalblue	ACC
ENSG00000218689	RPL5P21	royalblue	ACC
ENSG00000233072	RPS15AP6	royalblue	--
ENSG00000227097	RPS28P7	royalblue	--
ENSG00000216471	RPSAP43	royalblue	--
ENSG00000196754	S100A2	royalblue	--
ENSG00000197956	S100A6	royalblue	--
ENSG00000125910	S1PR4	royalblue	--
ENSG00000165821	SALL2	royalblue	--
ENSG00000187634	SAMD11	royalblue	--
ENSG00000164764	SBSPON	royalblue	--
ENSG00000144285	SCN1A	royalblue	--
ENSG00000115884	SDC1	royalblue	--
ENSG00000224183	SDHDP6	royalblue	--
ENSG00000184860	SDR42E1	royalblue	ACC/NAC
ENSG00000232871	SEC1P	royalblue	--
ENSG00000253309	SERPINE3	royalblue	--
ENSG00000145391	SETD7	royalblue	--
ENSG00000104332	SFRP1	royalblue	--
ENSG00000145423	SFRP2	royalblue	--
ENSG00000213064	SFT2D2	royalblue	--
ENSG00000259863	SH3RF3-AS1	royalblue	--
ENSG00000155926	SLA	royalblue	--
ENSG00000117090	SLAMF1	royalblue	--
ENSG00000036565	SLC18A1	royalblue	NAC
ENSG00000125454	SLC25A19	royalblue	--
ENSG00000124786	SLC35B3	royalblue	--
ENSG00000113073	SLC4A9	royalblue	--
ENSG00000163817	SLC6A20	royalblue	--
ENSG00000198952	SMG5	royalblue	--
ENSG00000198732	SMOC1	royalblue	--
ENSG00000091482	SMPX	royalblue	--
ENSG00000207001	SNORD116-2	royalblue	NAC
ENSG00000275144	SNX18P5	royalblue	--
ENSG00000231390	SNX18P8	royalblue	--
ENSG00000238062	SPATA3-AS1	royalblue	--
ENSG00000196542	SPTSSB	royalblue	ACC
ENSG00000271386	SRGNP1	royalblue	--
ENSG00000113532	ST8SIA4	royalblue	--
ENSG00000277072	STAG3L2	royalblue	--

ENSG00000246859	STARD4-AS1	royalblue	--
ENSG00000113739	STC2	royalblue	NAC
ENSG00000115661	STK16	royalblue	--
ENSG00000101109	STK4	royalblue	--
ENSG00000224597	SVIL-AS1	royalblue	--
ENSG00000169895	SYAP1	royalblue	--
ENSG00000277758	SYT15	royalblue	--
ENSG00000145022	TCTA	royalblue	--
ENSG00000235043	TECRP1	royalblue	--
ENSG00000087510	TFAP2C	royalblue	--
ENSG00000042832	TG	royalblue	--
ENSG00000232480	TGFB2-AS1	royalblue	--
ENSG00000224324	THAP5P1	royalblue	--
ENSG00000113272	THG1L	royalblue	--
ENSG00000092330	TINF2	royalblue	--
ENSG00000196781	TLE1	royalblue	--
ENSG00000115297	TLX2	royalblue	--
ENSG00000146859	TMEM140	royalblue	NAC
ENSG00000006327	TNFRSF12A	royalblue	--
ENSG00000130598	TNNI2	royalblue	--
ENSG00000120471	TP53AIP1	royalblue	--
ENSG00000088325	TPX2	royalblue	NAC
ENSG00000137699	TRIM29	royalblue	--
ENSG00000145331	TRMT10A	royalblue	--
ENSG00000182048	TRPC2	royalblue	--
ENSG00000178093	TSSK6	royalblue	NAC
ENSG00000155158	TTC39B	royalblue	ACC
ENSG00000139865	TTC6	royalblue	--
ENSG00000167553	TUBA1C	royalblue	--
ENSG00000128791	TWSG1	royalblue	--
ENSG00000201809	U8	royalblue	--
ENSG00000223791	UBE2E1-AS1	royalblue	--
ENSG00000109103	UNC119	royalblue	--
ENSG00000118369	USP35	royalblue	--
ENSG00000231725	VN1R110P	royalblue	--
ENSG00000196131	VN1R2	royalblue	--
ENSG00000136709	WDR33	royalblue	--
ENSG00000173714	WFIKK2	royalblue	ACC
ENSG00000115596	WNT6	royalblue	ACC
ENSG00000274259	XXbac-BPG294E21.9	royalblue	--
ENSG00000251389	YTHDF1P1	royalblue	--
ENSG00000089775	ZBTB25	royalblue	--
ENSG00000237036	ZEB1-AS1	royalblue	--
ENSG00000198939	ZFP2	royalblue	--

ENSG00000136866	ZFP37	royalblue	--
ENSG00000251003	ZFPM2-AS1	royalblue	--
ENSG00000005889	ZFX	royalblue	--
ENSG00000189298	ZKSCAN3	royalblue	--
ENSG00000149054	ZNF215	royalblue	--
ENSG00000256683	ZNF350	royalblue	--
ENSG00000171970	ZNF57	royalblue	NAC
ENSG00000177842	ZNF620	royalblue	NAC
ENSG00000018607	ZNF806	royalblue	--
ENSG00000197779	ZNF81	royalblue	--
ENSG00000228623	ZNF883	royalblue	NAC

Anexo 8. Módulos de WGCNA selecionados para o circuito cognitivo ventral (OFC-PT) para controles e TOC. Na coluna HUB são os genes *hubs* encontrado em cada região (OFC ou PT). Grupo controle: Módulos mais preservados (GREY60, n=461 e GREENYELLOW, n=536), Módulo menos preservado (PINK, n=634). Grupo TOC: Módulo mais preservado (BROWN, n=1523), Módulos menos preservados (ROYALBLUE, n=469 e SADDLEBROWN, n=354).

Ensembl_gene (Controles)	gene_name	Módulo	HUB
ENSG00000160072	ATAD3B	grey60	--
ENSG00000242159	ABCF2P1	grey60	OFC
ENSG00000143994	ABHD1	grey60	OFC
ENSG00000146386	ABRACL	grey60	PT
ENSG00000269296	AC005614.3	grey60	--
ENSG00000276651	AC007950.2	grey60	OFC
ENSG00000225963	AC009950.2	grey60	OFC
ENSG00000222017	AC011997.1	grey60	OFC
ENSG00000179859	AC025335.1	grey60	OFC
ENSG00000236501	AC079305.11	grey60	OFC
ENSG00000230393	AC092667.2	grey60	OFC
ENSG00000236209	AC104135.2	grey60	OFC
ENSG00000184227	ACOT1	grey60	--
ENSG00000143727	ACP1	grey60	OFC/PT
ENSG00000167107	ACSF2	grey60	OFC
ENSG00000176715	ACSF3	grey60	--
ENSG00000075089	ACTR6	grey60	OFC
ENSG00000137845	ADAM10	grey60	OFC
ENSG00000197894	ADH5	grey60	OFC
ENSG00000084693	AGBL5	grey60	OFC
ENSG00000138678	AGPAT9	grey60	OFC
ENSG00000263535	AK4P1	grey60	OFC
ENSG00000166971	AKTIP	grey60	OFC
ENSG00000236532	AL035610.2	grey60	OFC
ENSG00000253981	ALG1L13P	grey60	OFC
ENSG00000088035	ALG6	grey60	--
ENSG00000224142	AMMECR1-IT1	grey60	OFC
ENSG00000172014	ANKRD20A4	grey60	OFC
ENSG00000237410	AP001092.4	grey60	OFC
ENSG00000185009	AP3M1	grey60	OFC
ENSG00000254470	AP5B1	grey60	OFC/PT
ENSG00000118137	APOA1	grey60	OFC
ENSG00000163382	APOA1BP	grey60	OFC
ENSG00000164144	ARFIP1	grey60	OFC
ENSG00000185305	ARL15	grey60	OFC
ENSG00000196503	ARL9	grey60	--

ENSG00000205784	ARRDC5	grey60	--
ENSG00000223922	ASS1P2	grey60	--
ENSG00000107669	ATE1	grey60	OFC
ENSG00000236999	ATP2B2-IT1	grey60	--
ENSG00000167863	ATP5H	grey60	OFC/PT
ENSG00000130770	ATPIF1	grey60	OFC/PT
ENSG00000184809	B3GALT5-AS1	grey60	OFC
ENSG00000163930	BAP1	grey60	OFC
ENSG00000116752	BCAS2	grey60	OFC/PT
ENSG00000114200	BCHE	grey60	OFC
ENSG00000183337	BCOR	grey60	--
ENSG00000023445	BIRC3	grey60	OFC
ENSG00000172331	BPGM	grey60	OFC
ENSG00000162813	BPNT1	grey60	OFC
ENSG00000181097	BREA2	grey60	OFC
ENSG00000254999	BRK1	grey60	OFC/PT
ENSG00000184887	BTBD6	grey60	OFC
ENSG00000169814	BTD	grey60	OFC
ENSG00000165810	BTNL9	grey60	OFC
ENSG00000174370	C11orf45	grey60	--
ENSG00000257057	C11orf97	grey60	OFC
ENSG00000156411	C14orf2	grey60	OFC/PT
ENSG00000231824	C18orf42	grey60	OFC
ENSG00000143612	C1orf43	grey60	OFC/PT
ENSG00000135974	C2orf49	grey60	OFC
ENSG00000150873	C2orf50	grey60	OFC
ENSG00000181744	C3orf58	grey60	OFC
ENSG00000056050	C4orf27	grey60	OFC/PT
ENSG00000149679	CABLES2	grey60	OFC
ENSG00000177855	CACYBPP2	grey60	OFC
ENSG00000178363	CALML3	grey60	OFC
ENSG00000256812	CAPNS2	grey60	OFC
ENSG00000238132	CASC4P1	grey60	OFC
ENSG00000118729	CASQ2	grey60	OFC
ENSG00000105879	CBLL1	grey60	OFC/PT
ENSG00000147996	CBWD5	grey60	--
ENSG00000159884	CCDC107	grey60	--
ENSG00000103021	CCDC113	grey60	--
ENSG00000181982	CCDC149	grey60	--
ENSG00000198937	CCDC167	grey60	OFC
ENSG00000159588	CCDC17	grey60	OFC
ENSG00000135083	CCNJL	grey60	OFC
ENSG00000134371	CDC73	grey60	OFC
ENSG00000148600	CDHR1	grey60	OFC
ENSG00000153046	CDYL	grey60	OFC

ENSG00000143702	CEP170	grey60	OFC
ENSG00000182504	CEP97	grey60	OFC
ENSG00000143942	CHAC2	grey60	OFC
ENSG00000277972	CISD3	grey60	--
ENSG00000105270	CLIP3	grey60	OFC
ENSG00000108821	COL1A1	grey60	OFC
ENSG00000164692	COL1A2	grey60	OFC
ENSG00000187498	COL4A1	grey60	OFC
ENSG00000158270	COLEC12	grey60	--
ENSG00000188243	COMMD6	grey60	OFC/PT
ENSG00000131143	COX4I1	grey60	OFC
ENSG00000164919	COX6C	grey60	OFC/PT
ENSG00000112695	COX7A2	grey60	OFC/PT
ENSG00000115944	COX7A2L	grey60	OFC/PT
ENSG00000131174	COX7B	grey60	OFC/PT
ENSG00000128510	CPA4	grey60	--
ENSG00000113851	CRBN	grey60	OFC/PT
ENSG00000005469	CROT	grey60	OFC
ENSG00000233025	CRYZP1	grey60	OFC
ENSG00000198930	CSAG1	grey60	OFC
ENSG00000260655	CTA-250D10.23	grey60	OFC
ENSG00000250284	CTB-1I21.1	grey60	OFC
ENSG00000196810	CTBP1-AS2	grey60	--
ENSG00000266912	CTC-325H20.2	grey60	OFC
ENSG00000279108	CTC-490E21.11	grey60	OFC
ENSG00000251513	CTD-2215E18.1	grey60	OFC
ENSG00000258875	CTD-2547L24.3	grey60	OFC
ENSG00000255165	CTD-2609K8.3	grey60	OFC
ENSG00000279602	CTD-3014M21.1	grey60	--
ENSG00000103811	CTSH	grey60	--
ENSG00000018610	CXorf56	grey60	OFC
ENSG00000166347	CYB5A	grey60	--
ENSG00000120306	CYSTM1	grey60	OFC
ENSG00000226950	DANCR	grey60	OFC
ENSG00000164465	DCBLD1	grey60	OFC
ENSG00000272886	DCP1A	grey60	OFC
ENSG00000274588	DGKK	grey60	OFC
ENSG00000157379	DHRS1	grey60	--
ENSG00000187630	DHRS4L2	grey60	OFC
ENSG00000134815	DHX34	grey60	OFC
ENSG00000279232	DKFZP434P228	grey60	OFC
ENSG00000250091	DNAH10OS	grey60	OFC
ENSG00000136770	DNAJC1	grey60	OFC
ENSG00000232542	DPYD-IT1	grey60	OFC
ENSG00000136982	DSCC1	grey60	OFC

ENSG00000165169	DYNLT3	grey60	PT
ENSG00000164330	EBF1	grey60	OFC
ENSG00000134109	EDEM1	grey60	OFC
ENSG00000184349	EFNA5	grey60	OFC
ENSG00000102890	ELMO3	grey60	--
ENSG00000109911	ELP4	grey60	--
ENSG00000134153	EMC7	grey60	OFC/PT
ENSG00000229847	EMX2OS	grey60	OFC
ENSG00000112796	ENPP5	grey60	OFC
ENSG00000167302	ENTHD2	grey60	OFC
ENSG00000100632	ERH	grey60	PT
ENSG00000197930	ERO1L	grey60	OFC
ENSG00000171320	ESCO2	grey60	--
ENSG00000112319	EYA4	grey60	--
ENSG00000092820	EZR	grey60	OFC
ENSG00000213714	FAM209B	grey60	OFC
ENSG00000124098	FAM210B	grey60	--
ENSG00000187741	FANCA	grey60	OFC
ENSG00000078098	FAP	grey60	OFC
ENSG00000275620	FLJ16779	grey60	--
ENSG00000186564	FOXD2	grey60	OFC
ENSG00000149531	FRG1B	grey60	OFC
ENSG00000226564	FTH1P20	grey60	OFC
ENSG00000122687	FTSJ2	grey60	OFC
ENSG00000069509	FUNDC1	grey60	OFC/PT
ENSG00000165775	FUNDC2	grey60	OFC/PT
ENSG00000034713	GABARAPL2	grey60	OFC/PT
ENSG00000265962	GACAT2	grey60	OFC
ENSG00000159131	GART	grey60	OFC
ENSG00000143614	GATAD2B	grey60	OFC
ENSG00000227725	GCOM2	grey60	OFC
ENSG00000125965	GDF5	grey60	OFC
ENSG00000135821	GLUL	grey60	OFC
ENSG00000087258	GNAO1	grey60	OFC
ENSG00000155265	GOLGA7B	grey60	--
ENSG00000277399	GPR179	grey60	OFC
ENSG00000198932	GPRASP1	grey60	OFC
ENSG00000232036	GS1-115G20.2	grey60	OFC
ENSG00000148834	GSTO1	grey60	OFC/PT
ENSG00000153767	GTF2E1	grey60	--
ENSG00000122034	GTF3A	grey60	OFC
ENSG00000119041	GTF3C3	grey60	PT
ENSG00000101812	H2BFM	grey60	--
ENSG00000131351	HAUS8	grey60	OFC
ENSG00000143575	HAX1	grey60	OFC/PT

ENSG00000196917	HCAR1	grey60	--
ENSG00000228789	HCG22	grey60	OFC
ENSG00000230267	HERC2P4	grey60	OFC
ENSG00000188662	HILS1	grey60	--
ENSG00000273542	HIST1H4K	grey60	OFC
ENSG00000108924	HLF	grey60	OFC
ENSG00000259196	HMBX1-IT1	grey60	OFC
ENSG00000100099	HPS4	grey60	--
ENSG00000171004	HS6ST2	grey60	OFC
ENSG00000173641	HSPB7	grey60	OFC
ENSG00000067704	IARS2	grey60	PT
ENSG00000167862	ICT1	grey60	PT
ENSG00000118096	IFT46	grey60	OFC
ENSG00000254017	IGHEP2	grey60	OFC
ENSG00000111653	ING4	grey60	OFC
ENSG00000198825	INPP5F	grey60	OFC
ENSG00000101230	ISM1	grey60	OFC
ENSG00000182264	IZUMO1	grey60	OFC
ENSG00000272767	JMJD1C-AS1	grey60	OFC
ENSG00000083168	KAT6A	grey60	OFC
ENSG00000272973	KB-1125A3.11	grey60	OFC
ENSG00000176407	KCMF1	grey60	OFC
ENSG00000111262	KCNA1	grey60	OFC
ENSG00000182132	KCNIP1	grey60	OFC
ENSG00000153885	KCTD15	grey60	OFC
ENSG00000176542	KIAA2018	grey60	OFC
ENSG00000125337	KIF25	grey60	--
ENSG00000229921	KIF25-AS1	grey60	OFC
ENSG00000118058	KMT2A	grey60	OFC
ENSG00000171435	KSR2	grey60	OFC
ENSG00000274367	LA16c-380H5.6	grey60	OFC
ENSG00000135862	LAMC1	grey60	OFC
ENSG00000134248	LAMTOR5	grey60	OFC
ENSG00000205629	LCMT1	grey60	OFC
ENSG00000183814	LIN9	grey60	OFC/PT
ENSG00000225127	LINC00237	grey60	--
ENSG00000175611	LINC00476	grey60	OFC
ENSG00000227036	LINC00511	grey60	OFC
ENSG00000260388	LINC00562	grey60	OFC
ENSG00000260910	LINC00565	grey60	OFC
ENSG00000226567	LINC00606	grey60	OFC
ENSG00000263753	LINC00667	grey60	OFC
ENSG00000229404	LINC00858	grey60	OFC
ENSG00000177133	LINC00982	grey60	OFC
ENSG00000204588	LINC01123	grey60	OFC

ENSG00000229563	LINC01204	grey60	OFC
ENSG00000242512	LINC01206	grey60	OFC
ENSG00000163380	LMOD3	grey60	OFC
ENSG00000110031	LPXN	grey60	OFC
ENSG00000134569	LRP4	grey60	OFC
ENSG00000186648	LRRC16B	grey60	OFC
ENSG00000162441	LZIC	grey60	OFC
ENSG00000137764	MAP2K5	grey60	OFC
ENSG00000234608	MAPKAPK5-AS1	grey60	OFC/PT
ENSG00000038274	MAT2B	grey60	OFC/PT
ENSG00000178460	MCMDC2	grey60	OFC
ENSG00000112559	MDFI	grey60	OFC
ENSG00000082212	ME2	grey60	OFC/PT
ENSG00000124733	MEA1	grey60	OFC/PT
ENSG00000234636	MED14OS	grey60	OFC
ENSG00000276988	Metazoa_SRP	grey60	OFC
ENSG00000214756	METTL12	grey60	OFC
ENSG00000171806	METTL18	grey60	OFC
ENSG00000127720	METTL25	grey60	OFC
ENSG00000141741	MIEN1	grey60	--
ENSG00000151611	MMAA	grey60	OFC
ENSG00000146263	MMS22L	grey60	--
ENSG00000060762	MPC1	grey60	OFC/PT
ENSG00000011028	MRC2	grey60	OFC
ENSG00000178988	MRFAP1L1	grey60	OFC
ENSG00000169288	MRPL1	grey60	OFC/PT
ENSG00000163319	MRPS18C	grey60	OFC/PT
ENSG00000266472	MRPS21	grey60	OFC/PT
ENSG00000134056	MRPS36	grey60	OFC
ENSG00000198417	MT1F	grey60	OFC
ENSG00000125144	MT1G	grey60	--
ENSG00000188786	MTF1	grey60	OFC
ENSG00000135297	MTO1	grey60	OFC
ENSG00000145555	MYO10	grey60	OFC
ENSG00000177791	MYOZ1	grey60	OFC
ENSG00000196132	MYT1	grey60	OFC
ENSG00000173418	NAA20	grey60	OFC
ENSG00000233009	NALCN-AS1	grey60	OFC
ENSG00000219481	NBPF1	grey60	--
ENSG00000125356	NDUFA1	grey60	OFC/PT
ENSG00000189043	NDUFA4	grey60	OFC/PT
ENSG00000140990	NDUFB10	grey60	OFC
ENSG00000065518	NDUFB4	grey60	OFC/PT
ENSG00000147684	NDUFB9	grey60	OFC/PT
ENSG00000168653	NDUFS5	grey60	OFC/PT

ENSG00000196865	NHLRC2	grey60	OFC
ENSG00000197885	NKIRAS1	grey60	OFC/PT
ENSG00000197696	NMB	grey60	OFC
ENSG00000112992	NNT	grey60	OFC/PT
ENSG00000119720	NRDE2	grey60	OFC
ENSG00000178694	NSUN3	grey60	--
ENSG00000136159	NUDT15	grey60	OFC
ENSG00000164978	NUDT2	grey60	OFC/PT
ENSG00000185585	OLFML2A	grey60	OFC
ENSG00000123240	OPTN	grey60	OFC
ENSG00000132823	OSER1	grey60	OFC/PT
ENSG00000165312	OTUD1	grey60	OFC
ENSG00000186288	PABPC1L2A	grey60	OFC
ENSG00000226055	PAICSP1	grey60	OFC
ENSG00000007372	PAX6	grey60	--
ENSG00000131435	PDLIM4	grey60	--
ENSG00000163110	PDLIM5	grey60	OFC
ENSG00000120509	PDZD11	grey60	--
ENSG00000123349	PFDN5	grey60	OFC/PT
ENSG00000123836	PFKFB2	grey60	--
ENSG00000173889	PHC3	grey60	OFC
ENSG00000197563	PIGN	grey60	OFC
ENSG00000155846	PPARGC1B	grey60	OFC
ENSG00000185250	PPIL6	grey60	OFC/PT
ENSG00000104695	PPP2CB	grey60	OFC
ENSG00000092020	PPP2R3C	grey60	--
ENSG00000165672	PRDX3	grey60	OFC
ENSG00000012211	PRICKLE3	grey60	OFC
ENSG00000270127	PRKXP1	grey60	--
ENSG00000146733	PSPH	grey60	OFC
ENSG00000110958	PTGES3	grey60	PT
ENSG00000225706	PTPRD-AS1	grey60	OFC
ENSG00000163661	PTX3	grey60	OFC
ENSG00000216817	R3HDM2P2	grey60	OFC
ENSG00000113643	RARS	grey60	OFC/PT
ENSG00000266094	RASSF5	grey60	OFC
ENSG00000198774	RASSF9	grey60	OFC
ENSG00000231137	RBM22P5	grey60	OFC
ENSG00000184898	RBM43	grey60	--
ENSG00000134597	RBMX2	grey60	OFC
ENSG00000135870	RC3H1	grey60	OFC
ENSG00000140519	RHCG	grey60	--
ENSG00000106615	RHEB	grey60	OFC/PT
ENSG00000080345	RIF1	grey60	--
ENSG00000243051	RN7SL269P	grey60	OFC

ENSG00000180537	RNF182	grey60	OFC
ENSG00000152193	RNF219	grey60	OFC/PT
ENSG00000204308	RNF5	grey60	OFC
ENSG00000201136	RNU6-353P	grey60	OFC
ENSG00000206585	RNVU1-7	grey60	--
ENSG00000236914	RP11-1008C21.2	grey60	OFC
ENSG00000278518	RP11-108K14.12	grey60	OFC
ENSG00000280367	RP11-121L10.2	grey60	--
ENSG00000257243	RP11-133N21.7	grey60	OFC/PT
ENSG00000259086	RP11-134E15.2	grey60	OFC
ENSG00000279104	RP11-138B9.1	grey60	--
ENSG00000265100	RP11-147L13.2	grey60	OFC
ENSG00000280422	RP11-155D18.13	grey60	OFC
ENSG00000258410	RP11-173D3.1	grey60	OFC
ENSG00000272489	RP11-182L21.5	grey60	OFC
ENSG00000269937	RP11-20I23.8	grey60	OFC
ENSG00000280180	RP11-244B22.10	grey60	--
ENSG00000264734	RP11-260A9.6	grey60	OFC
ENSG00000277863	RP11-282A11.4	grey60	--
ENSG00000229953	RP11-284F21.7	grey60	OFC
ENSG00000275580	RP11-295H24.4	grey60	OFC
ENSG00000270953	RP11-2E11.9	grey60	OFC
ENSG00000232093	RP11-307C12.11	grey60	OFC
ENSG00000276963	RP11-318K12.1	grey60	OFC
ENSG00000261186	RP11-341N2.1	grey60	OFC
ENSG00000275374	RP11-346J10.2	grey60	--
ENSG00000259736	RP11-387D10.2	grey60	OFC
ENSG00000272686	RP11-390E23.6	grey60	OFC
ENSG00000256849	RP11-405A12.1	grey60	--
ENSG00000215246	RP11-43F13.3	grey60	OFC
ENSG00000249937	RP11-454P21.1	grey60	OFC
ENSG00000269883	RP11-463C8.7	grey60	OFC
ENSG00000265337	RP11-466A19.5	grey60	OFC
ENSG00000276900	RP11-467L13.7	grey60	--
ENSG00000251188	RP11-478C6.6	grey60	OFC
ENSG00000259941	RP11-48G14.2	grey60	OFC
ENSG00000258181	RP11-493L12.4	grey60	OFC
ENSG00000241547	RP11-4K3__A.5	grey60	OFC
ENSG00000250418	RP11-503D12.1	grey60	OFC
ENSG00000248729	RP11-531A21.3	grey60	OFC
ENSG00000271755	RP1-153G14.4	grey60	OFC
ENSG00000249710	RP11-588P8.1	grey60	OFC
ENSG00000250130	RP11-616K22.1	grey60	OFC
ENSG00000261541	RP11-626K17.3	grey60	OFC
ENSG00000280022	RP11-707O23.1	grey60	--

ENSG00000261797	RP11-744I24.3	grey60	--
ENSG00000251615	RP11-774O3.3	grey60	OFC
ENSG00000273056	RP11-77E14.2	grey60	OFC
ENSG00000270175	RP11-793H13.11	grey60	--
ENSG00000279107	RP11-823P9.4	grey60	--
ENSG00000277952	RP11-90D4.4	grey60	--
ENSG00000229543	RP11-90J7.2	grey60	--
ENSG00000225793	RP1-234P15.4	grey60	--
ENSG00000250995	RP13-128O4.3	grey60	--
ENSG00000259943	RP1-39G22.7	grey60	OFC/PT
ENSG00000261212	RP3-507I15.2	grey60	--
ENSG00000271192	RP4-555D20.3	grey60	OFC
ENSG00000235088	RP4-620E11.4	grey60	OFC
ENSG00000237301	RP4-680D5.2	grey60	OFC
ENSG00000239636	RP4-728D4.2	grey60	OFC
ENSG00000272420	RP4-740C4.7	grey60	OFC
ENSG00000180284	RP5-1055C14.6	grey60	OFC
ENSG00000203589	RP5-886K2.1	grey60	OFC
ENSG00000117133	RPF1	grey60	OFC/PT
ENSG00000197958	RPL12	grey60	OFC
ENSG00000280437	RPL23AP53	grey60	OFC
ENSG00000114391	RPL24	grey60	OFC/PT
ENSG00000071082	RPL31	grey60	OFC/PT
ENSG00000182899	RPL35A	grey60	OFC/PT
ENSG00000171858	RPS21	grey60	--
ENSG00000171863	RPS7	grey60	--
ENSG00000124541	RRP36	grey60	OFC
ENSG00000156253	RWDD2B	grey60	OFC/PT
ENSG00000123453	SARDH	grey60	OFC
ENSG00000239002	SCARNA10	grey60	OFC
ENSG00000252906	SCARNA3	grey60	OFC
ENSG00000252010	SCARNA5	grey60	OFC
ENSG00000251791	SCARNA6	grey60	OFC
ENSG00000183291	SELENOF	grey60	OFC
ENSG00000178980	SEPW1	grey60	OFC
ENSG00000185917	SETD4	grey60	OFC
ENSG00000224281	SLC25A5-AS1	grey60	OFC
ENSG00000173262	SLC2A14	grey60	OFC
ENSG00000111371	SLC38A1	grey60	OFC
ENSG00000197818	SLC9A8	grey60	OFC
ENSG00000121871	SLITRK3	grey60	OFC
ENSG00000183172	SMDT1	grey60	OFC
ENSG00000116698	SMG7	grey60	OFC
ENSG00000199311	SNORD115-34	grey60	OFC
ENSG00000239039	SNORD13	grey60	OFC

ENSG00000208772	SNORD94	grey60	OFC
ENSG00000161981	SNRNP25	grey60	OFC
ENSG00000125870	SNRPB2	grey60	OFC/PT
ENSG00000125743	SNRPD2	grey60	OFC/PT
ENSG00000065526	SPEN	grey60	--
ENSG00000133104	SPG20	grey60	OFC
ENSG00000204991	SPIRE2	grey60	OFC
ENSG00000115306	SPTBN1	grey60	OFC
ENSG00000151304	SRFBP1	grey60	--
ENSG00000243759	ST13P15	grey60	OFC
ENSG00000126091	ST3GAL3	grey60	--
ENSG00000113532	ST8SIA4	grey60	OFC
ENSG00000115145	STAM2	grey60	OFC
ENSG00000133121	STARD13	grey60	OFC
ENSG00000124214	STAU1	grey60	OFC
ENSG00000242866	STRC	grey60	OFC
ENSG00000275066	SYNRG	grey60	--
ENSG00000064313	TAF2	grey60	OFC
ENSG00000072274	TFRC	grey60	OFC
ENSG00000232480	TGFB2-AS1	grey60	OFC
ENSG00000163634	THOC7	grey60	OFC/PT
ENSG00000151500	THYN1	grey60	OFC/PT
ENSG00000075336	TIMM21	grey60	OFC
ENSG00000162604	TM2D1	grey60	--
ENSG00000100580	TMED8	grey60	OFC
ENSG00000168701	TMEM208	grey60	--
ENSG00000224982	TMEM233	grey60	OFC
ENSG00000142188	TMEM50B	grey60	--
ENSG00000204178	TMEM57	grey60	OFC
ENSG00000105048	TNNT1	grey60	OFC
ENSG00000100354	TNRC6B	grey60	OFC
ENSG00000100216	TOMM22	grey60	PT
ENSG00000078900	TP73	grey60	OFC
ENSG00000065308	TRAM2	grey60	OFC
ENSG00000069018	TRPC7	grey60	OFC
ENSG00000165699	TSC1	grey60	OFC
ENSG00000168234	TTC39C	grey60	OFC
ENSG00000272810	U91328.22	grey60	PT
ENSG00000144744	UBA3	grey60	OFC/PT
ENSG00000198833	UBE2J1	grey60	OFC
ENSG00000140367	UBE2Q2	grey60	OFC
ENSG00000275695	UBE2Q2P6	grey60	OFC
ENSG00000240520	UOX	grey60	OFC
ENSG00000173660	UQCRH	grey60	OFC/PT
ENSG00000256073	URB1-AS1	grey60	--

ENSG00000053501	USE1	grey60	OFC
ENSG00000155959	VBP1	grey60	OFC/PT
ENSG00000173511	VEGFB	grey60	OFC
ENSG00000145041	VPRBP	grey60	OFC
ENSG00000048707	VPS13D	grey60	OFC
ENSG00000143952	VPS54	grey60	OFC
ENSG00000108039	XPNPEP1	grey60	--
ENSG00000188177	ZC3H6	grey60	OFC
ENSG00000121766	ZCCHC17	grey60	OFC/PT
ENSG00000147905	ZCCHC7	grey60	OFC
ENSG00000086666	ZFAND6	grey60	OFC
ENSG00000187815	ZFP69	grey60	OFC
ENSG00000174306	ZHX3	grey60	--
ENSG00000234473	ZNF101P2	grey60	OFC
ENSG00000226051	ZNF503-AS1	grey60	OFC
ENSG00000101493	ZNF516	grey60	OFC
ENSG00000164684	ZNF704	grey60	OFC
ENSG00000231205	ZNF826P	grey60	OFC
ENSG00000226875	ZNF877P	grey60	OFC
ENSG00000106400	ZNHIT1	grey60	OFC
Ensembl_gene (Controles)	gene_name	Módulo	HUB
ENSG00000256069	A2MP1	greenyellow	OFC
ENSG00000128274	A4GALT	greenyellow	OFC
ENSG00000198691	ABCA4	greenyellow	OFC
ENSG00000135776	ABCB10	greenyellow	OFC
ENSG00000160179	ABCG1	greenyellow	OFC
ENSG00000270317	AC004004.2	greenyellow	OFC/PT
ENSG00000235478	AC006946.15	greenyellow	OFC
ENSG00000269688	AC008982.2	greenyellow	OFC
ENSG00000233287	AC009362.2	greenyellow	OFC
ENSG00000240401	AC012358.8	greenyellow	OFC
ENSG00000278239	AC020956.3	greenyellow	OFC
ENSG00000254028	AC083843.2	greenyellow	OFC
ENSG00000222311	AC084882.1	greenyellow	OFC
ENSG00000213358	AC092933.4	greenyellow	OFC
ENSG00000221720	AC096951.1	greenyellow	OFC
ENSG00000238470	AC097361.1	greenyellow	OFC
ENSG00000228496	AC106875.1	greenyellow	OFC
ENSG00000231536	AC123886.2	greenyellow	OFC
ENSG00000261888	AC144831.1	greenyellow	OFC
ENSG00000014257	ACPP	greenyellow	OFC
ENSG00000151726	ACSL1	greenyellow	OFC
ENSG00000087116	ADAMTS2	greenyellow	OFC
ENSG00000196616	ADH1B	greenyellow	OFC

ENSG00000006831	ADIPOR2	greenyellow	OFC
ENSG00000251002	AE000661.37	greenyellow	OFC
ENSG00000254533	AF186192.1	greenyellow	--
ENSG00000204472	AIF1	greenyellow	OFC/PT
ENSG00000165695	AK8	greenyellow	OFC
ENSG00000132965	ALOX5AP	greenyellow	OFC/PT
ENSG00000165566	AMER2	greenyellow	OFC
ENSG00000091879	ANGPT2	greenyellow	OFC
ENSG00000230453	ANKRD18B	greenyellow	OFC
ENSG00000184441	AP001062.7	greenyellow	OFC
ENSG00000221963	APOL6	greenyellow	OFC
ENSG00000132694	ARHGEF11	greenyellow	OFC
ENSG00000118690	ARMC2	greenyellow	OFC
ENSG00000157399	ARSE	greenyellow	OFC
ENSG00000070669	ASNS	greenyellow	--
ENSG00000130707	ASS1	greenyellow	OFC
ENSG00000176208	ATAD5	greenyellow	--
ENSG00000175224	ATG13	greenyellow	OFC
ENSG00000068650	ATP11A	greenyellow	OFC
ENSG00000074370	ATP2A3	greenyellow	OFC
ENSG00000237172	B3GNT9	greenyellow	--
ENSG00000112208	BAG2	greenyellow	OFC
ENSG00000114439	BBX	greenyellow	OFC
ENSG00000140379	BCL2A1	greenyellow	OFC
ENSG00000153094	BCL2L11	greenyellow	OFC
ENSG00000099968	BCL2L13	greenyellow	OFC
ENSG00000105829	BET1	greenyellow	OFC
ENSG00000102010	BMX	greenyellow	OFC
ENSG00000162819	BROX	greenyellow	OFC
ENSG00000138152	BTBD16	greenyellow	--
ENSG00000215924	BX284613.1	greenyellow	OFC
ENSG00000159761	C16orf86	greenyellow	OFC
ENSG00000178927	C17orf62	greenyellow	OFC
ENSG00000141219	C17orf80	greenyellow	OFC
ENSG00000162642	C1orf52	greenyellow	OFC
ENSG00000125462	C1orf61	greenyellow	OFC
ENSG00000173918	C1QTNF1	greenyellow	OFC
ENSG00000133466	C1QTNF6	greenyellow	OFC
ENSG00000173557	C2orf70	greenyellow	OFC
ENSG00000125730	C3	greenyellow	OFC
ENSG00000137434	C6orf52	greenyellow	OFC
ENSG00000180539	C9orf139	greenyellow	OFC
ENSG00000147894	C9orf72	greenyellow	OFC
ENSG00000081248	CACNA1S	greenyellow	OFC
ENSG00000004660	CAMKK1	greenyellow	OFC

ENSG00000180881	CAPS2	greenyellow	OFC
ENSG00000137752	CASP1	greenyellow	OFC
ENSG00000100147	CCDC134	greenyellow	--
ENSG00000165972	CCDC38	greenyellow	OFC
ENSG00000152076	CCDC74B	greenyellow	OFC
ENSG00000163823	CCR1	greenyellow	OFC
ENSG00000160791	CCR5	greenyellow	--
ENSG00000217733	CCT7P1	greenyellow	OFC
ENSG00000170458	CD14	greenyellow	OFC
ENSG00000167851	CD300A	greenyellow	OFC/PT
ENSG00000167850	CD300C	greenyellow	--
ENSG00000010610	CD4	greenyellow	OFC
ENSG00000117091	CD48	greenyellow	--
ENSG00000019582	CD74	greenyellow	OFC
ENSG00000114013	CD86	greenyellow	OFC/PT
ENSG00000125810	CD93	greenyellow	OFC
ENSG00000168438	CDC40	greenyellow	OFC
ENSG00000149798	CDC42EP2	greenyellow	OFC
ENSG00000147883	CDKN2B	greenyellow	--
ENSG00000111860	CEP85L	greenyellow	OFC
ENSG00000198848	CES1	greenyellow	OFC
ENSG00000243710	CFAP57	greenyellow	OFC
ENSG00000275131	CH17-472G23.4	greenyellow	OFC
ENSG00000054938	CHRD12	greenyellow	OFC
ENSG00000114737	CISH	greenyellow	OFC
ENSG00000163539	CLASP2	greenyellow	--
ENSG00000137975	CLCA2	greenyellow	OFC
ENSG00000162994	CLHC1	greenyellow	OFC
ENSG00000102805	CLN5	greenyellow	OFC
ENSG00000166855	CLPX	greenyellow	OFC
ENSG00000153551	CMTM7	greenyellow	OFC
ENSG00000100473	COCH	greenyellow	OFC
ENSG00000136152	COG3	greenyellow	OFC
ENSG00000133103	COG6	greenyellow	OFC
ENSG00000110871	COQ5	greenyellow	OFC
ENSG00000144550	CPNE9	greenyellow	OFC
ENSG00000134376	CRB1	greenyellow	OFC
ENSG00000100368	CSF2RB	greenyellow	OFC
ENSG00000119535	CSF3R	greenyellow	OFC/PT
ENSG00000164796	CSMD3	greenyellow	OFC
ENSG00000254598	CSNK2A3	greenyellow	OFC
ENSG00000077984	CST7	greenyellow	OFC
ENSG00000203280	CTA-221G9.12	greenyellow	OFC
ENSG00000269374	CTB-50E14.5	greenyellow	OFC
ENSG00000280161	CTC-205M6.1	greenyellow	OFC

ENSG00000249605	CTC-218H9.1	greenyellow	OFC
ENSG00000270133	CTC-303L1.2	greenyellow	OFC
ENSG00000253966	CTC-455F18.3	greenyellow	OFC
ENSG00000274515	CTD-2026K11.5	greenyellow	OFC
ENSG00000276107	CTD-2033D15.2	greenyellow	OFC
ENSG00000249825	CTD-2201I18.1	greenyellow	OFC
ENSG00000261821	CTD-2311M21.3	greenyellow	OFC
ENSG00000254826	CTD-2530H12.2	greenyellow	OFC
ENSG00000280159	CTD-2591A1.1	greenyellow	OFC
ENSG00000249026	CTNNAP1	greenyellow	OFC
ENSG00000164733	CTSB	greenyellow	OFC
ENSG00000085733	CTTN	greenyellow	OFC
ENSG00000161921	CXCL16	greenyellow	OFC
ENSG00000180871	CXCR2	greenyellow	OFC
ENSG00000167600	CYP2S1	greenyellow	OFC
ENSG00000021461	CYP3A43	greenyellow	OFC
ENSG00000267594	CYP4F24P	greenyellow	OFC
ENSG00000172817	CYP7B1	greenyellow	OFC
ENSG00000100055	CYTH4	greenyellow	--
ENSG00000070190	DAPP1	greenyellow	OFC
ENSG00000170959	DCDC1	greenyellow	OFC
ENSG00000245614	DDX11-AS1	greenyellow	--
ENSG00000065357	DGKA	greenyellow	OFC
ENSG00000197406	DIO3	greenyellow	OFC
ENSG00000066084	DIP2B	greenyellow	OFC
ENSG00000187908	DMBT1	greenyellow	OFC
ENSG00000083097	DOPEY1	greenyellow	OFC
ENSG00000105246	EBI3	greenyellow	OFC/PT
ENSG00000198759	EGFL6	greenyellow	OFC
ENSG00000236698	EIF1AXP1	greenyellow	OFC
ENSG00000128829	EIF2AK4	greenyellow	OFC
ENSG00000102034	ELF4	greenyellow	OFC
ENSG00000156030	ELMSAN1	greenyellow	--
ENSG00000214595	EML6	greenyellow	OFC
ENSG00000166979	EVA1C	greenyellow	OFC
ENSG00000183662	FAM19A1	greenyellow	OFC
ENSG00000171847	FAM90A1	greenyellow	OFC
ENSG00000188343	FAM92A1	greenyellow	OFC
ENSG00000142449	FBN3	greenyellow	OFC
ENSG00000156804	FBXO32	greenyellow	OFC
ENSG00000145868	FBXO38	greenyellow	OFC
ENSG00000174013	FBXO45	greenyellow	OFC
ENSG00000109670	FBXW7	greenyellow	OFC
ENSG00000158869	FCER1G	greenyellow	OFC
ENSG00000150337	FCGR1A	greenyellow	PT

ENSG00000203747	FCGR3A	greenyellow	OFC/PT
ENSG00000149781	FERMT3	greenyellow	OFC
ENSG00000180263	FGD6	greenyellow	OFC
ENSG00000135723	FHOD1	greenyellow	OFC
ENSG00000236337	FMR1-IT1	greenyellow	OFC
ENSG00000137942	FNBP1L	greenyellow	OFC
ENSG00000171049	FPR2	greenyellow	OFC
ENSG00000156869	FRRS1	greenyellow	OFC
ENSG00000001036	FUCA2	greenyellow	OFC
ENSG00000089327	FXVD5	greenyellow	OFC
ENSG00000163251	FZD5	greenyellow	OFC
ENSG00000274070	GATSL2	greenyellow	OFC
ENSG00000164404	GDF9	greenyellow	OFC
ENSG00000187513	GJA4	greenyellow	OFC
ENSG00000106571	GLI3	greenyellow	OFC
ENSG00000122694	GLIPR2	greenyellow	OFC
ENSG00000174332	GLIS1	greenyellow	--
ENSG00000205835	GMNC	greenyellow	--
ENSG00000168243	GNG4	greenyellow	OFC
ENSG00000175265	GOLGA8A	greenyellow	OFC
ENSG00000167588	GPD1	greenyellow	OFC
ENSG00000159618	GPR114	greenyellow	--
ENSG00000180929	GPR62	greenyellow	OFC
ENSG00000171189	GRIK1	greenyellow	OFC
ENSG00000196277	GRM7	greenyellow	OFC
ENSG00000230470	GS1-115G20.1	greenyellow	OFC
ENSG00000148180	GSN	greenyellow	OFC
ENSG00000056998	GYG2	greenyellow	OFC
ENSG00000136732	GYPC	greenyellow	OFC
ENSG00000132702	HAPLN2	greenyellow	OFC
ENSG00000101336	HCK	greenyellow	OFC/PT
ENSG00000180353	HCLS1	greenyellow	PT
ENSG00000126264	HCST	greenyellow	OFC
ENSG00000165259	HDX	greenyellow	OFC
ENSG00000163909	HEYL	greenyellow	OFC
ENSG00000162669	HFM1	greenyellow	OFC
ENSG00000274997	HIST1H2AH	greenyellow	OFC
ENSG00000204287	HLA-DRA	greenyellow	OFC
ENSG00000224494	HNRNPA3P14	greenyellow	OFC
ENSG00000099783	HNRNPM	greenyellow	OFC
ENSG00000105323	HNRNPUL1	greenyellow	OFC
ENSG00000172987	HPSE2	greenyellow	OFC
ENSG00000113905	HRG	greenyellow	OFC
ENSG00000118960	HS1BP3	greenyellow	OFC
ENSG00000090339	ICAM1	greenyellow	OFC

ENSG00000112144	ICK	greenyellow	OFC
ENSG00000070061	IKBKAP	greenyellow	OFC
ENSG00000177663	IL17RA	greenyellow	OFC
ENSG00000150782	IL18	greenyellow	OFC
ENSG00000115594	IL1R1	greenyellow	OFC
ENSG00000103522	IL21R	greenyellow	OFC
ENSG00000077238	IL4R	greenyellow	OFC
ENSG00000129351	ILF3	greenyellow	OFC
ENSG00000171105	INSR	greenyellow	--
ENSG00000105639	JAK3	greenyellow	OFC
ENSG00000008083	JARID2	greenyellow	OFC
ENSG00000065427	KARS	greenyellow	OFC
ENSG00000245330	KB-1471A8.1	greenyellow	OFC
ENSG00000162687	KCNT2	greenyellow	OFC
ENSG00000168301	KCTD6	greenyellow	OFC
ENSG00000089094	KDM2B	greenyellow	OFC
ENSG00000119138	KLF9	greenyellow	OFC
ENSG00000117009	KMO	greenyellow	OFC
ENSG00000103550	KNOP1	greenyellow	OFC
ENSG00000108424	KPNB1	greenyellow	PT
ENSG00000167613	LAIR1	greenyellow	OFC/PT
ENSG00000162511	LAPTM5	greenyellow	OFC/PT
ENSG00000086730	LAT2	greenyellow	OFC
ENSG00000136167	LCP1	greenyellow	OFC/PT
ENSG00000138795	LEF1	greenyellow	OFC
ENSG00000108231	LGI1	greenyellow	OFC
ENSG00000145685	LHFPL2	greenyellow	OFC
ENSG00000131914	LIN28A	greenyellow	OFC
ENSG00000235665	LINC00298	greenyellow	OFC
ENSG00000185186	LINC00313	greenyellow	OFC
ENSG00000224924	LINC00320	greenyellow	OFC
ENSG00000227136	LINC00595	greenyellow	OFC
ENSG00000230417	LINC00856	greenyellow	OFC
ENSG00000235049	LINC00940	greenyellow	OFC
ENSG00000249816	LINC00964	greenyellow	OFC
ENSG00000236700	LINC01010	greenyellow	OFC
ENSG00000231721	LINC-PINT	greenyellow	OFC
ENSG00000079435	LIPE	greenyellow	OFC
ENSG00000074695	LMAN1	greenyellow	OFC
ENSG00000175489	LRRC25	greenyellow	--
ENSG00000175928	LRRN1	greenyellow	OFC
ENSG00000176204	LRRTM4	greenyellow	OFC
ENSG00000112799	LY86	greenyellow	OFC/PT
ENSG00000090382	LYZ	greenyellow	OFC
ENSG00000279576	MALAT1;	greenyellow	OFC

ENSG00000144063	MALL	greenyellow	OFC
ENSG00000156928	MALSU1	greenyellow	OFC
ENSG00000186056	MATN1-AS1	greenyellow	OFC
ENSG00000112118	MCM3	greenyellow	OFC/PT
ENSG00000100297	MCM5	greenyellow	OFC
ENSG00000076003	MCM6	greenyellow	--
ENSG00000136146	MED4	greenyellow	OFC
ENSG00000106780	MEGF9	greenyellow	--
ENSG00000171109	MFN1	greenyellow	OFC
ENSG00000100060	MFNG	greenyellow	OFC
ENSG00000270714	MINOS1P2	greenyellow	OFC
ENSG00000207598	MIR124-3	greenyellow	OFC
ENSG00000207955	MIR219A2	greenyellow	OFC
ENSG00000257264	MIR3179-1	greenyellow	OFC
ENSG00000176840	MIR7-3HG	greenyellow	--
ENSG00000143674	MLK4	greenyellow	OFC
ENSG00000108960	MMD	greenyellow	OFC
ENSG00000136297	MMD2	greenyellow	OFC/PT
ENSG00000196549	MME	greenyellow	--
ENSG00000172081	MOB3A	greenyellow	OFC
ENSG00000005381	MPO	greenyellow	OFC
ENSG00000102854	MSLN	greenyellow	OFC
ENSG00000038945	MSR1	greenyellow	OFC
ENSG00000168502	MTCL1	greenyellow	OFC
ENSG00000163719	MTMR14	greenyellow	OFC
ENSG00000196814	MVB12B	greenyellow	OFC
ENSG00000118513	MYB	greenyellow	OFC
ENSG00000136997	MYC	greenyellow	OFC
ENSG00000078814	MYH7B	greenyellow	OFC
ENSG00000136286	MYO1G	greenyellow	OFC
ENSG00000116701	NCF2	greenyellow	PT
ENSG00000100365	NCF4	greenyellow	OFC
ENSG00000239213	NCK1-AS1	greenyellow	OFC
ENSG00000138653	NDST4	greenyellow	OFC
ENSG00000237406	NDUFA9P1	greenyellow	--
ENSG00000101247	NDUFAF5	greenyellow	OFC
ENSG00000067141	NEO1	greenyellow	OFC
ENSG00000151092	NGLY1	greenyellow	OFC
ENSG00000148826	NKX6-2	greenyellow	OFC
ENSG00000146909	NOM1	greenyellow	OFC
ENSG00000196436	NPIPB15	greenyellow	OFC
ENSG00000158458	NRG2	greenyellow	OFC
ENSG00000122643	NT5C3A	greenyellow	OFC
ENSG00000074527	NTN4	greenyellow	--
ENSG00000122584	NXPH1	greenyellow	OFC

ENSG00000184232	OAF	greenyellow	OFC
ENSG00000197822	OCN	greenyellow	OFC
ENSG00000181781	ODF3L2	greenyellow	OFC
ENSG00000181074	OR52N4	greenyellow	OFC
ENSG00000135506	OS9	greenyellow	OFC
ENSG00000170909	OSCAR	greenyellow	PT
ENSG00000165899	OTOGL	greenyellow	OFC
ENSG00000196844	PATE2	greenyellow	OFC
ENSG00000231806	PCAT7	greenyellow	--
ENSG00000163710	PCOLCE2	greenyellow	OFC
ENSG00000102230	PCYT1B	greenyellow	OFC
ENSG00000136940	PDCL	greenyellow	OFC
ENSG00000224255	PDCL3P6	greenyellow	OFC
ENSG00000184588	PDE4B	greenyellow	OFC
ENSG00000139053	PDE6H	greenyellow	OFC
ENSG00000265881	PDLIM1P2	greenyellow	OFC
ENSG00000121440	PDZRN3	greenyellow	OFC
ENSG00000261371	PECAM1	greenyellow	OFC
ENSG00000112137	PHACTR1	greenyellow	OFC
ENSG00000129292	PHF20L1	greenyellow	OFC
ENSG00000183506	PI4KAP2	greenyellow	OFC
ENSG00000155629	PIK3AP1	greenyellow	OFC/PT
ENSG00000100100	PIK3IP1	greenyellow	OFC
ENSG00000137193	PIM1	greenyellow	OFC
ENSG00000145287	PLAC8	greenyellow	OFC
ENSG00000173261	PLAC8L1	greenyellow	OFC
ENSG00000166428	PLD4	greenyellow	OFC
ENSG00000090924	PLEKHG2	greenyellow	OFC
ENSG00000102007	PLP2	greenyellow	OFC
ENSG00000130300	PLVAP	greenyellow	--
ENSG00000078319	PMS2P1	greenyellow	OFC
ENSG00000014138	POLA2	greenyellow	OFC
ENSG00000228169	PPIAP19	greenyellow	OFC
ENSG00000145725	PIIP5K2	greenyellow	OFC
ENSG00000164088	PPM1M	greenyellow	OFC
ENSG00000188191	PRKAR1B	greenyellow	OFC
ENSG00000138669	PRKG2	greenyellow	OFC
ENSG00000111218	PRMT8	greenyellow	--
ENSG00000163421	PROK2	greenyellow	OFC
ENSG00000184500	PROS1	greenyellow	OFC/PT
ENSG00000185246	PRPF39	greenyellow	OFC
ENSG00000164099	PRSS12	greenyellow	OFC
ENSG00000080815	PSEN1	greenyellow	OFC
ENSG00000180822	PSMG4	greenyellow	OFC
ENSG00000152229	PSTPIP2	greenyellow	OFC

ENSG00000111679	PTPN6	greenyellow	OFC
ENSG00000143851	PTPN7	greenyellow	OFC
ENSG00000080031	PTPRH	greenyellow	OFC
ENSG00000226683	PWWP2AP1	greenyellow	OFC
ENSG00000167994	RAB3IL1	greenyellow	OFC
ENSG00000128340	RAC2	greenyellow	OFC
ENSG00000188559	RALGAPA2	greenyellow	OFC
ENSG00000173039	RELA	greenyellow	OFC
ENSG00000135945	REV1	greenyellow	OFC
ENSG00000143344	RGL1	greenyellow	OFC/PT
ENSG00000111785	RIC8B	greenyellow	OFC
ENSG00000117000	RLF	greenyellow	OFC
ENSG00000244692	RN7SL724P	greenyellow	OFC
ENSG00000243370	RN7SL775P	greenyellow	OFC
ENSG00000252179	RNA5SP255	greenyellow	OFC
ENSG00000201469	RNA5SP379	greenyellow	OFC
ENSG00000115963	RND3	greenyellow	OFC
ENSG00000201348	RNU105B	greenyellow	OFC
ENSG00000206932	RNU6-4P	greenyellow	OFC
ENSG00000259868	RP11-1012E15.2	greenyellow	OFC
ENSG00000258536	RP11-1053O12.1	greenyellow	OFC
ENSG00000204620	RP11-1148L6.9	greenyellow	OFC
ENSG00000249562	RP11-116O11.2	greenyellow	OFC
ENSG00000250378	RP11-119J18.1	greenyellow	OFC
ENSG00000225472	RP11-120J1.1	greenyellow	OFC
ENSG00000179978	RP11-1319K7.1	greenyellow	OFC
ENSG00000279148	RP11-135F9.4	greenyellow	--
ENSG00000232462	RP11-13E1.5	greenyellow	--
ENSG00000260126	RP11-14N9.2	greenyellow	OFC
ENSG00000225513	RP11-165N19.2	greenyellow	OFC
ENSG00000230058	RP11-172E9.2	greenyellow	OFC
ENSG00000259774	RP11-182J1.13	greenyellow	OFC
ENSG00000279839	RP11-193J6.1	greenyellow	OFC
ENSG00000225213	RP11-197M22.2	greenyellow	OFC
ENSG00000273771	RP11-236L14.2	greenyellow	OFC
ENSG00000260743	RP11-255C15.3	greenyellow	OFC
ENSG00000262700	RP11-266L9.3	greenyellow	OFC
ENSG00000280123	RP11-267M23.1	greenyellow	OFC
ENSG00000253704	RP11-267M23.4	greenyellow	--
ENSG00000259445	RP11-276M12.1	greenyellow	OFC
ENSG00000214654	RP11-271I.4	greenyellow	OFC
ENSG00000257839	RP11-290L1.2	greenyellow	--
ENSG00000258215	RP11-299A16.1	greenyellow	OFC
ENSG00000276957	RP11-29B2.6	greenyellow	OFC
ENSG00000261728	RP11-307O13.1	greenyellow	OFC

ENSG00000272995	RP11-362J17.1	greenyellow	OFC
ENSG00000246394	RP11-386I8.6	greenyellow	OFC
ENSG00000272419	RP11-403I13.8	greenyellow	OFC
ENSG00000273399	RP11-408A13.3	greenyellow	OFC
ENSG00000233216	RP11-414C16.1	greenyellow	OFC
ENSG00000278733	RP11-425D17.1	greenyellow	OFC
ENSG00000275149	RP11-427J23.1	greenyellow	--
ENSG00000242618	RP11-433A10.2	greenyellow	OFC
ENSG00000249894	RP11-434D9.2	greenyellow	OFC
ENSG00000231252	RP11-436K8.1	greenyellow	OFC
ENSG00000261804	RP11-44F14.2	greenyellow	OFC
ENSG00000231440	RP11-467I20.6	greenyellow	OFC
ENSG00000230555	RP11-517P14.2	greenyellow	OFC
ENSG00000277566	RP11-545P7.9	greenyellow	--
ENSG00000279145	RP11-547D13.1	greenyellow	OFC
ENSG00000270118	RP11-57A19.5	greenyellow	OFC
ENSG00000261072	RP11-5N19.3	greenyellow	OFC
ENSG00000272788	RP11-674N23.4	greenyellow	OFC
ENSG00000267811	RP11-727F15.11	greenyellow	OFC
ENSG00000265043	RP11-728E14.3	greenyellow	OFC
ENSG00000253849	RP11-759A9.1	greenyellow	OFC
ENSG00000248713	RP11-766F14.2	greenyellow	OFC
ENSG00000263551	RP11-78F17.1	greenyellow	OFC
ENSG00000272275	RP11-791G15.2	greenyellow	OFC
ENSG00000278991	RP11-797A18.5	greenyellow	OFC
ENSG00000255929	RP11-867G2.8	greenyellow	OFC
ENSG00000254510	RP11-867G23.10	greenyellow	OFC
ENSG00000245025	RP11-875O11.1	greenyellow	--
ENSG00000262222	RP11-876N24.4	greenyellow	OFC
ENSG00000253142	RP11-87E22.1	greenyellow	OFC
ENSG00000274922	RP11-88E10.5	greenyellow	OFC
ENSG00000266413	RP11-88L24.4	greenyellow	OFC
ENSG00000261795	RP11-90P13.1	greenyellow	--
ENSG00000268129	RP11-91G21.1	greenyellow	OFC
ENSG00000266441	RP11-91I8.3	greenyellow	OFC
ENSG00000271840	RP1-224A6.9	greenyellow	OFC
ENSG00000228140	RP3-467K16.4	greenyellow	OFC
ENSG00000231119	RP4-569M23.2	greenyellow	OFC
ENSG00000228679	RP4-676J13.2	greenyellow	OFC
ENSG00000255542	RP4-683L5.1	greenyellow	OFC
ENSG00000229403	RP4-718N17.2	greenyellow	OFC
ENSG00000230922	RP4-753M9.1	greenyellow	OFC
ENSG00000262227	RP5-1050D4.5	greenyellow	OFC
ENSG00000274737	RP5-1057I20.6	greenyellow	OFC
ENSG00000230960	RP5-1086L22.1	greenyellow	--

ENSG00000229484	RP5-888M10.2	greenyellow	--
ENSG00000231246	RP5-965F6.2	greenyellow	OFC
ENSG00000197498	RPF2	greenyellow	OFC
ENSG00000240356	RPL23AP7	greenyellow	OFC
ENSG00000235619	RPL36AP33	greenyellow	OFC
ENSG00000231546	RPL3P5	greenyellow	OFC/PT
ENSG00000239473	RPL7P38	greenyellow	OFC/PT
ENSG00000244071	RPL9P33	greenyellow	OFC
ENSG00000072133	RPS6KA6	greenyellow	OFC
ENSG00000143303	RRNAD1	greenyellow	OFC
ENSG00000159216	RUNX1	greenyellow	OFC/PT
ENSG00000197747	S100A10	greenyellow	OFC
ENSG00000163191	S100A11	greenyellow	OFC
ENSG00000151748	SAV1	greenyellow	OFC
ENSG00000140497	SCAMP2	greenyellow	OFC
ENSG00000161929	SCIMP	greenyellow	OFC
ENSG00000132432	SEC61G	greenyellow	OFC
ENSG00000188404	SELL	greenyellow	OFC
ENSG00000001617	SEMA3F	greenyellow	OFC
ENSG00000138758	11-Sep	greenyellow	OFC
ENSG00000214765	SEPT7P2	greenyellow	OFC
ENSG00000197860	SGTB	greenyellow	OFC
ENSG00000097033	SH3GLB1	greenyellow	OFC
ENSG00000168995	SIGLEC7	greenyellow	--
ENSG00000100625	SIX4	greenyellow	OFC
ENSG00000005020	SKAP2	greenyellow	OFC
ENSG00000155926	SLA	greenyellow	OFC/PT
ENSG00000110911	SLC11A2	greenyellow	OFC
ENSG00000101194	SLC17A9	greenyellow	OFC
ENSG00000105281	SLC1A5	greenyellow	OFC/PT
ENSG00000124786	SLC35B3	greenyellow	OFC
ENSG00000151812	SLC35F4	greenyellow	OFC
ENSG00000157800	SLC37A3	greenyellow	OFC
ENSG00000167703	SLC43A2	greenyellow	OFC
ENSG00000260727	SLC7A5P1	greenyellow	OFC
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ENSG00000180251	SLC9A4	greenyellow	OFC
ENSG00000163104	SMARCAD1	greenyellow	OFC
ENSG00000200564	SNORD115-39	greenyellow	OFC
ENSG00000131876	SNRPA1	greenyellow	OFC
ENSG00000167208	SNX20	greenyellow	--
ENSG00000048471	SNX29	greenyellow	OFC
ENSG00000039600	SOX30	greenyellow	OFC
ENSG00000066336	SPI1	greenyellow	OFC
ENSG00000171621	SPSB1	greenyellow	OFC

ENSG00000100596	SPTLC2	greenyellow	OFC
ENSG00000124193	SRSF6	greenyellow	OFC
ENSG00000115107	STEAP3	greenyellow	OFC
ENSG00000072786	STK10	greenyellow	OFC
ENSG00000248221	STX18-IT1	greenyellow	OFC
ENSG00000102710	SUPT20H	greenyellow	OFC
ENSG00000198765	SYCP1	greenyellow	OFC
ENSG00000196074	SYCP2	greenyellow	--
ENSG00000149591	TAGLN	greenyellow	OFC
ENSG00000158710	TAGLN2	greenyellow	OFC
ENSG00000145348	TBCK	greenyellow	OFC
ENSG00000179152	TCAIM	greenyellow	OFC
ENSG00000139372	TDG	greenyellow	OFC
ENSG00000111802	TDP2	greenyellow	OFC
ENSG00000121101	TEX14	greenyellow	OFC
ENSG00000115970	THADA	greenyellow	OFC
ENSG00000169989	TIGD4	greenyellow	OFC
ENSG00000102265	TIMP1	greenyellow	OFC
ENSG00000226049	TLK2P1	greenyellow	OFC
ENSG00000167895	TMC8	greenyellow	OFC
ENSG00000170348	TMED10	greenyellow	OFC
ENSG00000065600	TMEM206	greenyellow	OFC
ENSG00000106609	TMEM248	greenyellow	OFC/PT
ENSG00000118503	TNFAIP3	greenyellow	OFC
ENSG00000131747	TOP2A	greenyellow	OFC
ENSG00000255389	TRAF3IP2-AS1	greenyellow	OFC
ENSG00000182400	TRAPPC6B	greenyellow	OFC
ENSG00000234127	TRIM26	greenyellow	OFC
ENSG00000119283	TRIM67	greenyellow	OFC
ENSG00000072756	TRNT1	greenyellow	OFC
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ENSG00000204025	TRPC5OS	greenyellow	--
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ENSG00000166676	TVP23A	greenyellow	--
ENSG00000265972	TXNIP	greenyellow	--
ENSG00000176912	TYMSOS	greenyellow	OFC
ENSG00000232725	U52111.14	greenyellow	OFC
ENSG00000151116	UEVLD	greenyellow	OFC
ENSG00000048028	USP28	greenyellow	OFC
ENSG00000118640	VAMP8	greenyellow	OFC
ENSG00000125753	VASP	greenyellow	OFC
ENSG00000136059	VILL	greenyellow	OFC
ENSG00000131871	VIMP	greenyellow	OFC
ENSG00000155659	VSIG4	greenyellow	OFC
ENSG00000095787	WAC	greenyellow	OFC

ENSG00000254635	WAC-AS1	greenyellow	OFC
ENSG00000227165	WDR11-AS1	greenyellow	OFC
ENSG00000140395	WDR61	greenyellow	--
ENSG00000249947	XBP1P1	greenyellow	OFC
ENSG00000124571	XPO5	greenyellow	OFC
ENSG00000065548	ZC3H15	greenyellow	OFC
ENSG00000160446	ZDHHC12	greenyellow	OFC
ENSG00000171307	ZDHHC16	greenyellow	OFC
ENSG00000196670	ZFP62	greenyellow	OFC
ENSG00000149054	ZNF215	greenyellow	OFC
ENSG00000152454	ZNF256	greenyellow	OFC
ENSG00000198185	ZNF334	greenyellow	OFC
ENSG00000165244	ZNF367	greenyellow	OFC/PT
ENSG00000229676	ZNF492	greenyellow	OFC
ENSG00000189164	ZNF527	greenyellow	OFC
ENSG00000186376	ZNF75D	greenyellow	OFC
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ENSG00000149506	ZP1	greenyellow	OFC
ENSG00000175899	A2M	pink	OFC
ENSG00000127837	AAMP	pink	OFC
ENSG00000107331	ABCA2	pink	OFC
ENSG00000101986	ABCD1	pink	OFC
ENSG00000107362	ABHD17B	pink	OFC
ENSG00000097007	ABL1	pink	OFC
ENSG00000114626	ABTB1	pink	OFC
ENSG00000236194	AC003104.1	pink	OFC
ENSG00000228944	AC004485.3	pink	OFC
ENSG00000227021	AC007557.3	pink	OFC
ENSG00000242628	AC009228.1	pink	--
ENSG00000251849	AC010887.1	pink	OFC
ENSG00000224959	AC017002.2	pink	OFC
ENSG00000223727	AC026188.1	pink	OFC
ENSG00000226261	AC064836.3	pink	OFC
ENSG00000237964	AC068042.1	pink	OFC
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ENSG00000229172	AC073065.3	pink	OFC
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ENSG00000278105	AC090578.1	pink	OFC
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ENSG00000225933	AC133965.1	pink	OFC
ENSG00000134940	ACRV1	pink	OFC
ENSG00000260089	ADAM3B	pink	OFC
ENSG00000145808	ADAMTS19	pink	OFC
ENSG00000241684	ADAMTS9-AS2	pink	OFC

ENSG00000087274	ADD1	pink	OFC
ENSG00000144843	ADPRH	pink	OFC
ENSG00000160216	AGPAT3	pink	OFC
ENSG00000144891	AGTR1	pink	OFC
ENSG00000197976	AKAP17A	pink	OFC
ENSG00000166452	AKIP1	pink	OFC
ENSG00000106948	AKNA	pink	OFC
ENSG00000204673	AKT1S1	pink	OFC/PT
ENSG00000212101	AL080276.1	pink	OFC
ENSG00000148218	ALAD	pink	OFC
ENSG00000174945	AMZ1	pink	OFC
ENSG00000145700	ANKRD31	pink	OFC
ENSG00000074855	ANO8	pink	OFC
ENSG00000254477	AP000640.10	pink	OFC
ENSG00000279586	AP000711.1	pink	OFC
ENSG00000101246	ARFRP1	pink	OFC
ENSG00000231729	ARHGEF9-IT1	pink	OFC
ENSG00000196843	ARID5A	pink	OFC
ENSG00000236818	ARL5AP2	pink	OFC
ENSG00000006756	ARSD	pink	OFC
ENSG00000229184	ATP5HP2	pink	OFC
ENSG00000175054	ATR	pink	OFC
ENSG00000162885	B3GALNT2	pink	OFC
ENSG00000183778	B3GALT5	pink	OFC
ENSG00000151929	BAG3	pink	OFC
ENSG00000266074	BAHCC1	pink	OFC
ENSG00000185825	BCAP31	pink	OFC
ENSG00000171552	BCL2L1	pink	OFC
ENSG00000177951	BET1L	pink	OFC
ENSG00000180535	BHLHA15	pink	OFC
ENSG00000110330	BIRC2	pink	--
ENSG00000117475	BLZF1	pink	OFC
ENSG00000172270	BSG	pink	OFC
ENSG00000162399	BSND	pink	OFC
ENSG00000274522	BX004987.1	pink	OFC
ENSG00000183346	C10orf107	pink	OFC
ENSG00000182919	C11orf54	pink	OFC
ENSG00000179476	C14orf28	pink	OFC
ENSG00000163689	C3orf67	pink	OFC
ENSG00000164074	C4orf29	pink	OFC
ENSG00000197603	C5orf42	pink	--
ENSG00000112539	C6orf118	pink	OFC
ENSG00000151067	CACNA1C	pink	OFC
ENSG00000214711	CAPN14	pink	OFC
ENSG00000126247	CAPNS1	pink	OFC

ENSG00000177303	CASKIN2	pink	OFC
ENSG00000181378	CCDC108	pink	OFC
ENSG00000136710	CCDC115	pink	OFC/PT
ENSG00000163006	CCDC138	pink	OFC
ENSG00000166960	CCDC178	pink	OFC
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ENSG00000134480	CCNH	pink	OFC/PT
ENSG00000177697	CD151	pink	OFC
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ENSG00000111665	CDCA3	pink	OFC
ENSG00000179776	CDH5	pink	OFC
ENSG00000089486	CDIP1	pink	OFC
ENSG00000109089	CDR2L	pink	OFC
ENSG00000141577	CEP131	pink	OFC
ENSG00000276509	CH17-353B19.1	pink	OFC
ENSG00000100399	CHADL	pink	OFC
ENSG00000070748	CHAT	pink	OFC
ENSG00000164695	CHMP4C	pink	OFC
ENSG00000169684	CHRNA5	pink	OFC
ENSG00000185043	CIB1	pink	OFC
ENSG00000164442	CITED2	pink	OFC
ENSG00000131730	CKMT2	pink	OFC
ENSG00000184113	CLDN5	pink	OFC
ENSG00000169583	CLIC3	pink	OFC
ENSG00000173727	CMB9-22P13.1	pink	OFC
ENSG00000140931	CMTM3	pink	OFC
ENSG00000166091	CMTM5	pink	OFC
ENSG00000111596	CNOT2	pink	OFC/PT
ENSG00000115649	CNPPD1	pink	OFC
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ENSG00000236088	COX10-AS1	pink	OFC
ENSG00000103381	CPPED1	pink	OFC
ENSG00000165934	CPSF2	pink	OFC
ENSG00000106066	CPVL	pink	OFC
ENSG00000148204	CRB2	pink	OFC
ENSG00000109943	CRTAM	pink	OFC
ENSG00000100122	CRYBB1	pink	OFC
ENSG00000261353	CTA-14H9.5	pink	OFC
ENSG00000260708	CTA-29F11.1	pink	--
ENSG00000279276	CTA-345G4.1	pink	OFC
ENSG00000272977	CTA-390C10.10	pink	OFC
ENSG00000267092	CTB-25B13.9	pink	OFC

ENSG00000261596	CTB-31N19.3	pink	OFC
ENSG00000249363	CTB-78O21.1	pink	OFC
ENSG00000245317	CTC-241N9.1	pink	OFC
ENSG00000271849	CTC-332L22.1	pink	OFC
ENSG00000251293	CTC-552D5.1	pink	OFC
ENSG00000279786	CTD-2014D20.1	pink	OFC
ENSG00000259048	CTD-2058B24.2	pink	OFC
ENSG00000258696	CTD-2058B24.3	pink	OFC
ENSG00000259786	CTD-2118P12.1	pink	OFC
ENSG00000243295	CTD-2185K10.1	pink	OFC/PT
ENSG00000247796	CTD-2366F13.1	pink	OFC
ENSG00000251099	CTD-2367A17.1	pink	OFC
ENSG00000274925	CTD-2547G23.4	pink	OFC
ENSG00000276071	CTD-3234P18.6	pink	OFC
ENSG00000240808	CTD-3236F5.1	pink	--
ENSG00000144677	CTDSPL	pink	OFC
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ENSG00000109861	CTSC	pink	OFC
ENSG00000135047	CTSL	pink	OFC
ENSG00000205081	CXorf30	pink	OFC
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ENSG00000186104	CYP2R1	pink	OFC
ENSG00000155016	CYP2U1	pink	OFC
ENSG00000188693	CYP51A1-AS1	pink	OFC
ENSG00000108669	CYTH1	pink	OFC
ENSG00000173402	DAG1	pink	OFC
ENSG00000204209	DAXX	pink	OFC
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ENSG00000132437	DDC	pink	OFC
ENSG00000099974	DDTL	pink	OFC
ENSG00000175984	DENND2C	pink	OFC
ENSG00000157680	DGKI	pink	OFC/PT
ENSG00000198719	DLL1	pink	OFC
ENSG00000198947	DMD	pink	OFC
ENSG00000154099	DNAAF1	pink	OFC
ENSG00000185842	DNAH14	pink	OFC
ENSG00000124721	DNAH8	pink	OFC
ENSG00000007174	DNAH9	pink	OFC
ENSG00000148719	DNAJB12	pink	OFC
ENSG00000168724	DNAJC21	pink	OFC
ENSG00000163793	DNAJC5G	pink	OFC
ENSG00000260992	DOCK9-AS2	pink	OFC
ENSG00000136908	DPM2	pink	OFC
ENSG00000176978	DPP7	pink	OFC
ENSG00000092964	DPYSL2	pink	OFC

ENSG00000158716	DUSP23	pink	OFC/PT
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ENSG00000161202	DVL3	pink	OFC
ENSG00000203435	E2F3P2	pink	--
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ENSG00000107938	EDRF1	pink	OFC
ENSG00000250182	EEF1A1P13	pink	OFC
ENSG00000186676	EEF1GP1	pink	OFC
ENSG00000185055	EFCAB10	pink	OFC
ENSG00000099617	EFNA2	pink	OFC
ENSG00000183798	EMILIN3	pink	--
ENSG00000154269	ENPP3	pink	OFC
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ENSG00000250846	EPHA5-AS1	pink	OFC
ENSG00000261150	EPPK1	pink	OFC
ENSG00000167880	EVPL	pink	--
ENSG00000180104	EXOC3	pink	OFC
ENSG00000188107	EYS	pink	OFC
ENSG00000172782	FADS6	pink	OFC
ENSG00000121104	FAM117A	pink	OFC
ENSG00000185087	FAM169B	pink	OFC
ENSG00000111879	FAM184A	pink	OFC
ENSG00000108021	FAM208B	pink	OFC
ENSG00000071889	FAM3A	pink	OFC
ENSG00000157470	FAM81A	pink	OFC
ENSG00000203780	FANK1	pink	OFC
ENSG00000138399	FASTKD1	pink	--
ENSG00000151876	FBXO4	pink	OFC
ENSG00000174989	FBXW8	pink	OFC
ENSG00000161513	FDXR	pink	OFC
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ENSG00000132436	FIGNL1	pink	OFC
ENSG00000280308	FKSG61	pink	OFC
ENSG00000196924	FLNA	pink	OFC
ENSG00000137312	FLOT1	pink	OFC
ENSG00000257126	FOXG1-AS1	pink	OFC
ENSG00000137166	FOXP4	pink	OFC
ENSG00000237637	FRY-AS1	pink	OFC
ENSG00000276116	FUT8-AS1	pink	OFC
ENSG00000165060	FXN	pink	OFC
ENSG00000171298	GAA	pink	OFC
ENSG00000197093	GAL3ST4	pink	OFC
ENSG00000141429	GALNT1	pink	OFC
ENSG00000111640	GAPDH	pink	OFC/PT

ENSG00000235595	GAPDHP23	pink	OFC
ENSG00000100083	GGA1	pink	OFC/PT
ENSG00000063169	GLTSCR1	pink	OFC/PT
ENSG00000250903	GMDS-AS1	pink	OFC
ENSG00000156049	GNA14	pink	OFC
ENSG00000127920	GNG11	pink	OFC
ENSG00000090581	GNPTG	pink	OFC
ENSG00000135677	GNS	pink	OFC
ENSG00000175697	GPR156	pink	OFC
ENSG00000170075	GPR37L1	pink	PT
ENSG00000205336	GPR56	pink	OFC
ENSG00000169727	GPS1	pink	OFC
ENSG00000030582	GRN	pink	OFC
ENSG00000183474	GTF2H2C	pink	OFC
ENSG00000148308	GTF3C5	pink	OFC
ENSG00000100226	GTPBP1	pink	OFC
ENSG00000130299	GTPBP3	pink	OFC
ENSG00000178605	GTPBP6	pink	OFC
ENSG00000170180	GYPA	pink	OFC
ENSG00000185359	HGS	pink	OFC
ENSG00000158373	HIST1H2BD	pink	OFC
ENSG00000250197	HMGNI1P15	pink	OFC
ENSG00000180448	HMHA1	pink	OFC
ENSG00000103942	HOMER2	pink	OFC
ENSG00000160207	HSF2BP	pink	OFC
ENSG00000142798	HSPG2	pink	OFC
ENSG00000169495	HTRA4	pink	--
ENSG00000100360	IFT27	pink	OFC
ENSG00000144847	IGSF11	pink	OFC
ENSG00000119509	INVS	pink	OFC
ENSG00000132321	IQCA1	pink	OFC
ENSG00000103599	IQCH	pink	OFC
ENSG00000100605	ITPK1	pink	OFC
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ENSG00000186994	KANK3	pink	OFC
ENSG00000253633	KB-1980E6.3	pink	OFC
ENSG00000267365	KCNJ2-AS1	pink	OFC
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ENSG00000170442	KRT86	pink	OFC
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ENSG00000131446	MGAT1	pink	OFC
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ENSG00000138032	PPM1B	pink	OFC
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ENSG00000225449	RAB6C-AS1	pink	OFC
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ENSG00000023191	RNH1	pink	OFC
ENSG00000142327	RNPEPL1	pink	OFC
ENSG00000207200	RNU6-45P	pink	OFC
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ENSG00000269894	RP11-1020A11.1	pink	OFC
ENSG00000262877	RP11-1055B8.4	pink	OFC
ENSG00000247134	RP11-11N9.4	pink	OFC
ENSG00000257743	RP11-1220K2.2	pink	OFC
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ENSG00000274444	RP11-128A17.2	pink	OFC
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ENSG00000232375	RP11-136C24.1	pink	OFC
ENSG00000235450	RP11-142A5.1	pink	OFC
ENSG00000267731	RP11-147L13.8	pink	OFC
ENSG00000270562	RP11-154H23.3	pink	OFC
ENSG00000279233	RP11-158L12.4	pink	OFC
ENSG00000256723	RP11-167N4.4	pink	OFC
ENSG00000273007	RP11-170N16.3	pink	OFC
ENSG00000261697	RP11-178L8.5	pink	OFC
ENSG00000276278	RP11-182J1.3	pink	OFC
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ENSG00000238276	RP11-245J24.1	pink	OFC
ENSG00000272129	RP11-250B2.6	pink	OFC

ENSG00000260367	RP11-264B17.4	pink	OFC
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ENSG00000259390	RP11-27M9.1	pink	OFC
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ENSG00000226530	RP11-348F1.2	pink	OFC
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ENSG00000272092	RP11-350N15.5	pink	OFC
ENSG00000280166	RP11-354E23.3	pink	OFC
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ENSG00000272130	RP11-360I2.1	pink	OFC
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ENSG00000247903	RP11-421F16.3	pink	OFC
ENSG00000260953	RP11-426C22.6	pink	--
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ENSG00000270808	RP11-574K11.27	pink	OFC
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ENSG00000227896	RP11-77P6.2	pink	OFC
ENSG00000267198	RP11-798G7.6	pink	OFC
ENSG00000234248	RP11-799O21.2	pink	OFC
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ENSG00000273284	RP11-888D10.4	pink	OFC
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ENSG00000220694	RP3-403A15.1	pink	OFC
ENSG00000231863	RP3-428L16.1	pink	OFC
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ENSG00000276255	RP5-881P19.7	pink	OFC/PT
ENSG00000231613	RP5-943J3.1	pink	OFC
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ENSG00000231307	RPS3P2	pink	OFC
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ENSG00000231940	RPS7P3	pink	OFC
ENSG00000100220	RTCB	pink	OFC
ENSG00000239608	RUVBL1-AS1	pink	OFC
ENSG00000111832	RWDD1	pink	OFC
ENSG00000031698	SARS	pink	OFC/PT
ENSG00000175467	SART1	pink	OFC
ENSG00000228956	SATB1-AS1	pink	OFC
ENSG00000064932	SBNO2	pink	OFC

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ENSG00000135094	SDS	pink	OFC
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ENSG00000058262	SEC61A1	pink	OFC
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ENSG00000184640	9-Sep	pink	OFC
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ENSG00000144229	THSD7B	pink	OFC
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ENSG00000253661	ZFHX4-AS1	pink	OFC
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ENSG00000197961	ZNF121	pink	--
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ENSG00000181315	ZNF322	pink	OFC
ENSG00000169131	ZNF354A	pink	OFC
ENSG00000138311	ZNF365	pink	OFC/PT
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ENSG00000274099	ABCB10P1	brown	OFC
ENSG00000164163	ABCE1	brown	OFC/PT
ENSG00000033050	ABCF2	brown	OFC
ENSG00000144827	ABHD10	brown	OFC/PT
ENSG00000223442	AC004041.2	brown	--
ENSG00000205485	AC004980.7	brown	OFC
ENSG00000267423	AC005616.2	brown	OFC
ENSG00000231515	AC006003.3	brown	--
ENSG00000273203	AC006946.16	brown	--
ENSG00000267838	AC008746.12	brown	OFC
ENSG00000270240	AC015849.2	brown	OFC
ENSG00000224376	AC017104.6	brown	OFC
ENSG00000267896	AC018766.4	brown	OFC
ENSG00000174977	AC026271.5	brown	OFC/PT
ENSG00000268913	AC026806.2	brown	--
ENSG00000226261	AC064836.3	brown	OFC
ENSG00000265587	AC068580.1	brown	OFC
ENSG00000273118	AC079610.1	brown	OFC
ENSG00000254028	AC083843.2	brown	--

ENSG00000223718	AC093107.7	brown	OFC
ENSG00000152117	AC093838.4	brown	OFC
ENSG00000264937	AC100830.5	brown	--
ENSG00000233850	AC103563.8	brown	OFC
ENSG00000280116	AC231657.1	brown	OFC/PT
ENSG00000278540	ACACA	brown	OFC/PT
ENSG00000196636	ACN9	brown	OFC/PT
ENSG00000177465	ACOT4	brown	OFC
ENSG00000111644	ACRBP	brown	OFC
ENSG00000123983	ACSL3	brown	OFC/PT
ENSG00000185607	ACTBP7	brown	OFC
ENSG00000115091	ACTR3	brown	OFC/PT
ENSG00000075089	ACTR6	brown	OFC/PT
ENSG00000113812	ACTR8	brown	OFC/PT
ENSG00000121989	ACVR2A	brown	OFC
ENSG00000170634	ACYP2	brown	OFC/PT
ENSG00000008277	ADAM22	brown	OFC
ENSG00000114948	ADAM23	brown	OFC/PT
ENSG00000100077	ADRBK2	brown	OFC
ENSG00000232884	AF127936.3	brown	OFC/PT
ENSG00000141385	AFG3L2	brown	OFC/PT
ENSG00000119844	AFTPH	brown	OFC/PT
ENSG00000006530	AGK	brown	OFC/PT
ENSG00000162688	AGL	brown	OFC/PT
ENSG00000018510	AGPS	brown	OFC/PT
ENSG00000226121	AHCTF1P1	brown	--
ENSG00000140057	AK7	brown	OFC
ENSG00000179841	AKAP5	brown	OFC/PT
ENSG00000085662	AKR1B1	brown	PT
ENSG00000166971	AKTIP	brown	OFC/PT
ENSG00000023330	ALAS1	brown	OFC
ENSG00000182858	ALG12	brown	OFC/PT
ENSG00000137760	ALKBH8	brown	OFC
ENSG00000003393	ALS2	brown	OFC
ENSG00000123505	AMD1	brown	OFC/PT
ENSG00000151743	AMN1	brown	OFC/PT
ENSG00000164162	ANAPC10	brown	OFC/PT
ENSG00000129055	ANAPC13	brown	OFC/PT
ENSG00000145362	ANK2	brown	OFC/PT
ENSG00000154122	ANKH	brown	OFC
ENSG00000118454	ANKRD13C	brown	OFC/PT
ENSG00000152766	ANKRD22	brown	OFC
ENSG00000154065	ANKRD29	brown	OFC
ENSG00000140350	ANP32A	brown	OFC
ENSG00000255537	AP000708.1	brown	OFC

ENSG00000275799	AP001059.7	brown	OFC
ENSG00000255176	AP002954.3	brown	--
ENSG00000138660	AP1AR	brown	OFC/PT
ENSG00000166747	AP1G1	brown	OFC/PT
ENSG00000177879	AP3S1	brown	OFC/PT
ENSG00000053770	AP5M1	brown	OFC/PT
ENSG00000169188	APEX2	brown	--
ENSG00000166181	API5	brown	OFC/PT
ENSG00000184831	APOO	brown	OFC/PT
ENSG00000062725	APPBP2	brown	OFC/PT
ENSG00000157500	APPL1	brown	OFC/PT
ENSG00000095139	ARCN1	brown	OFC/PT
ENSG00000168374	ARF4	brown	OFC/PT
ENSG00000081181	ARG2	brown	OFC
ENSG00000140750	ARHGAP17	brown	OFC/PT
ENSG00000088756	ARHGAP28	brown	OFC
ENSG00000131089	ARHGEF9	brown	OFC/PT
ENSG00000120805	ARL1	brown	OFC/PT
ENSG00000152219	ARL14EP	brown	OFC/PT
ENSG00000185829	ARL17A	brown	--
ENSG00000102931	ARL2BP	brown	OFC/PT
ENSG00000188042	ARL4C	brown	--
ENSG00000141748	ARL5C	brown	OFC
ENSG00000113966	ARL6	brown	OFC/PT
ENSG00000144746	ARL6IP5	brown	OFC/PT
ENSG00000114098	ARMC8	brown	OFC
ENSG00000173409	ARV1	brown	OFC/PT
ENSG00000188611	ASAH2	brown	OFC/PT
ENSG00000196372	ASB13	brown	OFC/PT
ENSG00000177981	ASB8	brown	OFC/PT
ENSG00000129691	ASH2L	brown	OFC/PT
ENSG00000152092	ASTN1	brown	OFC
ENSG00000138138	ATAD1	brown	OFC/PT
ENSG00000107669	ATE1	brown	OFC/PT
ENSG00000128272	ATF4	brown	OFC
ENSG00000145782	ATG12	brown	OFC/PT
ENSG00000168010	ATG16L2	brown	OFC/PT
ENSG00000119787	ATL2	brown	PT
ENSG00000166454	ATMIN	brown	OFC/PT
ENSG00000017260	ATP2C1	brown	OFC/PT
ENSG00000152234	ATP5A1	brown	OFC/PT
ENSG00000263232	ATP5A1P3	brown	--
ENSG00000110955	ATP5B	brown	OFC/PT
ENSG00000165629	ATP5C1	brown	OFC/PT
ENSG00000159199	ATP5G1	brown	OFC/PT

ENSG00000167863	ATP5H	brown	OFC/PT
ENSG00000154723	ATP5J	brown	OFC/PT
ENSG00000167283	ATP5L	brown	OFC/PT
ENSG00000182220	ATP6AP2	brown	OFC/PT
ENSG00000132932	ATP8A2	brown	OFC/PT
ENSG00000163512	AZI2	brown	OFC/PT
ENSG00000155096	AZIN1	brown	OFC/PT
ENSG00000169255	B3GALNT1	brown	OFC/PT
ENSG00000184809	B3GALT5-AS1	brown	OFC
ENSG00000109956	B3GAT1	brown	OFC
ENSG00000108641	B9D1	brown	OFC/PT
ENSG00000156735	BAG4	brown	OFC/PT
ENSG00000166170	BAG5	brown	OFC/PT
ENSG00000030110	BAK1	brown	OFC
ENSG00000116752	BCAS2	brown	OFC/PT
ENSG00000060982	BCAT1	brown	OFC
ENSG00000116128	BCL9	brown	--
ENSG00000215481	BCRP3	brown	OFC
ENSG00000126581	BECN1	brown	OFC/PT
ENSG00000151917	BEND6	brown	OFC/PT
ENSG00000127325	BEST3	brown	--
ENSG00000105829	BET1	brown	--
ENSG00000177951	BET1L	brown	PT
ENSG00000184515	BEX5	brown	OFC/PT
ENSG00000198908	BHLHB9	brown	OFC/PT
ENSG00000110330	BIRC2	brown	OFC
ENSG00000196072	BLOC1S2	brown	OFC/PT
ENSG00000104765	BNIP3L	brown	OFC/PT
ENSG00000172331	BPGM	brown	OFC/PT
ENSG00000157764	BRAF	brown	OFC/PT
ENSG00000185515	BRCC3	brown	OFC/PT
ENSG00000078725	BRINP1	brown	OFC
ENSG00000113460	BRIX1	brown	OFC/PT
ENSG00000254999	BRK1	brown	OFC/PT
ENSG00000064726	BTBD1	brown	OFC/PT
ENSG00000148925	BTBD10	brown	OFC/PT
ENSG00000154473	BUB3	brown	OFC
ENSG00000106245	BUD31	brown	OFC/PT
ENSG00000005379	BZRAP1	brown	OFC
ENSG00000166323	C11orf65	brown	--
ENSG00000149196	C11orf73	brown	OFC
ENSG00000185742	C11orf87	brown	OFC
ENSG00000139637	C12orf10	brown	OFC
ENSG00000047621	C12orf4	brown	OFC/PT
ENSG00000111412	C12orf49	brown	OFC

ENSG00000087302	C14orf166	brown	OFC/PT
ENSG00000156411	C14orf2	brown	OFC/PT
ENSG00000179476	C14orf28	brown	OFC
ENSG00000185716	C16orf52	brown	OFC/PT
ENSG00000231256	C17orf105	brown	OFC
ENSG00000141452	C18orf8	brown	OFC
ENSG00000171155	C1GALT1C1	brown	OFC
ENSG00000116922	C1orf109	brown	OFC
ENSG00000162817	C1orf115	brown	OFC
ENSG00000198520	C1orf228	brown	OFC
ENSG00000143612	C1orf43	brown	OFC/PT
ENSG00000135974	C2orf49	brown	OFC
ENSG00000188674	C2orf80	brown	OFC/PT
ENSG00000088543	C3orf18	brown	OFC
ENSG00000056050	C4orf27	brown	OFC/PT
ENSG00000113583	C5orf15	brown	OFC
ENSG00000185127	C6orf120	brown	OFC/PT
ENSG00000146476	C6orf211	brown	OFC/PT
ENSG00000164603	C7orf60	brown	OFC/PT
ENSG00000180539	C9orf139	brown	OFC
ENSG00000147894	C9orf72	brown	OFC
ENSG00000154975	CA10	brown	OFC
ENSG00000153956	CACNA2D1	brown	OFC/PT
ENSG00000157445	CACNA2D3	brown	OFC
ENSG00000165995	CACNB2	brown	OFC
ENSG00000182389	CACNB4	brown	OFC/PT
ENSG00000166862	CACNG2	brown	OFC/PT
ENSG00000151893	CACUL1	brown	OFC
ENSG00000177855	CACYBPP2	brown	OFC/PT
ENSG00000198668	CALM1	brown	OFC/PT
ENSG00000152495	CAMK4	brown	OFC/PT
ENSG00000164615	CAMLG	brown	OFC/PT
ENSG00000130559	CAMSAP1	brown	OFC
ENSG00000118200	CAMSAP2	brown	OFC/PT
ENSG00000171735	CAMTA1	brown	OFC
ENSG00000111530	CAND1	brown	OFC/PT
ENSG00000198898	CAPZA2	brown	OFC/PT
ENSG00000137812	CASC5	brown	--
ENSG00000147044	CASK	brown	OFC/PT
ENSG00000138794	CASP6	brown	--
ENSG00000143318	CASQ1	brown	OFC
ENSG00000087589	CASS4	brown	--
ENSG00000158428	CATIP	brown	OFC
ENSG00000141668	CBLN2	brown	OFC
ENSG00000054803	CBLN4	brown	OFC

ENSG00000160200	CBS	brown	OFC
ENSG00000108468	CBX1	brown	OFC/PT
ENSG00000122565	CBX3	brown	OFC/PT
ENSG00000004766	CCDC132	brown	OFC/PT
ENSG00000203799	CCDC162P	brown	--
ENSG00000180329	CCDC43	brown	OFC/PT
ENSG00000120860	CCDC53	brown	PT
ENSG00000138483	CCDC54	brown	OFC
ENSG00000166510	CCDC68	brown	OFC
ENSG00000137500	CCDC90B	brown	PT
ENSG00000142039	CCDC97	brown	OFC/PT
ENSG00000133101	CCNA1	brown	OFC/PT
ENSG00000134057	CCNB1	brown	OFC/PT
ENSG00000221978	CCNL2	brown	OFC
ENSG00000108100	CCNY	brown	OFC/PT
ENSG00000154429	CCSAP	brown	OFC/PT
ENSG00000107771	CCSER2	brown	OFC
ENSG00000166226	CCT2	brown	OFC/PT
ENSG00000115484	CCT4	brown	OFC/PT
ENSG00000135624	CCT7	brown	OFC/PT
ENSG00000196352	CD55	brown	--
ENSG00000112149	CD83	brown	OFC/PT
ENSG00000140326	CDAN1	brown	OFC
ENSG00000151465	CDC123	brown	OFC/PT
ENSG00000117399	CDC20	brown	OFC
ENSG00000004897	CDC27	brown	OFC/PT
ENSG00000106993	CDC37L1	brown	PT
ENSG00000197622	CDC42SE1	brown	OFC/PT
ENSG00000096401	CDC5L	brown	OFC/PT
ENSG00000081138	CDH7	brown	OFC
ENSG00000150394	CDH8	brown	OFC
ENSG00000185324	CDK10	brown	OFC
ENSG00000134058	CDK7	brown	OFC/PT
ENSG00000205111	CDKL4	brown	PT
ENSG00000163624	CDS1	brown	OFC/PT
ENSG00000120334	CENPL	brown	OFC
ENSG00000203760	CENPW	brown	--
ENSG00000143702	CEP170	brown	OFC/PT
ENSG00000174007	CEP19	brown	OFC/PT
ENSG00000101624	CEP76	brown	OFC
ENSG00000172292	CERS6	brown	OFC/PT
ENSG00000147400	CETN2	brown	OFC/PT
ENSG00000163001	CFAP36	brown	OFC/PT
ENSG00000143375	CGN	brown	--
ENSG00000100532	CGRRF1	brown	OFC

ENSG00000273136	CH17-3B23.1	brown	--
ENSG00000279851	CH507-216K13.2	brown	OFC
ENSG00000279769	CH507-42P11.3	brown	OFC
ENSG00000106153	CHCHD2	brown	OFC/PT
ENSG00000163528	CHCHD4	brown	OFC/PT
ENSG00000204116	CHIC1	brown	OFC/PT
ENSG00000133063	CHIT1	brown	--
ENSG00000134121	CHL1	brown	OFC/PT
ENSG00000188419	CHM	brown	OFC/PT
ENSG00000130724	CHMP2A	brown	OFC/PT
ENSG00000086065	CHMP5	brown	OFC/PT
ENSG00000147457	CHMP7	brown	OFC
ENSG00000169684	CHRNA5	brown	--
ENSG00000160161	CILP2	brown	--
ENSG00000122873	CISD1	brown	OFC/PT
ENSG00000145354	CISD2	brown	OFC/PT
ENSG00000277972	CISD3	brown	--
ENSG00000136026	CKAP4	brown	OFC
ENSG00000175216	CKAP5	brown	OFC/PT
ENSG00000163539	CLASP2	brown	OFC/PT
ENSG00000104859	CLASRP	brown	OFC/PT
ENSG00000109572	CLCN3	brown	OFC/PT
ENSG00000182372	CLN8	brown	--
ENSG00000177182	CLVS1	brown	OFC/PT
ENSG00000146352	CLVS2	brown	OFC
ENSG00000111726	CMAS	brown	OFC/PT
ENSG00000149970	CNKSR2	brown	OFC/PT
ENSG00000088038	CNOT3	brown	OFC/PT
ENSG00000198791	CNOT7	brown	OFC/PT
ENSG00000162852	CNST	brown	OFC/PT
ENSG00000018236	CNTN1	brown	OFC/PT
ENSG00000134115	CNTN6	brown	OFC
ENSG00000174469	CNTNAP2	brown	OFC
ENSG00000183978	COA3	brown	OFC/PT
ENSG00000183513	COA5	brown	OFC
ENSG00000113163	COL4A3BP	brown	OFC/PT
ENSG00000169019	COMMD8	brown	OFC/PT
ENSG00000166200	COPS2	brown	OFC/PT
ENSG00000141030	COPS3	brown	OFC/PT
ENSG00000138663	COPS4	brown	OFC/PT
ENSG00000168090	COPS6	brown	OFC/PT
ENSG00000111652	COPS7A	brown	OFC/PT
ENSG00000198612	COPS8	brown	OFC/PT
ENSG00000115520	COQ10B	brown	OFC/PT
ENSG00000132423	COQ3	brown	OFC/PT

ENSG00000014919	COX15	brown	OFC
ENSG00000112695	COX7A2	brown	OFC/PT
ENSG00000115944	COX7A2L	brown	OFC/PT
ENSG00000131174	COX7B	brown	OFC/PT
ENSG00000127184	COX7C	brown	OFC/PT
ENSG00000109472	CPE	brown	OFC
ENSG00000119203	CPSF3	brown	OFC/PT
ENSG00000113851	CRBN	brown	OFC/PT
ENSG00000005469	CROT	brown	--
ENSG00000160741	CRTC2	brown	PT
ENSG00000105392	CRX	brown	--
ENSG00000101266	CSNK2A1	brown	OFC/PT
ENSG00000114646	CSPG5	brown	OFC
ENSG00000178662	CSRNP3	brown	OFC/PT
ENSG00000176102	CSTF3	brown	OFC
ENSG00000259891	CTA-204B4.2	brown	OFC
ENSG00000273424	CTA-223H9.9	brown	OFC
ENSG00000273237	CTB-119C2.1	brown	OFC
ENSG00000279161	CTB-12A17.2	brown	OFC
ENSG00000279866	CTB-193M12.4	brown	OFC
ENSG00000267749	CTC-265F19.1	brown	OFC
ENSG00000280187	CTC-351M12.1	brown	OFC
ENSG00000272040	CTC-366B18.4	brown	OFC
ENSG00000253424	CTC-436K13.3	brown	OFC
ENSG00000180081	CTC-451A6.4	brown	--
ENSG00000102974	CTCF	brown	PT
ENSG00000259804	CTD-2012K14.7	brown	OFC
ENSG00000262136	CTD-2033A16.3	brown	OFC
ENSG00000280033	CTD-2095E4.3	brown	OFC/PT
ENSG00000250127	CTD-2117L12.1	brown	OFC
ENSG00000259782	CTD-2270L9.2	brown	OFC
ENSG00000270804	CTD-2583A14.11	brown	OFC
ENSG00000280067	CTD-2600H12.2	brown	OFC
ENSG00000232098	CTD-2619J13.14	brown	OFC
ENSG00000269473	CTD-2619J13.19	brown	PT
ENSG00000267053	CTD-3162L10.1	brown	PT
ENSG00000108094	CUL2	brown	OFC/PT
ENSG00000036257	CUL3	brown	OFC/PT
ENSG00000158290	CUL4B	brown	OFC/PT
ENSG00000150316	CWC15	brown	OFC/PT
ENSG00000168772	CXXC4	brown	OFC
ENSG00000159348	CYB5R1	brown	OFC
ENSG00000055163	CYFIP2	brown	OFC/PT
ENSG00000083799	CYLD	brown	OFC/PT
ENSG00000168824	D4S234E	brown	OFC/PT

ENSG00000126733	DACH2	brown	OFC/PT
ENSG00000198924	DCLRE1A	brown	OFC/PT
ENSG00000085788	DDHD2	brown	OFC/PT
ENSG00000079785	DDX1	brown	OFC/PT
ENSG00000089737	DDX24	brown	OFC/PT
ENSG00000105339	DENND3	brown	OFC
ENSG00000198837	DENND4B	brown	OFC
ENSG00000170456	DENND5B	brown	OFC/PT
ENSG00000072849	DERL2	brown	OFC
ENSG00000153933	DGKE	brown	OFC
ENSG00000095059	DHPS	brown	OFC/PT
ENSG00000089876	DHX32	brown	OFC
ENSG00000134815	DHX34	brown	OFC
ENSG00000163214	DHX57	brown	OFC
ENSG00000135829	DHX9	brown	OFC/PT
ENSG00000262075	DKFZP434A062	brown	--
ENSG00000150768	DLAT	brown	OFC/PT
ENSG00000172869	DMXL1	brown	OFC/PT
ENSG00000104093	DMXL2	brown	OFC/PT
ENSG00000165506	DNAAF2	brown	--
ENSG00000114841	DNAH1	brown	OFC/PT
ENSG00000197653	DNAH10	brown	OFC
ENSG00000069345	DNAJA2	brown	OFC/PT
ENSG00000103423	DNAJA3	brown	--
ENSG00000140403	DNAJA4	brown	--
ENSG00000164031	DNAJB14	brown	OFC/PT
ENSG00000128590	DNAJB9	brown	OFC/PT
ENSG00000108176	DNAJC12	brown	OFC/PT
ENSG00000116138	DNAJC16	brown	OFC
ENSG00000205981	DNAJC19	brown	OFC/PT
ENSG00000115137	DNAJC27	brown	OFC
ENSG00000168259	DNAJC7	brown	OFC
ENSG00000213918	DNASE1	brown	OFC
ENSG00000087470	DNM1L	brown	OFC/PT
ENSG00000182397	DNM1P46	brown	--
ENSG00000166171	DPCD	brown	OFC/PT
ENSG00000117543	DPH5	brown	OFC
ENSG00000074603	DPP8	brown	OFC/PT
ENSG00000215097	DUSP8P3	brown	--
ENSG00000125971	DYNLRB1	brown	PT
ENSG00000165169	DYNLT3	brown	OFC/PT
ENSG00000157540	DYRK1A	brown	OFC/PT
ENSG00000203435	E2F3P2	brown	OFC
ENSG00000144597	EAFF1	brown	OFC/PT
ENSG00000129518	EAPP	brown	OFC/PT

ENSG00000147654	EBAG9	brown	OFC/PT
ENSG00000117395	EBNA1BP2	brown	OFC/PT
ENSG00000093144	ECHDC1	brown	OFC/PT
ENSG00000127884	ECHS1	brown	OFC
ENSG00000114346	ECT2	brown	OFC
ENSG00000179151	EDC3	brown	--
ENSG00000116406	EDEM3	brown	OFC
ENSG00000203666	EFCAB2	brown	OFC
ENSG00000132294	EFR3A	brown	OFC/PT
ENSG00000255302	EID1	brown	OFC/PT
ENSG00000114784	EIF1B	brown	OFC/PT
ENSG00000086232	EIF2AK1	brown	OFC
ENSG00000134001	EIF2S1	brown	OFC/PT
ENSG00000149100	EIF3M	brown	OFC/PT
ENSG00000225031	EIF4BP7	brown	OFC
ENSG00000135930	EIF4E2	brown	OFC
ENSG00000100664	EIF5	brown	OFC/PT
ENSG00000163577	EIF5A2	brown	OFC
ENSG00000162374	ELAVL4	brown	OFC
ENSG00000179387	ELMOD2	brown	OFC
ENSG00000134014	ELP3	brown	OFC/PT
ENSG00000128463	EMC4	brown	OFC/PT
ENSG00000134153	EMC7	brown	OFC/PT
ENSG00000145293	ENOPH1	brown	OFC/PT
ENSG00000185684	EP400NL	brown	OFC/PT
ENSG00000172031	EPHX4	brown	OFC/PT
ENSG00000178567	EPM2AIP1	brown	OFC/PT
ENSG00000072134	EPN2	brown	OFC
ENSG00000136628	EPRS	brown	OFC/PT
ENSG00000100632	ERH	brown	OFC/PT
ENSG00000117419	ERI3	brown	OFC
ENSG00000178965	ERICH3	brown	OFC/PT
ENSG00000240137	ERICH6-AS1	brown	OFC
ENSG00000068912	ERLEC1	brown	OFC/PT
ENSG00000197930	ERO1L	brown	OFC
ENSG00000242950	ERVW-1	brown	OFC
ENSG00000139684	ESD	brown	OFC/PT
ENSG00000120705	ETF1	brown	OFC
ENSG00000090989	EXOC1	brown	OFC/PT
ENSG00000131558	EXOC4	brown	OFC
ENSG00000185010	F8	brown	OFC/PT
ENSG00000170231	FABP6	brown	OFC/PT
ENSG00000113194	FAF2	brown	OFC/PT
ENSG00000169612	FAM103A1	brown	OFC/PT
ENSG00000198420	FAM115A	brown	OFC

ENSG00000138439	FAM117B	brown	PT
ENSG00000155744	FAM126B	brown	OFC/PT
ENSG00000179083	FAM133A	brown	OFC/PT
ENSG00000147724	FAM135B	brown	OFC
ENSG00000260528	FAM157C	brown	--
ENSG00000183807	FAM162B	brown	--
ENSG00000198780	FAM169A	brown	OFC/PT
ENSG00000144369	FAM171B	brown	OFC
ENSG00000165660	FAM175B	brown	OFC/PT
ENSG00000151327	FAM177A1	brown	OFC
ENSG00000198718	FAM179B	brown	OFC/PT
ENSG00000123575	FAM199X	brown	OFC
ENSG00000116199	FAM20B	brown	OFC/PT
ENSG00000232300	FAM215B	brown	--
ENSG00000204856	FAM216A	brown	OFC/PT
ENSG00000196937	FAM3C	brown	OFC/PT
ENSG00000174028	FAM3C2	brown	OFC/PT
ENSG00000153310	FAM49B	brown	OFC
ENSG00000071859	FAM50A	brown	OFC/PT
ENSG00000158483	FAM86C1	brown	OFC/PT
ENSG00000137414	FAM8A1	brown	OFC/PT
ENSG00000188343	FAM92A1	brown	OFC/PT
ENSG00000274628	FAM95B1	brown	OFC
ENSG00000171262	FAM98B	brown	OFC/PT
ENSG00000181544	FANCB	brown	OFC
ENSG00000260852	FBXL19-AS1	brown	OFC
ENSG00000005812	FBXL3	brown	OFC
ENSG00000138081	FBXO11	brown	OFC/PT
ENSG00000116661	FBXO2	brown	OFC
ENSG00000143756	FBXO28	brown	OFC/PT
ENSG00000145868	FBXO38	brown	OFC/PT
ENSG00000174013	FBXO45	brown	OFC
ENSG00000072803	FBXW11	brown	OFC/PT
ENSG00000162746	FCRLB	brown	OFC
ENSG00000137714	FDX1	brown	OFC
ENSG00000101311	FERMT1	brown	--
ENSG00000230316	FEZF1-AS1	brown	--
ENSG00000140285	FGF7	brown	OFC/PT
ENSG00000091483	FH	brown	OFC/PT
ENSG00000135723	FHOD1	brown	--
ENSG00000134775	FHOD3	brown	--
ENSG00000112367	FIG4	brown	OFC/PT
ENSG00000214253	FIS1	brown	OFC
ENSG00000248858	FLJ46284	brown	OFC
ENSG00000141560	FN3KRP	brown	OFC/PT

ENSG00000160097	FNDC5	brown	--
ENSG00000133393	FOPNL	brown	OFC/PT
ENSG00000198815	FOXJ3	brown	OFC/PT
ENSG00000126391	FRMD8	brown	OFC/PT
ENSG00000106701	FSD1L	brown	OFC
ENSG00000168843	FSTL5	brown	OFC
ENSG00000140718	FTO	brown	OFC/PT
ENSG00000226491	FTOP1	brown	OFC
ENSG00000069509	FUNDC1	brown	OFC/PT
ENSG00000092140	G2E3	brown	OFC/PT
ENSG00000034713	GABARAPL2	brown	OFC/PT
ENSG00000022355	GABRA1	brown	OFC/PT
ENSG00000109158	GABRA4	brown	OFC/PT
ENSG00000145864	GABRB2	brown	OFC/PT
ENSG00000113327	GABRG2	brown	OFC/PT
ENSG00000154252	GAL3ST2	brown	OFC
ENSG00000054983	GALC	brown	OFC/PT
ENSG00000228232	GAPDHP1	brown	OFC
ENSG00000165219	GAPVD1	brown	OFC
ENSG00000106105	GARS	brown	OFC/PT
ENSG00000159131	GART	brown	OFC/PT
ENSG00000115271	GCA	brown	OFC
ENSG00000023909	GCLM	brown	OFC
ENSG00000092208	GEMIN2	brown	OFC/PT
ENSG00000164347	GFM2	brown	OFC/PT
ENSG00000100083	GGA1	brown	OFC
ENSG00000137563	GGH	brown	OFC/PT
ENSG00000278311	GGNBP2	brown	OFC/PT
ENSG00000165678	GHITM	brown	OFC/PT
ENSG00000145723	GIN1	brown	OFC
ENSG00000178445	GLDC	brown	--
ENSG00000248590	GLDCP1	brown	OFC
ENSG00000124767	GLO1	brown	OFC/PT
ENSG00000182512	GLRX5	brown	OFC/PT
ENSG00000197045	GMFB	brown	OFC/PT
ENSG00000163655	GMPS	brown	OFC/PT
ENSG00000156052	GNAQ	brown	OFC/PT
ENSG00000087460	GNAS	brown	OFC/PT
ENSG00000176533	GNG7	brown	OFC
ENSG00000167414	GNG8	brown	OFC
ENSG00000113552	GNPDA1	brown	OFC/PT
ENSG00000163281	GNPDA2	brown	OFC/PT
ENSG00000100522	GNPNAT1	brown	OFC/PT
ENSG00000147533	GOLGA7	brown	OFC/PT
ENSG00000062194	GPBP1	brown	OFC

ENSG00000152642	GPD1L	brown	OFC/PT
ENSG00000170091	GPIHBP1	brown	OFC/PT
ENSG00000112293	GPLD1	brown	OFC
ENSG00000150625	GPM6A	brown	OFC/PT
ENSG00000132975	GPR12	brown	OFC
ENSG00000152749	GPR180	brown	OFC/PT
ENSG00000172209	GPR22	brown	OFC/PT
ENSG00000139572	GPR84	brown	OFC
ENSG00000198932	GPRASP1	brown	OFC
ENSG00000168959	GRM5	brown	OFC/PT
ENSG00000109519	GRPEL1	brown	OFC/PT
ENSG00000164284	GRPEL2	brown	OFC
ENSG00000132463	GRSF1	brown	OFC/PT
ENSG00000139835	GRTP1	brown	--
ENSG00000179342	GS1-124K5.9	brown	OFC
ENSG00000082701	GSK3B	brown	OFC/PT
ENSG00000100744	GSKIP	brown	OFC/PT
ENSG00000165417	GTF2A1	brown	OFC/PT
ENSG00000119041	GTF3C3	brown	OFC/PT
ENSG00000152402	GUCY1A2	brown	OFC
ENSG00000070019	GUCY2C	brown	--
ENSG00000169919	GUSB	brown	OFC
ENSG00000099284	H2AFY2	brown	OFC
ENSG00000049239	H6PD	brown	OFC
ENSG00000103044	HAS3	brown	OFC/PT
ENSG00000128708	HAT1	brown	OFC/PT
ENSG00000152240	HAUS1	brown	OFC
ENSG00000143575	HAX1	brown	OFC/PT
ENSG00000004961	HCCS	brown	OFC/PT
ENSG00000230521	HCG4P7	brown	--
ENSG00000061273	HDAC7	brown	OFC/PT
ENSG00000112406	HECA	brown	OFC/PT
ENSG00000092148	HECTD1	brown	OFC/PT
ENSG00000002746	HECW1	brown	OFC
ENSG00000138411	HECW2	brown	OFC
ENSG00000114735	HEMK1	brown	PT
ENSG00000103657	HERC1	brown	OFC
ENSG00000206149	HERC2P9	brown	OFC
ENSG00000164683	HEY1	brown	PT
ENSG00000137133	HINT2	brown	OFC/PT
ENSG00000197061	HIST1H4C	brown	OFC
ENSG00000127124	HIVEP3	brown	OFC
ENSG00000071794	HLTF	brown	OFC/PT
ENSG00000136630	HLX	brown	OFC/PT
ENSG00000259196	HMBOX1-IT1	brown	--

ENSG00000216753	HMGA1P7	brown	--
ENSG00000149948	HMGA2	brown	--
ENSG00000146151	HMGCLL1	brown	OFC/PT
ENSG00000254114	HMGN1P28	brown	--
ENSG00000113716	HMGXB3	brown	OFC
ENSG00000233680	HNRNPA1P27	brown	OFC
ENSG00000116983	HPCAL4	brown	OFC
ENSG00000253521	HPYR1	brown	OFC
ENSG00000171004	HS6ST2	brown	OFC/PT
ENSG00000230989	HSBP1	brown	OFC/PT
ENSG0000025156	HSF2	brown	OFC/PT
ENSG00000080824	HSP90AA1	brown	OFC
ENSG00000096384	HSP90AB1	brown	OFC/PT
ENSG00000155304	HSPA13	brown	OFC/PT
ENSG00000170606	HSPA4	brown	OFC/PT
ENSG00000164070	HSPA4L	brown	OFC/PT
ENSG00000113013	HSPA9	brown	OFC/PT
ENSG00000102241	HTATSF1	brown	OFC/PT
ENSG00000102468	HTR2A	brown	OFC
ENSG00000115317	HTRA2	brown	OFC/PT
ENSG00000198331	HYLS1	brown	OFC/PT
ENSG00000134330	IAH1	brown	OFC/PT
ENSG00000196305	IARS	brown	OFC/PT
ENSG00000067704	IARS2	brown	OFC/PT
ENSG00000166411	IDH3A	brown	OFC/PT
ENSG00000185745	IFIT1	brown	OFC
ENSG00000152778	IFIT5	brown	OFC
ENSG00000114446	IFT57	brown	OFC/PT
ENSG00000073792	IGF2BP2	brown	OFC
ENSG00000137496	IL18BP	brown	OFC/PT
ENSG00000143621	ILF2	brown	OFC/PT
ENSG00000132305	IMMT	brown	OFC/PT
ENSG00000104331	IMPAD1	brown	OFC/PT
ENSG00000196388	INCA1	brown	--
ENSG00000040933	INPP4A	brown	OFC
ENSG00000198825	INPP5F	brown	OFC/PT
ENSG00000125629	INSIG2	brown	OFC
ENSG00000119509	INVS	brown	OFC
ENSG00000136381	IREB2	brown	OFC/PT
ENSG00000136003	ISCU	brown	OFC/PT
ENSG00000083457	ITGAE	brown	OFC
ENSG00000150995	ITPR1	brown	OFC
ENSG00000100221	JOSD1	brown	OFC/PT
ENSG00000176595	KBTBD11	brown	OFC
ENSG00000170852	KBTBD2	brown	OFC

ENSG00000182359	KBTBD3	brown	OFC/PT
ENSG00000123444	KBTBD4	brown	OFC
ENSG00000165572	KBTBD6	brown	OFC/PT
ENSG00000176407	KCMF1	brown	OFC
ENSG00000169282	KCNAB1	brown	OFC
ENSG00000140015	KCNH5	brown	OFC
ENSG00000184611	KCNH7	brown	OFC/PT
ENSG00000162989	KCNJ3	brown	OFC
ENSG00000157542	KCNJ6	brown	OFC
ENSG00000124249	KCNK15	brown	OFC
ENSG00000099337	KCNK6	brown	OFC/PT
ENSG00000170745	KCNS3	brown	--
ENSG00000107147	KCNT1	brown	OFC
ENSG00000164794	KCNV1	brown	OFC/PT
ENSG00000183775	KCTD16	brown	OFC
ENSG00000134901	KDELC1	brown	--
ENSG00000004487	KDM1A	brown	OFC/PT
ENSG00000117139	KDM5B	brown	OFC/PT
ENSG00000170871	KIAA0232	brown	OFC
ENSG00000137261	KIAA0319	brown	OFC/PT
ENSG00000166398	KIAA0355	brown	PT
ENSG00000100364	KIAA0930	brown	OFC
ENSG00000138688	KIAA1109	brown	OFC/PT
ENSG00000163807	KIAA1143	brown	OFC/PT
ENSG00000198954	KIAA1279	brown	OFC/PT
ENSG00000164659	KIAA1324L	brown	OFC
ENSG00000144320	KIAA1715	brown	OFC/PT
ENSG00000050030	KIAA2022	brown	OFC/PT
ENSG00000134313	KIDINS220	brown	OFC
ENSG00000102554	KLF5	brown	--
ENSG00000128607	KLHDC10	brown	OFC
ENSG00000104731	KLHDC4	brown	OFC
ENSG00000179454	KLHL28	brown	OFC
ENSG00000119771	KLHL29	brown	PT
ENSG00000198642	KLHL9	brown	OFC/PT
ENSG00000272333	KMT2B	brown	OFC/PT
ENSG00000239569	KMT2E-AS1	brown	--
ENSG00000182481	KPNA2	brown	OFC/PT
ENSG00000102753	KPNA3	brown	OFC/PT
ENSG00000186432	KPNA4	brown	OFC/PT
ENSG00000133703	KRAS	brown	OFC/PT
ENSG00000133619	KRBA1	brown	OFC
ENSG00000249850	KRT18P31	brown	OFC/PT
ENSG00000186081	KRT5	brown	OFC
ENSG00000233560	KRT8P39	brown	OFC

ENSG00000268836	LA16c-OS12.2	brown	PT
ENSG00000109270	LAMTOR3	brown	OFC/PT
ENSG00000188186	LAMTOR4	brown	OFC
ENSG00000132434	LANCL2	brown	OFC/PT
ENSG00000104341	LAPTM4B	brown	OFC/PT
ENSG00000169744	LDB2	brown	OFC/PT
ENSG00000167615	LENG8	brown	OFC/PT
ENSG00000119862	LGALSL	brown	OFC/PT
ENSG00000108231	LGI1	brown	OFC
ENSG00000121897	LIAS	brown	OFC
ENSG00000174405	LIG4	brown	OFC
ENSG00000111052	LIN7A	brown	OFC
ENSG00000263874	LINC00672	brown	OFC/PT
ENSG00000247982	LINC00926	brown	OFC
ENSG00000228784	LINC00954	brown	OFC
ENSG00000245146	LINC01024	brown	OFC
ENSG00000249464	LINC01091	brown	OFC
ENSG00000253807	LINC01170	brown	--
ENSG00000242512	LINC01206	brown	OFC
ENSG00000232987	LINC01219	brown	--
ENSG00000231742	LINC01273	brown	OFC
ENSG00000227964	LINC01429	brown	OFC
ENSG00000227517	LINC01483	brown	OFC
ENSG00000273249	LL09NC01-251B2.3	brown	--
ENSG00000105983	LMBR1	brown	OFC
ENSG00000168216	LMBRD1	brown	OFC/PT
ENSG00000227110	LMCD1-AS1	brown	OFC
ENSG00000185621	LMLN	brown	OFC
ENSG00000143013	LMO4	brown	OFC/PT
ENSG00000163380	LMOD3	brown	--
ENSG00000072201	LNx1	brown	OFC/PT
ENSG00000139517	LNx2	brown	OFC
ENSG00000154359	LONRF1	brown	OFC
ENSG00000170500	LONRF2	brown	OFC/PT
ENSG00000117600	LPPR4;	brown	OFC/PT
ENSG00000138095	LRPPRC	brown	OFC/PT
ENSG00000066557	LRRC40	brown	OFC/PT
ENSG00000141294	LRRC46	brown	--
ENSG00000108829	LRRC59	brown	OFC/PT
ENSG00000175324	LSM1	brown	OFC
ENSG00000161654	LSM12	brown	--
ENSG00000170860	LSM3	brown	OFC/PT
ENSG00000144214	LYG1	brown	OFC
ENSG00000102897	LYRM1	brown	OFC/PT
ENSG00000163155	LYSMD1	brown	OFC/PT

ENSG00000163818	LZTFL1	brown	OFC/PT
ENSG00000003056	M6PR	brown	OFC
ENSG00000164109	MAD2L1	brown	OFC/PT
ENSG00000147676	MAL2	brown	OFC
ENSG00000172469	MANEA	brown	OFC/PT
ENSG00000065559	MAP2K4	brown	OFC/PT
ENSG00000104814	MAP4K1	brown	OFC
ENSG00000164114	MAP9	brown	OFC/PT
ENSG00000168175	MAPK1IP1L	brown	OFC
ENSG00000069956	MAPK6	brown	OFC/PT
ENSG00000107643	MAPK8	brown	OFC/PT
ENSG00000234608	MAPKAPK5-AS1	brown	OFC
ENSG00000038274	MAT2B	brown	OFC/PT
ENSG00000015479	MATR3	brown	OFC/PT
ENSG00000129933	MAU2	brown	OFC
ENSG00000088888	MAVS	brown	OFC/PT
ENSG00000129071	MBD4	brown	OFC
ENSG00000166987	MBD6	brown	OFC/PT
ENSG00000176055	MBLAC2	brown	OFC/PT
ENSG00000139793	MBNL2	brown	OFC/PT
ENSG00000101977	MCF2	brown	OFC/PT
ENSG00000126217	MCF2L	brown	OFC/PT
ENSG00000128285	MCHR1	brown	OFC
ENSG00000156026	MCU	brown	OFC
ENSG00000124733	MEA1	brown	OFC/PT
ENSG00000160563	MED27	brown	--
ENSG00000068305	MEF2A	brown	OFC
ENSG00000081189	MEF2C	brown	OFC
ENSG00000106780	MEGF9	brown	OFC
ENSG00000188013	MEIS3P2	brown	--
ENSG00000106484	MEST	brown	OFC/PT
ENSG00000273573	Metazoa_SRP	brown	OFC
ENSG00000275132	Metazoa_SRP	brown	OFC
ENSG00000010165	METTL13	brown	OFC/PT
ENSG00000138382	METTL5	brown	OFC/PT
ENSG00000197006	METTL9	brown	OFC/PT
ENSG00000232489	MFAP1P1	brown	OFC
ENSG00000116688	MFN2	brown	OFC
ENSG00000257335	MGAM	brown	--
ENSG00000143198	MGST3	brown	OFC/PT
ENSG00000080561	MID2	brown	OFC/PT
ENSG00000105556	MIER2	brown	OFC/PT
ENSG00000270714	MINOS1P2	brown	--
ENSG00000265871	MIR3174	brown	OFC/PT
ENSG00000207583	MIR606	brown	OFC

ENSG00000129534	MIS18BP1	brown	--
ENSG00000125863	MKKS	brown	OFC/PT
ENSG00000150051	MKX	brown	OFC
ENSG00000178053	MLF1	brown	OFC/PT
ENSG00000175727	MLXIP	brown	OFC/PT
ENSG00000168288	MMADHC	brown	OFC/PT
ENSG00000196549	MME	brown	OFC
ENSG00000169446	MMGT1	brown	OFC
ENSG00000164172	MOCS2	brown	OFC/PT
ENSG00000106384	MOGAT3	brown	--
ENSG00000185787	MORF4L1	brown	OFC/PT
ENSG00000123562	MORF4L2	brown	OFC/PT
ENSG00000060762	MPC1	brown	OFC/PT
ENSG00000178802	MPI	brown	OFC
ENSG00000150054	MPP7	brown	OFC/PT
ENSG00000158887	MPZ	brown	OFC
ENSG00000169288	MRPL1	brown	OFC/PT
ENSG00000180992	MRPL14	brown	OFC
ENSG00000166902	MRPL16	brown	OFC/PT
ENSG00000158042	MRPL17	brown	OFC/PT
ENSG00000082515	MRPL22	brown	OFC/PT
ENSG00000132313	MRPL35	brown	OFC/PT
ENSG00000171421	MRPL36	brown	OFC
ENSG00000266946	MRPL37P1	brown	--
ENSG00000185608	MRPL40	brown	OFC
ENSG00000175581	MRPL48	brown	OFC
ENSG00000183617	MRPL54	brown	OFC/PT
ENSG00000173141	MRPL57	brown	OFC/PT
ENSG00000116898	MRPS15	brown	OFC/PT
ENSG00000163319	MRPS18C	brown	OFC/PT
ENSG00000113048	MRPS27	brown	OFC/PT
ENSG00000061794	MRPS35	brown	OFC/PT
ENSG00000134056	MRPS36	brown	OFC/PT
ENSG00000125445	MRPS7	brown	OFC/PT
ENSG00000135972	MRPS9	brown	OFC/PT
ENSG00000095002	MSH2	brown	OFC
ENSG00000188895	MSL1	brown	OFC
ENSG00000005302	MSL3	brown	OFC
ENSG00000186301	MST1P2	brown	OFC
ENSG00000122033	MTIF3	brown	OFC
ENSG00000003987	MTMR7	brown	OFC/PT
ENSG00000120662	MTRF1	brown	--
ENSG00000124275	MTRR	brown	OFC/PT
ENSG00000177034	MTX3	brown	OFC/PT
ENSG00000146085	MUT	brown	OFC/PT

ENSG00000221986	MYBPHL	brown	--
ENSG00000005810	MYCBP2	brown	OFC/PT
ENSG00000118680	MYL12B	brown	OFC/PT
ENSG00000197535	MYO5A	brown	OFC
ENSG00000164591	MYOZ3	brown	OFC
ENSG00000204899	MZT1	brown	OFC/PT
ENSG00000139977	NAA30	brown	OFC/PT
ENSG00000135040	NAA35	brown	OFC
ENSG00000249437	NAIP	brown	OFC
ENSG00000187109	NAP1L1	brown	OFC
ENSG00000186310	NAP1L3	brown	OFC/PT
ENSG00000266236	NARF-IT1	brown	OFC
ENSG00000134440	NARS	brown	OFC/PT
ENSG00000109065	NAT9	brown	OFC/PT
ENSG00000172915	NBEA	brown	OFC
ENSG00000104490	NCALD	brown	OFC
ENSG00000154654	NCAM2	brown	OFC/PT
ENSG00000061676	NCKAP1	brown	OFC/PT
ENSG00000166579	NDEL1	brown	OFC
ENSG00000125356	NDUFA1	brown	OFC/PT
ENSG00000189043	NDUFA4	brown	OFC/PT
ENSG00000128609	NDUFA5	brown	OFC/PT
ENSG00000123545	NDUFAF4	brown	OFC/PT
ENSG00000183648	NDUFB1	brown	OFC/PT
ENSG00000140990	NDUFB10	brown	OFC/PT
ENSG00000119013	NDUFB3	brown	OFC/PT
ENSG00000065518	NDUFB4	brown	OFC/PT
ENSG00000136521	NDUFB5	brown	OFC/PT
ENSG00000147684	NDUFB9	brown	OFC/PT
ENSG00000158864	NDUFS2	brown	OFC
ENSG00000164258	NDUFS4	brown	OFC/PT
ENSG00000123119	NECAB1	brown	OFC/PT
ENSG00000049759	NEDD4L	brown	OFC/PT
ENSG00000172260	NEGR1	brown	OFC
ENSG00000154328	NEIL2	brown	OFC
ENSG00000196712	NF1	brown	OFC/PT
ENSG00000129460	NGDN	brown	OFC/PT
ENSG00000196290	NIF3L1	brown	OFC/PT
ENSG00000140157	NIPA2	brown	OFC/PT
ENSG00000197885	NKIRAS1	brown	OFC/PT
ENSG00000087095	NLK	brown	OFC
ENSG00000142405	NLRP12	brown	OFC
ENSG00000112992	NNT	brown	OFC/PT
ENSG00000130935	NOL11	brown	OFC/PT
ENSG00000166197	NOLC1	brown	OFC/PT

ENSG00000149308	NPAT	brown	OFC
ENSG00000164129	NPY5R	brown	OFC/PT
ENSG00000174738	NR1D2	brown	OFC/PT
ENSG00000113580	NR3C1	brown	OFC/PT
ENSG00000119720	NRDE2	brown	OFC
ENSG00000175352	NRIP3	brown	OFC/PT
ENSG00000179915	NRXN1	brown	OFC
ENSG00000156831	NSMCE2	brown	OFC
ENSG00000074527	NTN4	brown	OFC
ENSG00000135778	NTPCR	brown	OFC/PT
ENSG00000112874	NUDT12	brown	OFC
ENSG00000167005	NUDT21	brown	OFC/PT
ENSG00000165609	NUDT5	brown	OFC
ENSG00000138750	NUP54	brown	OFC
ENSG00000153989	NUS1	brown	OFC/PT
ENSG00000147206	NXF3	brown	OFC
ENSG00000122126	OCRL	brown	OFC/PT
ENSG00000115758	ODC1	brown	OFC
ENSG00000046651	OFD1	brown	--
ENSG00000197444	OGDHL	brown	OFC
ENSG00000087263	OGFOD1	brown	OFC
ENSG00000152463	OLAH	brown	PT
ENSG00000130558	OLFM1	brown	OFC
ENSG00000118733	OLFM3	brown	OFC/PT
ENSG00000198836	OPA1	brown	OFC/PT
ENSG00000123240	OPTN	brown	OFC
ENSG00000197376	OR8S1	brown	OFC
ENSG00000135336	ORC3	brown	OFC/PT
ENSG00000164815	ORC5	brown	OFC/PT
ENSG00000110048	OSBP	brown	OFC/PT
ENSG00000091039	OSBPL8	brown	OFC/PT
ENSG00000132823	OSER1	brown	OFC/PT
ENSG00000164823	OSGIN2	brown	OFC
ENSG00000081087	OSTM1	brown	OFC/PT
ENSG00000151093	OXSM	brown	OFC/PT
ENSG00000171631	P2RY6	brown	OFC
ENSG00000168092	PAFAH1B2	brown	OFC/PT
ENSG00000158006	PAFAH2	brown	OFC
ENSG00000120727	PAIP2	brown	OFC/PT
ENSG00000077264	PAK3	brown	OFC/PT
ENSG00000145730	PAM	brown	OFC/PT
ENSG00000163291	PAQR3	brown	OFC/PT
ENSG00000116288	PARK7	brown	OFC/PT
ENSG00000140694	PARN	brown	OFC/PT
ENSG00000143799	PARP1	brown	OFC

ENSG00000248449	PCDHGB8P	brown	OFC/PT
ENSG00000276545	PCDHGB9P	brown	OFC/PT
ENSG00000081154	PCNP	brown	OFC/PT
ENSG00000183036	PCP4	brown	--
ENSG00000106244	PDAP1	brown	OFC
ENSG00000136940	PDCL	brown	OFC
ENSG00000177225	PDDC1	brown	OFC
ENSG00000156973	PDE6D	brown	--
ENSG00000185527	PDE6G	brown	OFC
ENSG00000168291	PDHB	brown	OFC/PT
ENSG00000110435	PDHX	brown	OFC/PT
ENSG00000175087	PDIK1L	brown	OFC/PT
ENSG00000162517	PEF1	brown	OFC/PT
ENSG00000108733	PEX12	brown	OFC/PT
ENSG00000112357	PEX7	brown	OFC/PT
ENSG00000113068	PFDN1	brown	OFC
ENSG00000101132	PFDN4	brown	OFC/PT
ENSG00000152556	PFKM	brown	OFC/PT
ENSG00000164040	PGRMC2	brown	OFC/PT
ENSG00000204138	PHACTR4	brown	OFC/PT
ENSG00000156531	PHF6	brown	OFC
ENSG00000040199	PHLPP2	brown	OFC/PT
ENSG00000175309	PHYKPL	brown	OFC/PT
ENSG00000142892	PIGK	brown	OFC/PT
ENSG00000197563	PIGN	brown	OFC/PT
ENSG00000087111	PIGS	brown	OFC
ENSG00000104872	PIH1D1	brown	--
ENSG00000145675	PIK3R1	brown	OFC
ENSG00000196455	PIK3R4	brown	OFC
ENSG00000174238	PITPNA	brown	OFC/PT
ENSG00000180957	PITPNB	brown	OFC
ENSG00000198961	PJA2	brown	OFC/PT
ENSG00000205038	PKHD1L1	brown	OFC
ENSG00000123739	PLA2G12A	brown	OFC/PT
ENSG00000187980	PLA2G2C	brown	OFC
ENSG00000182621	PLCB1	brown	OFC
ENSG00000145632	PLK2	brown	OFC/PT
ENSG00000142731	PLK4	brown	OFC
ENSG00000171566	PLRG1	brown	OFC/PT
ENSG00000120756	PLS1	brown	--
ENSG00000161381	PLXDC1	brown	--
ENSG00000105819	PMPCB	brown	OFC/PT
ENSG00000127957	PMS2P3	brown	OFC
ENSG00000115946	PNO1	brown	OFC/PT
ENSG00000004142	POLDIP2	brown	OFC

ENSG00000148229	POLE3	brown	OFC/PT
ENSG00000047315	POLR2B	brown	OFC/PT
ENSG00000168002	POLR2G	brown	OFC
ENSG00000147669	POLR2K	brown	OFC/PT
ENSG00000132664	POLR3F	brown	OFC/PT
ENSG00000132963	POMP	brown	OFC/PT
ENSG00000105171	POP4	brown	OFC/PT
ENSG00000128513	POT1	brown	OFC
ENSG00000212993	POU5F1B	brown	OFC
ENSG00000171497	PPID	brown	OFC/PT
ENSG00000100614	PPM1A	brown	OFC/PT
ENSG00000163590	PPM1L	brown	OFC
ENSG00000204619	PPP1R11	brown	OFC/PT
ENSG00000115685	PPP1R7	brown	OFC/PT
ENSG00000074211	PPP2R2C	brown	OFC
ENSG00000092020	PPP2R3C	brown	OFC
ENSG00000078304	PPP2R5C	brown	OFC/PT
ENSG00000154001	PPP2R5E	brown	OFC/PT
ENSG00000119414	PPP6C	brown	OFC/PT
ENSG00000196850	PPTC7	brown	OFC
ENSG00000110851	PRDM4	brown	OFC
ENSG00000138738	PRDM5	brown	--
ENSG00000126432	PRDX5	brown	OFC/PT
ENSG00000142875	PRKACB	brown	OFC/PT
ENSG00000163558	PRKCI	brown	OFC
ENSG00000253729	PRKDC	brown	OFC/PT
ENSG00000180228	PRKRA	brown	OFC/PT
ENSG00000137492	PRKRIR	brown	OFC/PT
ENSG00000198890	PRMT6	brown	--
ENSG00000164169	PRMT9	brown	OFC
ENSG00000136875	PRPF4	brown	OFC/PT
ENSG00000156858	PRR14	brown	OFC/PT
ENSG00000010438	PRSS3	brown	OFC
ENSG00000184647	PRSS55	brown	--
ENSG00000164985	PSIP1	brown	OFC/PT
ENSG00000100567	PSMA3	brown	OFC/PT
ENSG00000041357	PSMA4	brown	OFC/PT
ENSG00000159377	PSMB4	brown	OFC/PT
ENSG00000142507	PSMB6	brown	OFC/PT
ENSG00000136930	PSMB7	brown	OFC/PT
ENSG00000100764	PSMC1	brown	OFC/PT
ENSG00000161057	PSMC2	brown	OFC/PT
ENSG00000100519	PSMC6	brown	OFC/PT
ENSG00000173692	PSMD1	brown	OFC/PT
ENSG00000101843	PSMD10	brown	OFC/PT

ENSG00000108671	PSMD11	brown	--
ENSG00000197170	PSMD12	brown	OFC/PT
ENSG00000115233	PSMD14	brown	OFC/PT
ENSG00000175166	PSMD2	brown	OFC/PT
ENSG00000163636	PSMD6	brown	OFC/PT
ENSG00000103035	PSMD7	brown	OFC/PT
ENSG00000156471	PTDSS1	brown	OFC/PT
ENSG00000174915	PTDSS2	brown	OFC
ENSG00000110958	PTGES3	brown	OFC/PT
ENSG00000134247	PTGFRN	brown	--
ENSG00000112245	PTP4A1	brown	OFC
ENSG00000074696	PTPLAD1	brown	OFC/PT
ENSG00000072135	PTPN18	brown	OFC
ENSG00000070159	PTPN3	brown	OFC
ENSG00000088179	PTPN4	brown	OFC/PT
ENSG00000196090	PTPRT	brown	--
ENSG00000164611	PTTG1	brown	--
ENSG00000103769	RAB11A	brown	OFC/PT
ENSG00000107560	RAB11FIP2	brown	OFC/PT
ENSG00000206418	RAB12	brown	OFC/PT
ENSG00000099246	RAB18	brown	OFC/PT
ENSG00000138069	RAB1A	brown	OFC/PT
ENSG00000124209	RAB22A	brown	OFC/PT
ENSG00000172794	RAB37	brown	--
ENSG00000123892	RAB38	brown	OFC/PT
ENSG00000179331	RAB39A	brown	OFC
ENSG00000152932	RAB3C	brown	OFC/PT
ENSG00000115839	RAB3GAP1	brown	OFC/PT
ENSG00000111540	RAB5B	brown	OFC
ENSG00000175582	RAB6A	brown	OFC/PT
ENSG00000029725	RABEP1	brown	OFC
ENSG00000136933	RABEPK	brown	OFC/PT
ENSG00000152942	RAD17	brown	OFC/PT
ENSG00000160271	RALGDS	brown	OFC
ENSG00000132341	RAN	brown	OFC/PT
ENSG00000010017	RANBP9	brown	OFC/PT
ENSG00000138698	RAP1GDS1	brown	OFC/PT
ENSG00000107263	RAPGEF1	brown	OFC
ENSG00000249485	RBBP4P1	brown	--
ENSG00000102054	RBBP7	brown	OFC/PT
ENSG00000100320	RBFOX2	brown	OFC/PT
ENSG00000119446	RBM18	brown	OFC/PT
ENSG00000056586	RC3H2	brown	OFC/PT
ENSG00000172348	RCAN2	brown	OFC
ENSG00000163743	RCHY1	brown	OFC

ENSG00000169891	REPS2	brown	OFC
ENSG00000133119	RFC3	brown	OFC
ENSG00000135002	RFK	brown	OFC/PT
ENSG00000225465	RFPL1S	brown	--
ENSG00000237441	RGL2	brown	OFC/PT
ENSG00000229473	RGS17P1	brown	--
ENSG00000106615	RHEB	brown	OFC/PT
ENSG00000167550	RHEBL1	brown	OFC
ENSG00000126858	RHOT1	brown	OFC/PT
ENSG00000101782	RIOK3	brown	OFC
ENSG00000155906	RMND1	brown	OFC/PT
ENSG00000153561	RMND5A	brown	OFC/PT
ENSG00000201600	RN7SKP124	brown	OFC
ENSG00000264047	RN7SL455P	brown	--
ENSG00000265559	RN7SL652P	brown	--
ENSG00000239822	RN7SL754P	brown	--
ENSG00000241959	RN7SL76P	brown	OFC
ENSG00000123091	RNF11	brown	OFC/PT
ENSG00000013561	RNF14	brown	OFC/PT
ENSG00000118518	RNF146	brown	OFC
ENSG00000121481	RNF2	brown	OFC
ENSG00000152193	RNF219	brown	OFC/PT
ENSG00000101654	RNMT	brown	OFC/PT
ENSG00000201659	RNU12-2P	brown	OFC/PT
ENSG00000207200	RNU6-45P	brown	OFC/PT
ENSG00000207256	RNU6-880P	brown	OFC
ENSG00000238735	RNU7-113P	brown	--
ENSG00000198963	RORB	brown	OFC
ENSG00000237249	RP1-102G20.2	brown	OFC
ENSG00000259326	RP11-102L12.2	brown	--
ENSG00000240695	RP11-102M11.1	brown	OFC
ENSG00000259370	RP11-1069G10.1	brown	OFC/PT
ENSG00000267160	RP11-1072C15.4	brown	OFC
ENSG00000264464	RP11-110H1.8	brown	OFC
ENSG00000271751	RP11-110I1.14	brown	--
ENSG00000262061	RP11-1260E13.4	brown	PT
ENSG00000272953	RP11-1275H24.2	brown	--
ENSG00000278979	RP11-165M1.1	brown	OFC
ENSG00000234719	RP11-166B2.1	brown	--
ENSG00000264853	RP11-16C1.2	brown	OFC
ENSG00000279311	RP11-170K4.2	brown	--
ENSG00000278291	RP11-172H24.4	brown	OFC
ENSG00000272864	RP11-17E13.2	brown	--
ENSG00000261033	RP11-209D14.2	brown	OFC
ENSG00000223599	RP11-216N14.7	brown	OFC

ENSG00000264083	RP11-227G15.9	brown	OFC
ENSG00000260834	RP11-256I9.2	brown	OFC
ENSG00000271653	RP11-259K5.1	brown	OFC
ENSG00000261837	RP11-264L1.3	brown	OFC/PT
ENSG00000272518	RP11-26J3.3	brown	OFC
ENSG00000265798	RP11-271K11.5	brown	--
ENSG00000279147	RP11-271K21.12	brown	OFC
ENSG00000258535	RP11-280K24.4	brown	OFC
ENSG00000232093	RP11-307C12.11	brown	OFC
ENSG00000259357	RP11-316M1.12	brown	OFC
ENSG00000280083	RP11-317J9.1	brown	--
ENSG00000274461	RP11-323P17.2	brown	--
ENSG00000255328	RP11-326C3.12	brown	OFC/PT
ENSG00000263823	RP11-326K13.4	brown	OFC
ENSG00000253554	RP11-32K4.1	brown	--
ENSG00000266934	RP11-332H18.3	brown	OFC
ENSG00000273002	RP11-336K24.12	brown	OFC
ENSG00000259232	RP11-349G13.1	brown	OFC
ENSG00000227032	RP11-34E5.4	brown	OFC
ENSG00000231760	RP11-350J20.5	brown	OFC
ENSG00000259735	RP11-356M20.3	brown	OFC
ENSG00000230707	RP11-364B14.3	brown	OFC/PT
ENSG00000228280	RP11-367B6.2	brown	OFC
ENSG00000276054	RP11-378E13.3	brown	OFC
ENSG00000261007	RP11-382N13.3	brown	OFC
ENSG00000229677	RP11-383F6.1	brown	OFC/PT
ENSG00000273576	RP11-390P24.1	brown	OFC
ENSG00000259408	RP11-3D4.3	brown	OFC
ENSG00000274797	RP11-407N8.5	brown	--
ENSG00000234071	RP11-420H19.1	brown	OFC
ENSG00000264895	RP11-421E14.2	brown	OFC
ENSG00000247903	RP11-421F16.3	brown	--
ENSG00000272054	RP11-423P10.2	brown	OFC
ENSG00000224153	RP11-433C9.2	brown	OFC
ENSG00000272597	RP11-446H18.6	brown	OFC
ENSG00000235893	RP11-460E7.8	brown	OFC
ENSG00000213542	RP11-467H10.1	brown	OFC
ENSG00000278949	RP11-46H11.11	brown	OFC
ENSG00000177736	RP11-474P12.3	brown	OFC/PT
ENSG00000279357	RP11-475D10.4	brown	OFC
ENSG00000278171	RP11-476I15.5	brown	OFC
ENSG00000272156	RP11-477N3.1	brown	OFC/PT
ENSG00000260228	RP11-483P21.2	brown	OFC
ENSG00000254162	RP11-48B3.3	brown	--
ENSG00000260025	RP11-490M8.1	brown	OFC

ENSG00000275898	RP11-497G19.7	brown	OFC
ENSG00000276136	RP11-501I9.2	brown	--
ENSG00000228328	RP11-516A11.1	brown	OFC
ENSG00000260163	RP11-521O16.2	brown	OFC
ENSG00000262503	RP11-530N7.2	brown	--
ENSG00000258591	RP11-545M17.3	brown	--
ENSG00000260511	RP11-556H2.2	brown	--
ENSG00000237337	RP11-567C20.2	brown	OFC
ENSG00000261671	RP11-573G6.6	brown	--
ENSG00000264057	RP11-583F2.1	brown	--
ENSG00000260285	RP11-600F24.7	brown	OFC
ENSG00000273580	RP11-609L3.2	brown	OFC/PT
ENSG00000265625	RP11-681I3.11	brown	OFC/PT
ENSG00000261574	RP1-168P16.2	brown	OFC
ENSG00000260152	RP11-69H7.4	brown	OFC
ENSG00000264920	RP11-6N17.4	brown	OFC
ENSG00000261054	RP11-6O2.4	brown	OFC
ENSG00000259668	RP11-707P17.2	brown	OFC
ENSG00000255234	RP11-727A23.10	brown	OFC
ENSG00000269463	RP11-727F15.13	brown	OFC/PT
ENSG00000263606	RP11-737O24.3	brown	--
ENSG00000269958	RP11-73M18.8	brown	OFC
ENSG00000267263	RP11-75C10.7	brown	OFC
ENSG00000273920	RP11-761I4.5	brown	OFC
ENSG00000241400	RP11-764I5.1	brown	OFC
ENSG00000258476	RP11-76E17.3	brown	--
ENSG00000244545	RP11-788A4.1	brown	OFC
ENSG00000270190	RP11-803D5.4	brown	OFC
ENSG00000262165	RP11-81A22.5	brown	OFC
ENSG00000262412	RP11-85G18.6	brown	OFC
ENSG00000186076	RP11-887P2.3	brown	OFC
ENSG00000261959	RP11-893F2.14	brown	--
ENSG00000260588	RP11-930P14.2	brown	OFC
ENSG00000254746	RP11-958J22.1	brown	--
ENSG00000262049	RP13-1032I1.7	brown	OFC
ENSG00000272009	RP1-313I6.12	brown	--
ENSG00000254739	RP13-46H24.1	brown	OFC/PT
ENSG00000280287	RP13-554M15.7	brown	OFC/PT
ENSG00000279072	RP13-580B18.4	brown	OFC
ENSG00000278872	RP13-895J2.4	brown	OFC
ENSG00000228477	RP3-342P20.2	brown	OFC
ENSG00000196114	RP3-391O22.3	brown	OFC
ENSG00000220600	RP3-509I19.6	brown	OFC
ENSG00000223745	RP4-717I23.3	brown	OFC
ENSG00000273998	RP4-777L9.2	brown	OFC

ENSG00000226029	RP4-798A10.2	brown	OFC
ENSG00000229484	RP5-888M10.2	brown	--
ENSG00000275437	RP5-908M14.10	brown	PT
ENSG00000106399	RPA3	brown	OFC/PT
ENSG00000226360	RPL10AP6	brown	--
ENSG00000215030	RPL13P12	brown	--
ENSG00000240531	RPL21P123	brown	PT
ENSG00000184319	RPL23AP82	brown	OFC
ENSG00000219902	RPL35P3	brown	OFC
ENSG00000230071	RPL4P6	brown	OFC/PT
ENSG00000214485	RPL7P1	brown	OFC
ENSG00000148688	RPP30	brown	OFC/PT
ENSG00000141425	RPRD1A	brown	OFC/PT
ENSG00000242085	RPS20P33	brown	OFC
ENSG00000177189	RPS6KA3	brown	PT
ENSG00000083750	RRAGB	brown	OFC
ENSG00000025039	RRAGD	brown	OFC/PT
ENSG00000167325	RRM1	brown	OFC/PT
ENSG00000085721	RRN3	brown	OFC/PT
ENSG00000160214	RRP1	brown	OFC
ENSG00000160208	RRP1B	brown	--
ENSG00000081019	RSBN1	brown	OFC
ENSG00000187257	RSBN1L	brown	OFC/PT
ENSG00000137876	RSL24D1	brown	OFC/PT
ENSG00000172426	RSPH9	brown	--
ENSG00000174891	RSRC1	brown	OFC/PT
ENSG00000105784	RUNDC3B	brown	OFC/PT
ENSG00000111832	RWDD1	brown	OFC
ENSG00000013392	RWDD2A	brown	OFC/PT
ENSG00000211456	SACM1L	brown	OFC/PT
ENSG00000151835	SACS	brown	OFC
ENSG00000136715	SAP130	brown	--
ENSG00000164576	SAP30L	brown	OFC
ENSG00000031698	SARS	brown	OFC/PT
ENSG00000109929	SC5D	brown	OFC
ENSG00000168079	SCARA5	brown	OFC
ENSG00000092108	SCFD1	brown	OFC/PT
ENSG00000104112	SCG3	brown	OFC/PT
ENSG00000144285	SCN1A	brown	OFC
ENSG00000111319	SCNN1A	brown	--
ENSG00000153130	SCOC	brown	OFC/PT
ENSG00000136021	SCYL2	brown	OFC/PT
ENSG00000000457	SCYL3	brown	--
ENSG00000073578	SDHA	brown	OFC
ENSG00000185485	SDHAP1	brown	OFC

ENSG00000117118	SDHB	brown	OFC/PT
ENSG00000170786	SDR16C5	brown	OFC
ENSG00000170426	SDR9C7	brown	OFC
ENSG00000140612	SEC11A	brown	OFC
ENSG00000100934	SEC23A	brown	OFC/PT
ENSG00000138802	SEC24B	brown	OFC/PT
ENSG00000008952	SEC62	brown	OFC/PT
ENSG00000025796	SEC63	brown	OFC/PT
ENSG00000071537	SEL1L	brown	OFC/PT
ENSG00000198843	SELT	brown	OFC/PT
ENSG00000163904	SENP2	brown	OFC
ENSG00000086475	SEPHS1	brown	OFC
ENSG00000100167	SEPT3	brown	OFC/PT
ENSG00000125354	SEPT6	brown	OFC
ENSG00000122545	SEPT7	brown	OFC/PT
ENSG00000164402	SEPT8	brown	OFC
ENSG00000111897	SERINC1	brown	OFC/PT
ENSG00000151778	SERP2	brown	OFC/PT
ENSG00000163536	SERPINI1	brown	OFC/PT
ENSG00000149212	SESN3	brown	--
ENSG00000187231	SESTD1	brown	OFC
ENSG00000119335	SET	brown	OFC/PT
ENSG00000156384	SFR1	brown	--
ENSG00000198818	SFT2D1	brown	--
ENSG00000164466	SFXN1	brown	OFC/PT
ENSG00000107819	SFXN3	brown	OFC
ENSG00000118473	SGIP1	brown	OFC/PT
ENSG00000197860	SGTB	brown	OFC
ENSG00000125731	SH2D3A	brown	--
ENSG00000110013	SIAE	brown	OFC/PT
ENSG00000237914	SIRPG-AS1	brown	OFC
ENSG00000124523	SIRT5	brown	--
ENSG00000180592	SKIDA1	brown	OFC
ENSG00000163950	SLBP	brown	OFC/PT
ENSG00000145248	SLC10A4	brown	PT
ENSG00000163053	SLC16A14	brown	OFC/PT
ENSG00000147100	SLC16A2	brown	OFC
ENSG00000118596	SLC16A7	brown	OFC
ENSG00000117479	SLC19A2	brown	OFC
ENSG00000144136	SLC20A1	brown	OFC
ENSG00000089057	SLC23A2	brown	OFC
ENSG00000100372	SLC25A17	brown	OFC/PT
ENSG00000234771	SLC25A25-AS1	brown	OFC
ENSG00000162461	SLC25A34	brown	OFC
ENSG00000075303	SLC25A40	brown	OFC/PT

ENSG00000164209	SLC25A46	brown	OFC/PT
ENSG00000151229	SLC2A13	brown	OFC/PT
ENSG00000145740	SLC30A5	brown	OFC/PT
ENSG00000014824	SLC30A9	brown	OFC/PT
ENSG00000205060	SLC35B4	brown	OFC/PT
ENSG00000157800	SLC37A3	brown	PT
ENSG00000111371	SLC38A1	brown	OFC/PT
ENSG00000141424	SLC39A6	brown	OFC/PT
ENSG00000029364	SLC39A9	brown	OFC/PT
ENSG00000163798	SLC4A1AP	brown	OFC/PT
ENSG00000021488	SLC7A9	brown	OFC
ENSG00000179542	SLITRK4	brown	OFC/PT
ENSG00000164609	SLU7	brown	OFC/PT
ENSG00000170365	SMAD1	brown	--
ENSG00000112305	SMAP1	brown	OFC/PT
ENSG00000163104	SMARCAD1	brown	OFC/PT
ENSG00000214465	SMARCE1P6	brown	--
ENSG00000261556	SMG1P7	brown	OFC
ENSG00000163683	SMIM14	brown	OFC/PT
ENSG00000176209	SMIM19	brown	OFC/PT
ENSG00000240204	SMKR1	brown	OFC/PT
ENSG00000102172	SMS	brown	OFC/PT
ENSG00000143499	SMYD2	brown	OFC
ENSG00000227906	SNAP25-AS1	brown	OFC
ENSG00000143553	SNAPIN	brown	OFC
ENSG00000212293	SNORA16	brown	OFC
ENSG00000200816	SNORA38	brown	OFC
ENSG00000238961	SNORA47	brown	OFC
ENSG00000125870	SNRPB2	brown	OFC/PT
ENSG00000125743	SNRPD2	brown	OFC/PT
ENSG00000182004	SNRPE	brown	OFC/PT
ENSG00000086300	SNX10	brown	OFC/PT
ENSG00000112335	SNX3	brown	OFC/PT
ENSG00000148158	SNX30	brown	OFC
ENSG00000114520	SNX4	brown	OFC/PT
ENSG00000142168	SOD1	brown	OFC/PT
ENSG00000140263	SORD	brown	OFC/PT
ENSG00000137642	SORL1	brown	--
ENSG00000185404	SP140L	brown	OFC/PT
ENSG00000021574	SPAST	brown	OFC/PT
ENSG00000162814	SPATA17	brown	OFC/PT
ENSG00000042317	SPATA7	brown	PT
ENSG00000114902	SPCS1	brown	OFC/PT
ENSG00000106723	SPIN1	brown	OFC/PT
ENSG00000134278	SPIRE1	brown	OFC/PT

ENSG00000196104	SPOCK3	brown	OFC/PT
ENSG00000121067	SPOP	brown	OFC
ENSG00000100883	SRP54	brown	OFC/PT
ENSG00000258704	SRP54-AS1	brown	--
ENSG00000167881	SRP68	brown	OFC/PT
ENSG00000174780	SRP72	brown	OFC/PT
ENSG00000143742	SRP9	brown	OFC/PT
ENSG00000180581	SRP9P1	brown	--
ENSG00000096063	SRPK1	brown	OFC
ENSG00000135250	SRPK2	brown	OFC/PT
ENSG00000188529	SRSF10	brown	OFC/PT
ENSG00000115875	SRSF7	brown	OFC/PT
ENSG00000263465	SRSF8	brown	OFC/PT
ENSG00000008324	SS18L2	brown	OFC/PT
ENSG00000141298	SSH2	brown	PT
ENSG00000117155	SSX2IP	brown	OFC/PT
ENSG00000100380	ST13	brown	OFC/PT
ENSG00000115525	ST3GAL5	brown	OFC
ENSG00000115145	STAM2	brown	OFC
ENSG00000084090	STARD7	brown	OFC/PT
ENSG00000124214	STAU1	brown	OFC/PT
ENSG00000144589	STK11IP	brown	OFC
ENSG00000165283	STOML2	brown	OFC
ENSG00000082146	STRADB	brown	OFC/PT
ENSG00000023734	STRAP	brown	OFC/PT
ENSG00000117758	STX12	brown	OFC/PT
ENSG00000060140	STYK1	brown	OFC
ENSG00000136143	SUCLA2	brown	OFC/PT
ENSG00000163541	SUCLG1	brown	OFC/PT
ENSG00000165416	SUGT1	brown	OFC/PT
ENSG00000196502	SULT1A1	brown	OFC
ENSG00000116030	SUMO1	brown	OFC/PT
ENSG00000177688	SUMO4	brown	OFC
ENSG00000139531	SUOX	brown	--
ENSG00000198168	SVIP	brown	OFC/PT
ENSG00000019505	SYT13	brown	OFC/PT
ENSG00000143858	SYT2	brown	--
ENSG00000198198	SZT2	brown	OFC
ENSG00000157625	TAB3	brown	OFC
ENSG00000006128	TAC1	brown	--
ENSG00000147526	TACC1	brown	OFC
ENSG00000064313	TAF2	brown	OFC
ENSG00000187325	TAF9B	brown	OFC/PT
ENSG00000136560	TANK	brown	--
ENSG00000089123	TASP1	brown	OFC/PT

ENSG00000147687	TATDN1	brown	OFC
ENSG00000109680	TBC1D19	brown	OFC
ENSG00000095383	TBC1D2	brown	OFC
ENSG00000054611	TBC1D22A	brown	OFC/PT
ENSG00000109436	TBC1D9	brown	OFC/PT
ENSG00000177565	TBL1XR1	brown	OFC/PT
ENSG00000028839	TBPL1	brown	OFC/PT
ENSG00000184905	TCEAL2	brown	OFC/PT
ENSG00000133142	TCEAL4	brown	OFC
ENSG000000204065	TCEAL5	brown	OFC
ENSG000000204071	TCEAL6	brown	OFC/PT
ENSG00000182916	TCEAL7	brown	OFC/PT
ENSG00000180964	TCEAL8	brown	OFC/PT
ENSG00000154582	TCEB1	brown	OFC/PT
ENSG00000139437	TCHP	brown	OFC
ENSG00000092850	TEKT2	brown	OFC
ENSG00000135426	TESPA1	brown	OFC
ENSG00000162851	TFB2M	brown	OFC/PT
ENSG00000135457	TFCP2	brown	--
ENSG00000114354	TFG	brown	OFC
ENSG00000129028	THAP10	brown	OFC/PT
ENSG00000130775	THEMIS2	brown	OFC/PT
ENSG00000163634	THOC7	brown	OFC/PT
ENSG00000151500	THYN1	brown	OFC/PT
ENSG00000134375	TIMM17A	brown	OFC/PT
ENSG00000126953	TIMM8A	brown	OFC
ENSG00000143155	TIPRL	brown	OFC/PT
ENSG00000077147	TM9SF3	brown	OFC/PT
ENSG000000271270	TMCC1-AS1	brown	OFC
ENSG00000086598	TMED2	brown	OFC/PT
ENSG00000100580	TMED8	brown	OFC
ENSG00000106460	TMEM106B	brown	OFC/PT
ENSG00000171202	TMEM126A	brown	OFC/PT
ENSG00000171204	TMEM126B	brown	OFC/PT
ENSG00000151952	TMEM132D	brown	--
ENSG00000166575	TMEM135	brown	OFC/PT
ENSG00000174695	TMEM167A	brown	OFC/PT
ENSG000000205269	TMEM170B	brown	OFC/PT
ENSG000000261115	TMEM178B	brown	OFC
ENSG00000146433	TMEM181	brown	OFC/PT
ENSG000000269556	TMEM185A	brown	OFC
ENSG00000164484	TMEM200A	brown	--
ENSG000000206432	TMEM200C	brown	OFC
ENSG00000168701	TMEM208	brown	OFC
ENSG00000106609	TMEM248	brown	OFC/PT

ENSG00000137038	TMEM261	brown	OFC/PT
ENSG00000151135	TMEM263	brown	OFC/PT
ENSG00000109133	TMEM33	brown	OFC/PT
ENSG00000072954	TMEM38A	brown	--
ENSG00000142188	TMEM50B	brown	OFC/PT
ENSG00000109084	TMEM97	brown	OFC
ENSG00000128872	TMOD2	brown	OFC/PT
ENSG00000139324	TMTC3	brown	OFC
ENSG00000125827	TMX4	brown	OFC/PT
ENSG00000083312	TNPO1	brown	OFC
ENSG00000141198	TOM1L1	brown	PT
ENSG00000163781	TOPBP1	brown	OFC/PT
ENSG00000136816	TOR1B	brown	PT
ENSG00000067369	TP53BP1	brown	OFC/PT
ENSG00000226415	TPI1P1	brown	OFC
ENSG00000100181	TPTEP1	brown	--
ENSG00000174599	TRAM1L1	brown	PT
ENSG00000168538	TRAPPC11	brown	OFC/PT
ENSG00000171853	TRAPPC12	brown	OFC/PT
ENSG00000167515	TRAPPC2L	brown	OFC
ENSG00000182400	TRAPPC6B	brown	OFC/PT
ENSG00000153339	TRAPPC8	brown	OFC/PT
ENSG00000170855	TRIAP1	brown	OFC/PT
ENSG00000113595	TRIM23	brown	OFC/PT
ENSG00000108395	TRIM37	brown	OFC/PT
ENSG00000166326	TRIM44	brown	OFC
ENSG00000185880	TRIM69	brown	--
ENSG00000174173	TRMT10C	brown	OFC/PT
ENSG00000165832	TRUB1	brown	OFC/PT
ENSG00000211460	TSN	brown	OFC/PT
ENSG00000140391	TSPAN3	brown	OFC/PT
ENSG00000180543	TSPYL5	brown	OFC/PT
ENSG00000158526	TSR2	brown	OFC/PT
ENSG00000136925	TSTD2	brown	OFC
ENSG00000113312	TTC1	brown	OFC/PT
ENSG00000114999	TTL	brown	--
ENSG00000135912	TTLL4	brown	OFC
ENSG00000261456	TUBB8	brown	--
ENSG00000127589	TUBBP1	brown	OFC
ENSG00000137822	TUBGCP4	brown	OFC
ENSG00000105849	TWISTNB	brown	OFC/PT
ENSG00000136810	TXN	brown	OFC/PT
ENSG00000091164	TXNL1	brown	OFC/PT
ENSG00000141759	TXNL4A	brown	OFC/PT
ENSG00000198431	TXNRD1	brown	OFC

ENSG00000259581	TYRO3P	brown	OFC
ENSG00000162623	TYW3	brown	OFC/PT
ENSG00000270384	U1	brown	OFC
ENSG00000144744	UBA3	brown	OFC/PT
ENSG00000131508	UBE2D2	brown	OFC/PT
ENSG00000078967	UBE2D4	brown	--
ENSG00000170142	UBE2E1	brown	OFC/PT
ENSG00000170035	UBE2E3	brown	OFC
ENSG00000198833	UBE2J1	brown	OFC/PT
ENSG00000078140	UBE2K	brown	OFC/PT
ENSG00000177889	UBE2N	brown	OFC/PT
ENSG00000160714	UBE2Q1	brown	OFC/PT
ENSG00000114062	UBE3A	brown	OFC/PT
ENSG00000009335	UBE3C	brown	OFC/PT
ENSG00000110344	UBE4A	brown	OFC/PT
ENSG00000103353	UBFD1	brown	PT
ENSG00000198258	UBL5	brown	OFC/PT
ENSG00000159459	UBR1	brown	OFC
ENSG00000144357	UBR3	brown	OFC/PT
ENSG00000215114	UBXN2B	brown	OFC
ENSG00000116750	UCHL5	brown	OFC/PT
ENSG00000143179	UCK2	brown	--
ENSG00000014123	UFL1	brown	OFC/PT
ENSG00000120686	UFM1	brown	OFC/PT
ENSG00000109775	UFSP2	brown	OFC/PT
ENSG00000169764	UGP2	brown	OFC
ENSG00000115446	UNC50	brown	OFC/PT
ENSG00000156467	UQCRB	brown	OFC/PT
ENSG00000140740	UQCRC2	brown	OFC/PT
ENSG00000169021	UQCRFS1	brown	OFC/PT
ENSG00000173660	UQCRH	brown	OFC/PT
ENSG00000164405	UQCRQ	brown	OFC/PT
ENSG00000103005	USB1	brown	OFC/PT
ENSG00000138768	USO1	brown	OFC
ENSG00000162607	USP1	brown	OFC/PT
ENSG00000103194	USP10	brown	OFC/PT
ENSG00000152484	USP12	brown	OFC/PT
ENSG00000058056	USP13	brown	OFC
ENSG00000143258	USP21	brown	OFC
ENSG00000170832	USP32	brown	OFC
ENSG00000077254	USP33	brown	OFC/PT
ENSG00000187555	USP7	brown	OFC/PT
ENSG00000132952	USPL1	brown	OFC
ENSG00000183520	UTP11L	brown	OFC
ENSG00000115652	UXS1	brown	OFC/PT

ENSG00000139190	VAMP1	brown	OFC
ENSG00000101558	VAPA	brown	OFC/PT
ENSG00000155959	VBP1	brown	OFC/PT
ENSG00000175073	VCPIP1	brown	OFC/PT
ENSG00000048707	VPS13D	brown	OFC
ENSG00000184056	VPS33B	brown	OFC
ENSG00000136100	VPS36	brown	OFC
ENSG00000105053	VRK3	brown	OFC/PT
ENSG00000084463	WBP11	brown	OFC/PT
ENSG00000120688	WBP4	brown	OFC
ENSG00000185222	WBP5	brown	OFC
ENSG00000162923	WDR26	brown	OFC/PT
ENSG00000065183	WDR3	brown	OFC/PT
ENSG00000136709	WDR33	brown	OFC
ENSG00000134987	WDR36	brown	OFC/PT
ENSG00000164253	WDR41	brown	OFC/PT
ENSG00000114742	WDR48	brown	OFC/PT
ENSG00000185798	WDR53	brown	OFC/PT
ENSG00000103091	WDR59	brown	OFC/PT
ENSG00000092470	WDR76	brown	OFC
ENSG00000279954	WI2-85898F10.2	brown	OFC
ENSG00000105989	WNT2	brown	OFC
ENSG00000182093	WRB	brown	OFC/PT
ENSG00000082898	XPO1	brown	OFC/PT
ENSG00000130227	XPO7	brown	OFC/PT
ENSG00000184575	XPOT	brown	OFC/PT
ENSG00000207383	Y_RNA	brown	OFC
ENSG00000145817	YIPF5	brown	OFC/PT
ENSG00000136758	YME1L1	brown	OFC/PT
ENSG00000180667	YOD1	brown	OFC
ENSG00000108953	YWHAE	brown	OFC/PT
ENSG00000236829	Z97634.3	brown	OFC
ENSG00000182223	ZAR1	brown	--
ENSG00000179456	ZBTB18	brown	OFC
ENSG00000181472	ZBTB2	brown	OFC
ENSG00000177888	ZBTB41	brown	OFC
ENSG00000065548	ZC3H15	brown	OFC/PT
ENSG00000174460	ZCCHC12	brown	OFC
ENSG00000121766	ZCCHC17	brown	OFC/PT
ENSG00000131732	ZCCHC9	brown	--
ENSG00000177054	ZDHHC13	brown	OFC/PT
ENSG00000104231	ZFAND1	brown	OFC/PT
ENSG00000156639	ZFAND3	brown	OFC/PT
ENSG00000107372	ZFAND5	brown	OFC/PT
ENSG00000131381	ZFYVE20	brown	OFC/PT

ENSG00000157077	ZFYVE9	brown	OFC/PT
ENSG00000100319	ZMAT5	brown	OFC
ENSG00000159882	ZNF230	brown	OFC
ENSG00000159915	ZNF233	brown	--
ENSG00000158805	ZNF276	brown	OFC
ENSG00000141040	ZNF287	brown	OFC
ENSG00000131845	ZNF304	brown	OFC/PT
ENSG00000131061	ZNF341	brown	OFC
ENSG00000161642	ZNF385A	brown	OFC
ENSG00000266127	ZNF415P1	brown	--
ENSG00000197050	ZNF420	brown	OFC/PT
ENSG00000240225	ZNF542P	brown	OFC/PT
ENSG00000196437	ZNF569	brown	OFC/PT
ENSG00000083814	ZNF671	brown	--
ENSG00000106479	ZNF862	brown	OFC
ENSG00000121903	ZSCAN20	brown	OFC
ENSG00000162378	ZYG11B	brown	OFC/PT
Ensembl_gene (TOC)	gene_name	Módulo	HUB
ENSG00000158122	AAED1	royalblue	--
ENSG00000106077	ABHD11	royalblue	OFC
ENSG00000231185	AC005592.2	royalblue	--
ENSG00000222226	AC006926.1	royalblue	OFC
ENSG00000268568	AC007228.9	royalblue	--
ENSG00000279526	AC011239.2	royalblue	OFC
ENSG00000234624	AC016894.1	royalblue	--
ENSG00000233862	AC016907.3	royalblue	--
ENSG00000227158	AC073621.2	royalblue	OFC
ENSG00000267395	AC074212.6	royalblue	--
ENSG00000232034	AC092168.2	royalblue	OFC
ENSG00000259848	AC097374.2	royalblue	--
ENSG00000228521	AC099552.3	royalblue	OFC
ENSG00000226410	AC104058.1	royalblue	--
ENSG00000256546	AC156455.1	royalblue	--
ENSG00000235833	AC159540.14	royalblue	OFC
ENSG00000163017	ACTG2	royalblue	OFC
ENSG00000196616	ADH1B	royalblue	OFC
ENSG00000223694	ADH5P3	royalblue	--
ENSG00000158669	AGPAT6	royalblue	--
ENSG00000159723	AGRP	royalblue	OFC
ENSG00000126878	AIF1L	royalblue	OFC
ENSG00000252196	AL590482.1	royalblue	--
ENSG00000101280	ANGPT4	royalblue	OFC
ENSG00000224309	ANKRD30BP2	royalblue	--
ENSG00000196912	ANKRD36B	royalblue	OFC

ENSG00000135046	ANXA1	royalblue	--
ENSG00000122359	ANXA11	royalblue	--
ENSG00000131471	AOC3	royalblue	--
ENSG00000231355	AP000302.58	royalblue	OFC/PT
ENSG00000165272	AQP3	royalblue	--
ENSG00000103569	AQP9	royalblue	--
ENSG00000227817	ARHGAP42P1	royalblue	OFC
ENSG00000232226	ARSFP1	royalblue	OFC
ENSG00000111339	ART4	royalblue	--
ENSG00000153094	BCL2L11	royalblue	--
ENSG00000185963	BICD2	royalblue	--
ENSG00000102010	BMX	royalblue	OFC
ENSG00000280372	bP-21201H5.2	royalblue	OFC
ENSG00000183826	BTBD9	royalblue	OFC
ENSG00000165810	BTNL9	royalblue	--
ENSG00000276462	BX255923.3	royalblue	--
ENSG00000130921	C12orf65	royalblue	--
ENSG00000160221	C21orf33	royalblue	--
ENSG00000157617	C2CD2	royalblue	--
ENSG00000112936	C7	royalblue	--
ENSG00000156172	C8orf37	royalblue	OFC
ENSG00000122786	CALD1	royalblue	OFC
ENSG00000205488	CALML3-AS1	royalblue	OFC
ENSG00000164326	CARTPT	royalblue	--
ENSG00000130940	CASZ1	royalblue	OFC
ENSG00000149548	CCDC15	royalblue	PT
ENSG00000144395	CCDC150	royalblue	--
ENSG00000146574	CCZ1B	royalblue	OFC
ENSG00000179242	CDH4	royalblue	--
ENSG00000074276	CDHR2	royalblue	--
ENSG00000100162	CENPM	royalblue	OFC
ENSG00000215478	CES5AP1	royalblue	OFC
ENSG00000223820	CFL1P1	royalblue	OFC
ENSG00000275993	CH507-42P11.8	royalblue	--
ENSG00000224318	CHL1-AS2	royalblue	--
ENSG00000164695	CHMP4C	royalblue	--
ENSG00000108556	CHRNE	royalblue	--
ENSG00000137975	CLCA2	royalblue	--
ENSG00000172322	CLEC12A	royalblue	--
ENSG00000169583	CLIC3	royalblue	--
ENSG00000169504	CLIC4	royalblue	--
ENSG00000213335	CLNS1AP1	royalblue	--
ENSG00000108821	COL1A1	royalblue	--
ENSG00000168542	COL3A1	royalblue	--
ENSG00000163359	COL6A3	royalblue	OFC

ENSG00000144810	COL8A1	royalblue	--
ENSG00000228092	COX6CP15	royalblue	--
ENSG00000160111	CPAMD8	royalblue	--
ENSG00000147571	CRH	royalblue	--
ENSG00000170275	CRTAP	royalblue	--
ENSG00000244752	CRYBB2	royalblue	--
ENSG00000147408	CSGALNACT1	royalblue	--
ENSG00000279714	CTA-212A2.2	royalblue	OFC/PT
ENSG00000253297	CTB-160O22.1	royalblue	OFC
ENSG00000266903	CTB-171A8.1	royalblue	--
ENSG00000275431	CTB-186H2.3	royalblue	PT
ENSG00000250284	CTB-1I21.1	royalblue	OFC
ENSG00000276251	CTB-32O4.3	royalblue	--
ENSG00000175029	CTBP2	royalblue	OFC
ENSG00000267405	CTC-296K1.4	royalblue	OFC
ENSG00000279668	CTC-304I17.1	royalblue	PT
ENSG00000253946	CTC-425K20.1	royalblue	OFC
ENSG00000261754	CTC-523E23.1	royalblue	OFC
ENSG00000267644	CTD-2008P7.10	royalblue	--
ENSG00000271892	CTD-2228A4.1	royalblue	OFC
ENSG00000250320	CTD-2269F5.1	royalblue	--
ENSG00000267422	CTD-2554C21.1	royalblue	OFC
ENSG00000279611	CTD-2619J13.5	royalblue	--
ENSG00000077063	CTTNBP2	royalblue	OFC
ENSG00000142871	CYR61	royalblue	--
ENSG00000228592	D21S2088E	royalblue	OFC
ENSG00000236709	DAPK1-IT1	royalblue	--
ENSG00000152670	DDX4	royalblue	OFC
ENSG00000175084	DES	royalblue	--
ENSG00000157326	DHRS4	royalblue	--
ENSG00000261645	DISC1FP1	royalblue	OFC
ENSG00000137094	DNAJB5	royalblue	OFC
ENSG00000147570	DNAJC5B	royalblue	OFC
ENSG00000123992	DNPEP	royalblue	OFC
ENSG00000046604	DSG2	royalblue	OFC
ENSG00000259056	DUXAP1	royalblue	--
ENSG00000168589	DYNLRB2	royalblue	--
ENSG00000133740	E2F5	royalblue	OFC
ENSG00000108001	EBF3	royalblue	OFC
ENSG00000106823	ECM2	royalblue	--
ENSG00000163576	EFHB	royalblue	--
ENSG00000099617	EFNA2	royalblue	OFC
ENSG00000164318	EGFLAM	royalblue	--
ENSG00000049540	ELN	royalblue	--
ENSG00000188316	ENO4	royalblue	--

ENSG00000144488	ESPNL	royalblue	OFC
ENSG00000171311	EXOSC1	royalblue	--
ENSG00000198734	F5	royalblue	--
ENSG00000185519	FAM131C	royalblue	--
ENSG00000138640	FAM13A	royalblue	--
ENSG00000189320	FAM180A	royalblue	OFC
ENSG00000158246	FAM46B	royalblue	OFC
ENSG00000105523	FAM83E	royalblue	--
ENSG00000173295	FAM86B3P	royalblue	--
ENSG00000162458	FBLIM1	royalblue	--
ENSG00000163520	FBLN2	royalblue	OFC
ENSG00000166147	FBN1	royalblue	OFC
ENSG00000112214	FHL5	royalblue	--
ENSG00000079150	FKBP7	royalblue	--
ENSG00000280252	FKSG63	royalblue	--
ENSG00000196924	FLNA	royalblue	--
ENSG00000122176	FMOD	royalblue	--
ENSG00000137942	FNBP1L	royalblue	--
ENSG00000125740	FOSB	royalblue	--
ENSG00000054598	FOXC1	royalblue	OFC
ENSG00000176692	FOXC2	royalblue	--
ENSG00000237424	FOXD2-AS1	royalblue	OFC
ENSG00000206262	FOXL2NB	royalblue	--
ENSG00000196968	FUT11	royalblue	--
ENSG00000109586	GALNT7	royalblue	--
ENSG00000082516	GEMIN5	royalblue	--
ENSG00000121743	GJA3	royalblue	--
ENSG00000065325	GLP2R	royalblue	OFC
ENSG00000178732	GP5	royalblue	--
ENSG00000256925	GPR123-AS1	royalblue	--
ENSG00000173250	GPR151	royalblue	--
ENSG00000183150	GPR19	royalblue	--
ENSG00000175318	GRAMD2	royalblue	--
ENSG00000167914	GSDMA	royalblue	--
ENSG00000100577	GSTZ1	royalblue	--
ENSG00000224458	GUSBP6	royalblue	--
ENSG00000227344	HAUS6P1	royalblue	--
ENSG00000258777	HIF1A-AS1	royalblue	--
ENSG00000124575	HIST1H1D	royalblue	--
ENSG00000232629	HLA-DQB2	royalblue	--
ENSG00000237646	HLCS-IT1	royalblue	--
ENSG00000205581	HMGNI	royalblue	--
ENSG00000176635	HORMAD2	royalblue	OFC
ENSG00000110169	HPX	royalblue	OFC
ENSG00000113905	HRG	royalblue	OFC

ENSG00000232953	HSPA8P18	royalblue	OFC
ENSG00000152137	HSPB8	royalblue	--
ENSG00000170801	HTRA3	royalblue	OFC
ENSG00000250325	IGBP1P4	royalblue	--
ENSG00000223799	IL10RB-AS1	royalblue	--
ENSG00000153487	ING1	royalblue	OFC
ENSG00000273024	INTS4P2	royalblue	--
ENSG00000104299	INTS9	royalblue	--
ENSG00000005884	ITGA3	royalblue	--
ENSG00000077943	ITGA8	royalblue	--
ENSG00000235257	ITGA9-AS1	royalblue	--
ENSG00000082781	ITGB5	royalblue	--
ENSG00000162267	ITIH3	royalblue	OFC
ENSG00000149596	JPH2	royalblue	OFC
ENSG00000197256	KANK2	royalblue	OFC/PT
ENSG00000145936	KCNMB1	royalblue	OFC/PT
ENSG00000124134	KCNS1	royalblue	--
ENSG00000183783	KCTD8	royalblue	--
ENSG00000250305	KIAA1456	royalblue	OFC
ENSG00000164627	KIF6	royalblue	--
ENSG00000183853	KIRREL	royalblue	OFC
ENSG00000168427	KLHL30	royalblue	--
ENSG00000134539	KLRD1	royalblue	--
ENSG00000184445	KNTC1	royalblue	--
ENSG00000135862	LAMC1	royalblue	OFC
ENSG00000267690	LDLRAD4-AS1	royalblue	OFC
ENSG00000171747	LGALS4	royalblue	--
ENSG00000149656	LINC00266-1	royalblue	OFC
ENSG00000223414	LINC00473	royalblue	--
ENSG00000260910	LINC00565	royalblue	--
ENSG00000263753	LINC00667	royalblue	--
ENSG00000235703	LINC00894	royalblue	--
ENSG00000236499	LINC00896	royalblue	--
ENSG00000249307	LINC01088	royalblue	--
ENSG00000204588	LINC01123	royalblue	--
ENSG00000215808	LINC01139	royalblue	OFC
ENSG00000240405	LINC01212	royalblue	OFC
ENSG00000231808	LINC01388	royalblue	--
ENSG00000231427	LINC01445	royalblue	OFC
ENSG00000234229	LINC01505	royalblue	--
ENSG00000183423	LRIT3	royalblue	--
ENSG00000257103	LSM14A	royalblue	--
ENSG00000183060	LYSMD4	royalblue	OFC
ENSG00000133315	MACROD1	royalblue	--
ENSG00000180815	MAP3K15	royalblue	--

ENSG00000129680	MAP7D3	royalblue	OFC
ENSG00000144583	4-Mar	royalblue	OFC
ENSG00000247626	MARS2	royalblue	--
ENSG00000155254	MARVELD1	royalblue	PT
ENSG00000174912	METTL15P1	royalblue	OFC
ENSG00000165792	METTL17	royalblue	OFC
ENSG00000117122	MFAP2	royalblue	OFC
ENSG00000207625	MIR128-2	royalblue	--
ENSG00000221063	MIR1296	royalblue	--
ENSG00000266417	MIR4424	royalblue	OFC
ENSG00000268471	MIR4453	royalblue	OFC
ENSG00000276147	MIR548AY	royalblue	OFC
ENSG00000278418	MIR6512	royalblue	OFC
ENSG00000115648	MLPH	royalblue	PT
ENSG00000133422	MORC2	royalblue	--
ENSG00000174099	MSRB3	royalblue	OFC
ENSG00000125459	MSTO1	royalblue	OFC
ENSG00000232373	MTCYBP3	royalblue	--
ENSG00000234886	MTND5P26	royalblue	OFC
ENSG00000132382	MYBBP1A	royalblue	--
ENSG00000196091	MYBPC1	royalblue	OFC
ENSG00000101335	MYL9	royalblue	--
ENSG00000147813	NAPRT	royalblue	OFC
ENSG00000162614	NEXN	royalblue	OFC
ENSG00000235927	NEXN-AS1	royalblue	--
ENSG00000099250	NRP1	royalblue	OFC
ENSG00000168268	NT5DC2	royalblue	OFC
ENSG00000143228	NUF2	royalblue	OFC
ENSG00000120253	NUP43	royalblue	OFC
ENSG00000184232	OAF	royalblue	OFC
ENSG00000184933	OR6A2	royalblue	--
ENSG00000168992	OR7E102P	royalblue	--
ENSG00000123353	ORMDL2	royalblue	--
ENSG00000143867	OSR1	royalblue	--
ENSG00000188162	OTOG	royalblue	--
ENSG00000164164	OTUD4	royalblue	--
ENSG00000129116	PALLD	royalblue	OFC
ENSG00000152520	PAN3	royalblue	OFC
ENSG00000112541	PDE10A	royalblue	--
ENSG00000197461	PDGFA	royalblue	--
ENSG00000073921	PICALM	royalblue	--
ENSG00000060642	PIGV	royalblue	--
ENSG00000091436	PK	royalblue	OFC
ENSG00000127564	PKMYT1	royalblue	--
ENSG00000184363	PKP3	royalblue	--

ENSG00000116711	PLA2G4A	royalblue	--
ENSG00000181690	PLAG1	royalblue	OFC
ENSG00000118495	PLAGL1	royalblue	OFC
ENSG00000225479	PLCB1-IT1	royalblue	OFC/PT
ENSG00000102007	PLP2	royalblue	OFC
ENSG00000143190	POU2F1	royalblue	OFC
ENSG00000188386	PPP3R2	royalblue	OFC
ENSG00000061455	PRDM6	royalblue	--
ENSG00000217325	PRELID1P1	royalblue	OFC/PT
ENSG00000188783	PRELP	royalblue	--
ENSG00000270127	PRKXP1	royalblue	OFC
ENSG00000184500	PROS1	royalblue	--
ENSG00000178226	PRSS36	royalblue	PT
ENSG00000068878	PSME4	royalblue	--
ENSG00000233067	PTCHD1-AS	royalblue	--
ENSG00000073756	PTGS2	royalblue	--
ENSG00000120899	PTK2B	royalblue	OFC
ENSG00000177469	PTRF	royalblue	--
ENSG00000241945	PWP2	royalblue	OFC
ENSG00000261359	PYCARD-AS1	royalblue	OFC
ENSG00000068831	RASGRP2	royalblue	OFC
ENSG00000155636	RBM45	royalblue	--
ENSG00000135870	RC3H1	royalblue	--
ENSG00000246763	RGMB-AS1	royalblue	--
ENSG00000169629	RGPD8	royalblue	--
ENSG00000067560	RHOA	royalblue	--
ENSG00000143878	RHOB	royalblue	--
ENSG00000251697	RN7SKP24	royalblue	--
ENSG00000242547	RN7SL169P	royalblue	OFC
ENSG00000240322	RN7SL481P	royalblue	OFC
ENSG00000243260	RN7SL558P	royalblue	--
ENSG00000239726	RN7SL688P	royalblue	OFC
ENSG00000113269	RNF130	royalblue	--
ENSG00000206652	RNU1-1	royalblue	--
ENSG00000222629	RNU2-42P	royalblue	--
ENSG00000206932	RNU6-4P	royalblue	--
ENSG00000212482	RNU6-530P	royalblue	--
ENSG00000252027	RNU6ATAC14P	royalblue	OFC
ENSG00000276216	RNVU1-14	royalblue	--
ENSG00000275538	RNVU1-19	royalblue	--
ENSG00000279616	RP1-102H19.7	royalblue	OFC
ENSG00000276724	RP11-1000B6.7	royalblue	--
ENSG00000261423	RP11-1007O24.3	royalblue	OFC
ENSG00000253475	RP11-110G21.2	royalblue	--
ENSG00000189332	RP11-113D6.10	royalblue	--

ENSG00000257764	RP11-1143G9.4	royalblue	OFC
ENSG00000273488	RP11-114I8.4	royalblue	--
ENSG00000279905	RP11-117L5.1	royalblue	--
ENSG00000256427	RP11-118B22.4	royalblue	OFC
ENSG00000273819	RP11-119D9.5	royalblue	--
ENSG00000271913	RP1-111C20.4	royalblue	OFC
ENSG00000239627	RP11-124A7.1	royalblue	--
ENSG00000274911	RP11-12A20.7	royalblue	--
ENSG00000279409	RP11-133K1.9	royalblue	--
ENSG00000259086	RP11-134E15.2	royalblue	OFC
ENSG00000276672	RP11-142E9.1	royalblue	OFC
ENSG00000236514	RP11-162G10.5	royalblue	--
ENSG00000259448	RP11-16E12.1	royalblue	--
ENSG00000265683	RP11-173M1.5	royalblue	--
ENSG00000225203	RP11-182M20.2	royalblue	OFC
ENSG00000219448	RP11-193H22.2	royalblue	--
ENSG00000260093	RP11-1E4.1	royalblue	--
ENSG00000236576	RP11-22B10.3	royalblue	--
ENSG00000261783	RP11-252K23.2	royalblue	--
ENSG00000259645	RP11-253M7.6	royalblue	--
ENSG00000270880	RP11-255E6.5	royalblue	--
ENSG00000278926	RP11-264M12.4	royalblue	--
ENSG00000276417	RP11-266K4.13	royalblue	--
ENSG00000214654	RP11-27I1.4	royalblue	--
ENSG00000260988	RP11-285A1.1	royalblue	OFC
ENSG00000248803	RP11-287J9.1	royalblue	--
ENSG00000257624	RP1-128M12.3	royalblue	OFC
ENSG00000277539	RP11-298C2.1	royalblue	--
ENSG00000273080	RP11-301O19.1	royalblue	OFC
ENSG00000237436	RP11-312B8.1	royalblue	OFC
ENSG00000253967	RP11-333A23.4	royalblue	--
ENSG00000226581	RP11-340I6.8	royalblue	--
ENSG00000259609	RP11-342A23.1	royalblue	--
ENSG00000228392	RP11-343J18.1	royalblue	--
ENSG00000275805	RP11-349H17.2	royalblue	--
ENSG00000203688	RP11-351J23.1	royalblue	OFC
ENSG00000270820	RP11-355B11.2	royalblue	OFC
ENSG00000237499	RP11-356I2.4	royalblue	OFC
ENSG00000254707	RP11-35J10.4	royalblue	OFC
ENSG00000253174	RP11-360L9.7	royalblue	--
ENSG00000272995	RP11-362J17.1	royalblue	OFC
ENSG00000232648	RP11-367N14.2	royalblue	OFC
ENSG00000251468	RP11-369K16.1	royalblue	OFC
ENSG00000270640	RP11-373D23.2	royalblue	--
ENSG00000263063	RP11-388C12.1	royalblue	OFC

ENSG00000279485	RP11-391A7.1	royalblue	OFC
ENSG00000272871	RP11-408A13.4	royalblue	--
ENSG00000273026	RP11-422P24.10	royalblue	OFC
ENSG00000261478	RP11-429B14.4	royalblue	OFC
ENSG00000247193	RP11-431M7.3	royalblue	OFC
ENSG00000242423	RP11-451N19.1	royalblue	--
ENSG00000261208	RP11-452D12.1	royalblue	--
ENSG00000226002	RP11-460N20.5	royalblue	--
ENSG00000279142	RP11-463O9.2	royalblue	OFC
ENSG00000204044	RP11-465L10.10	royalblue	OFC
ENSG00000235381	RP11-477D19.2	royalblue	PT
ENSG00000257918	RP11-482D24.3	royalblue	--
ENSG00000269935	RP11-482M8.3	royalblue	--
ENSG00000259081	RP11-488C13.6	royalblue	--
ENSG00000261823	RP11-48G14.1	royalblue	OFC
ENSG00000272397	RP11-497D6.5	royalblue	--
ENSG00000223764	RP11-54O7.3	royalblue	OFC
ENSG00000273599	RP11-59C5.3	royalblue	--
ENSG00000258375	RP11-617J18.1	royalblue	--
ENSG00000254141	RP11-642D21.1	royalblue	--
ENSG00000213144	RP11-64B16.2	royalblue	--
ENSG00000280008	RP11-652L8.4	royalblue	OFC
ENSG00000279598	RP11-65L3.3	royalblue	--
ENSG00000204241	RP11-713P17.3	royalblue	--
ENSG00000266783	RP11-715F3.2	royalblue	--
ENSG00000269939	RP11-727A23.11	royalblue	OFC
ENSG00000224016	RP11-728K20.1	royalblue	--
ENSG00000180015	RP11-756P10.3	royalblue	--
ENSG00000255504	RP11-788M5.3	royalblue	--
ENSG00000278991	RP11-797A18.5	royalblue	OFC
ENSG00000271966	RP11-7F18.2	royalblue	--
ENSG00000273493	RP11-80H18.4	royalblue	OFC
ENSG00000265713	RP11-82O19.2	royalblue	OFC
ENSG00000270720	RP11-84C13.2	royalblue	--
ENSG00000276291	RP11-87H9.2	royalblue	--
ENSG00000233178	RP11-88I18.2	royalblue	--
ENSG00000255449	RP11-91P24.6	royalblue	--
ENSG00000250286	RP11-94C24.8	royalblue	PT
ENSG00000261654	RP11-96K19.4	royalblue	--
ENSG00000278112	RP11-972P1.11	royalblue	PT
ENSG00000258569	RP11-99E15.2	royalblue	--
ENSG00000277534	RP11-9E17.1	royalblue	OFC
ENSG00000254872	RP13-870H17.3	royalblue	OFC
ENSG00000216307	RP3-400B16.2	royalblue	--
ENSG00000225891	RP3-476K8.3	royalblue	--

ENSG00000276026	RP4-545L17.11	royalblue	--
ENSG00000237640	RP4-604G5.1	royalblue	--
ENSG00000225675	RP4-784A16.5	royalblue	OFC
ENSG00000244582	RPL21P120	royalblue	OFC
ENSG00000233072	RPS15AP6	royalblue	OFC
ENSG00000185088	RPS27L	royalblue	--
ENSG00000083845	RPS5	royalblue	--
ENSG00000137154	RPS6	royalblue	PT
ENSG00000198208	RPS6KL1	royalblue	--
ENSG00000239608	RUVBL1-AS1	royalblue	OFC/PT
ENSG00000164764	SBSPON	royalblue	--
ENSG00000146197	SCUBE3	royalblue	--
ENSG00000258624	SERPINE4P	royalblue	OFC
ENSG00000108823	SGCA	royalblue	OFC
ENSG00000152779	SLC16A12	royalblue	OFC
ENSG00000146477	SLC22A3	royalblue	OFC
ENSG00000120329	SLC25A2	royalblue	PT
ENSG00000224281	SLC25A5-AS1	royalblue	--
ENSG00000181856	SLC2A4	royalblue	--
ENSG00000105641	SLC5A5	royalblue	OFC
ENSG00000178235	SLITRK1	royalblue	--
ENSG00000163681	SLMAP	royalblue	--
ENSG00000101665	SMAD7	royalblue	--
ENSG00000225215	SMARCE1P1	royalblue	--
ENSG00000070366	SMG6	royalblue	--
ENSG00000278941	SMG6-IT1	royalblue	OFC
ENSG00000221102	SNORA11B	royalblue	OFC
ENSG00000028528	SNX1	royalblue	OFC
ENSG00000057252	SOAT1	royalblue	--
ENSG00000153006	SREK1IP1	royalblue	--
ENSG00000235374	SSR4P1	royalblue	--
ENSG00000157005	SST	royalblue	OFC
ENSG00000229867	STEAP3-AS1	royalblue	--
ENSG00000125834	STK35	royalblue	--
ENSG00000166763	STRCP1	royalblue	--
ENSG00000196235	SUPT5H	royalblue	OFC
ENSG00000197321	SVIL	royalblue	OFC
ENSG00000182253	SYNM	royalblue	--
ENSG00000173227	SYT12	royalblue	--
ENSG00000165632	TAF3	royalblue	PT
ENSG00000149591	TAGLN	royalblue	OFC
ENSG00000255837	TAS2R20	royalblue	OFC
ENSG00000267280	TBX2-AS1	royalblue	OFC
ENSG00000204852	TCTN1	royalblue	--
ENSG00000188681	TEKT4P2	royalblue	--

ENSG00000164362	TERT	royalblue	OFC
ENSG00000145365	TIFA	royalblue	OFC
ENSG00000206140	TMEM191C	royalblue	--
ENSG00000170088	TMEM192	royalblue	--
ENSG00000150433	TMEM218	royalblue	--
ENSG00000151715	TMEM45B	royalblue	OFC
ENSG00000138594	TMOD3	royalblue	--
ENSG00000173273	TNKS	royalblue	OFC
ENSG00000079308	TNS1	royalblue	OFC/PT
ENSG00000141232	TOB1	royalblue	--
ENSG00000071575	TRIB2	royalblue	--
ENSG00000158457	TSPAN33	royalblue	OFC
ENSG00000162526	TSSK3	royalblue	--
ENSG00000183891	TTC32	royalblue	--
ENSG00000224963	U82695.9	royalblue	OFC
ENSG00000228941	UBE3AP2	royalblue	OFC
ENSG00000172971	UNC93B3	royalblue	OFC
ENSG00000188958	UTS2B	royalblue	OFC
ENSG00000035403	VCL	royalblue	OFC
ENSG00000206538	VGLL3	royalblue	--
ENSG00000136059	VILL	royalblue	OFC
ENSG00000231725	VN1R110P	royalblue	--
ENSG00000165633	VSTM4	royalblue	OFC
ENSG00000145198	VWA5B2	royalblue	--
ENSG00000227165	WDR11-AS1	royalblue	--
ENSG00000124343	XG	royalblue	OFC/PT
ENSG00000065978	YBX1	royalblue	--
ENSG00000184828	ZBTB7C	royalblue	--
ENSG00000140948	ZCCHC14	royalblue	OFC
ENSG00000078487	ZCWPW1	royalblue	--
ENSG00000218016	ZNF192P2	royalblue	--
ENSG00000263002	ZNF234	royalblue	--
ENSG00000006194	ZNF263	royalblue	--
ENSG00000213742	ZNF337-AS1	royalblue	--
ENSG00000139651	ZNF740	royalblue	--
ENSG00000152467	ZSCAN1	royalblue	--
ENSG00000269293	ZSCAN16-AS1	royalblue	--
ENSG00000182318	ZSCAN22	royalblue	OFC
ENSG00000004846	ABCB5	saddlebrown	--
ENSG00000143921	ABCG8	saddlebrown	--
ENSG00000158201	ABHD3	saddlebrown	--
ENSG00000274898	AC001226.7	saddlebrown	OFC
ENSG00000224903	AC005534.8	saddlebrown	OFC
ENSG00000279584	AC005593.2	saddlebrown	OFC
ENSG00000227694	AC005884.1	saddlebrown	--

ENSG00000229352	AC007563.3	saddlebrown	--
ENSG00000224509	AC010884.1	saddlebrown	--
ENSG00000267528	AC011524.1	saddlebrown	--
ENSG00000236833	AC024560.2	saddlebrown	--
ENSG00000224769	AC069213.1	saddlebrown	--
ENSG00000225981	AC102953.4	saddlebrown	--
ENSG00000252306	AC104183.1	saddlebrown	--
ENSG00000231259	AC125232.1	saddlebrown	--
ENSG00000278882	AC253572.1	saddlebrown	--
ENSG00000233125	ACTBP12	saddlebrown	OFC
ENSG00000234667	ACTBP13	saddlebrown	--
ENSG00000196115	ADAM5	saddlebrown	--
ENSG00000141433	ADCYAP1	saddlebrown	--
ENSG00000205622	AF064858.6	saddlebrown	--
ENSG00000144218	AFF3	saddlebrown	--
ENSG00000165923	AGBL2	saddlebrown	--
ENSG00000268257	AIRN	saddlebrown	--
ENSG00000263535	AK4P1	saddlebrown	OFC
ENSG00000151360	ALLC	saddlebrown	OFC
ENSG00000226435	ANKRD18DP	saddlebrown	OFC
ENSG00000235098	ANKRD65	saddlebrown	--
ENSG00000234509	AP000253.1	saddlebrown	OFC
ENSG00000176984	AP000679.2	saddlebrown	OFC
ENSG00000213214	ARHGEF35	saddlebrown	--
ENSG00000050327	ARHGEF5	saddlebrown	--
ENSG00000152348	ATG10	saddlebrown	--
ENSG00000101844	ATG4A	saddlebrown	--
ENSG00000143515	ATP8B2	saddlebrown	--
ENSG00000232460	BMPR1APS2	saddlebrown	--
ENSG00000232158	C11orf98P1	saddlebrown	--
ENSG00000203724	C1orf53	saddlebrown	--
ENSG00000142698	C1orf94	saddlebrown	OFC
ENSG00000174403	C20orf166-AS1	saddlebrown	--
ENSG00000178363	CALML3	saddlebrown	OFC
ENSG00000163888	CAMK2N2	saddlebrown	--
ENSG00000180347	CCDC129	saddlebrown	--
ENSG00000163394	CCKAR	saddlebrown	OFC
ENSG00000276085	CCL3L3	saddlebrown	--
ENSG00000275302	CCL4	saddlebrown	OFC
ENSG00000147082	CCNB3	saddlebrown	--
ENSG00000135083	CCNJL	saddlebrown	--
ENSG00000153563	CD8A	saddlebrown	--
ENSG00000172116	CD8B	saddlebrown	--
ENSG00000158402	CDC25C	saddlebrown	--
ENSG00000279563	CH17-340M24.1	saddlebrown	--

ENSG00000143942	CHAC2	saddlebrown	--
ENSG00000054938	CHRD12	saddlebrown	OFC
ENSG00000160679	CHTOP	saddlebrown	--
ENSG00000136425	CIB2	saddlebrown	--
ENSG00000138615	CILP	saddlebrown	--
ENSG00000268297	CLEC4GP1	saddlebrown	OFC
ENSG00000162994	CLHC1	saddlebrown	OFC/PT
ENSG00000125246	CLYBL	saddlebrown	OFC
ENSG00000145708	CRHBP	saddlebrown	--
ENSG00000121005	CRISPLD1	saddlebrown	--
ENSG00000100058	CRYBB2P1	saddlebrown	--
ENSG00000272977	CTA-390C10.10	saddlebrown	PT
ENSG00000280065	CTA-796E4.5	saddlebrown	PT
ENSG00000270137	CTC-137K3.1	saddlebrown	--
ENSG00000270614	CTC-325H20.7	saddlebrown	OFC
ENSG00000269044	CTC-429P9.3	saddlebrown	--
ENSG00000277453	CTC-492K19.7	saddlebrown	--
ENSG00000279698	CTD-2201E9.3	saddlebrown	OFC
ENSG00000249774	CTD-2206G10.2	saddlebrown	OFC
ENSG00000248734	CTD-2260A17.1	saddlebrown	OFC
ENSG00000260266	CTD-2311M21.2	saddlebrown	OFC
ENSG00000246084	CTD-2506J14.1	saddlebrown	OFC
ENSG00000267115	CTD-3064H18.2	saddlebrown	OFC
ENSG00000215302	CTD-3092A11.1	saddlebrown	--
ENSG00000223564	CYP4F32P	saddlebrown	--
ENSG00000231784	DBIL5P	saddlebrown	--
ENSG00000188985	DHFRP1	saddlebrown	--
ENSG00000187908	DMBT1	saddlebrown	OFC
ENSG00000090520	DNAJB11	saddlebrown	--
ENSG00000120875	DUSP4	saddlebrown	--
ENSG00000139318	DUSP6	saddlebrown	--
ENSG00000171551	ECEL1	saddlebrown	--
ENSG00000122877	EGR2	saddlebrown	OFC
ENSG00000114867	EIF4G1	saddlebrown	PT
ENSG00000267346	EIF5AP3	saddlebrown	--
ENSG00000227295	ELL2P1	saddlebrown	--
ENSG00000230314	ELOVL2-AS1	saddlebrown	--
ENSG00000012660	ELOVL5	saddlebrown	--
ENSG00000131148	EMC8	saddlebrown	--
ENSG00000164778	EN2	saddlebrown	OFC
ENSG00000243986	ENO1P3	saddlebrown	OFC
ENSG00000131037	EPS8L1	saddlebrown	--
ENSG00000234964	FABP5P7	saddlebrown	OFC
ENSG00000100376	FAM118A	saddlebrown	--
ENSG00000170264	FAM161A	saddlebrown	--

ENSG00000189350	FAM179A	saddlebrown	--
ENSG00000135436	FAM186B	saddlebrown	--
ENSG00000235618	FAM21EP	saddlebrown	--
ENSG00000254791	FAR1-IT1	saddlebrown	OFC
ENSG00000187559	FOXD4L3	saddlebrown	--
ENSG00000184659	FOXD4L4	saddlebrown	--
ENSG00000160973	FOXH1	saddlebrown	--
ENSG00000214336	FOXI3	saddlebrown	--
ENSG00000141098	GFOD2	saddlebrown	--
ENSG00000233642	GPR158-AS1	saddlebrown	--
ENSG00000214544	GTF2IRD2P1	saddlebrown	--
ENSG00000115207	GTF3C2	saddlebrown	PT
ENSG00000215630	GUSBP9	saddlebrown	--
ENSG00000244502	HDAC11-AS1	saddlebrown	--
ENSG00000197921	HES5	saddlebrown	--
ENSG00000220323	HIST2H2BD	saddlebrown	--
ENSG00000214223	HNRNPA1P10	saddlebrown	--
ENSG00000257017	HP	saddlebrown	--
ENSG00000002587	HS3ST1	saddlebrown	--
ENSG00000272767	JMJD1C-AS1	saddlebrown	OFC
ENSG00000114982	KANSL3	saddlebrown	OFC
ENSG00000203908	KHDC3L	saddlebrown	OFC
ENSG00000171435	KSR2	saddlebrown	--
ENSG00000274367	LA16c-380H5.6	saddlebrown	--
ENSG00000224699	LAMTOR5-AS1	saddlebrown	--
ENSG00000198728	LDB1	saddlebrown	--
ENSG00000178977	LINC00324	saddlebrown	--
ENSG00000253394	LINC00534	saddlebrown	--
ENSG00000223685	LINC00571	saddlebrown	PT
ENSG00000258735	LINC00637	saddlebrown	--
ENSG00000259134	LINC00924	saddlebrown	--
ENSG00000249378	LINC01060	saddlebrown	OFC
ENSG00000226673	LINC01108	saddlebrown	OFC
ENSG00000271856	LINC01215	saddlebrown	OFC
ENSG00000231507	LINC01353	saddlebrown	OFC
ENSG00000249484	LINC01470	saddlebrown	OFC
ENSG00000271286	LL0XNC01-39B3.1	saddlebrown	--
ENSG00000233228	LPCAT2BP	saddlebrown	--
ENSG00000164167	LSM6	saddlebrown	--
ENSG00000261366	MANEA-AS1	saddlebrown	--
ENSG00000127241	MASP1	saddlebrown	--
ENSG00000143995	MEIS1	saddlebrown	OFC
ENSG00000141434	MEP1B	saddlebrown	--
ENSG00000275881	Metazoa_SRP	saddlebrown	--
ENSG00000275808	Metazoa_SRP	saddlebrown	OFC

ENSG00000278590	Metazoa_SRP	saddlebrown	OFC
ENSG00000274135	Metazoa_SRP	saddlebrown	PT
ENSG00000133808	MICALCL	saddlebrown	--
ENSG00000260083	MIR4519	saddlebrown	--
ENSG00000266502	MIR5681A	saddlebrown	--
ENSG00000101189	MRGBP	saddlebrown	--
ENSG00000178860	MSC	saddlebrown	OFC
ENSG00000177791	MYOZ1	saddlebrown	--
ENSG00000165066	NKX6-3	saddlebrown	--
ENSG00000174885	NLRP6	saddlebrown	--
ENSG00000182446	NPLOC4	saddlebrown	--
ENSG00000169752	NRG4	saddlebrown	--
ENSG00000101888	NXT2	saddlebrown	--
ENSG00000127780	OR1E2	saddlebrown	OFC
ENSG00000188729	OSTN	saddlebrown	--
ENSG00000259641	PCAT29	saddlebrown	--
ENSG00000104883	PEX11G	saddlebrown	--
ENSG00000131788	PIAS3	saddlebrown	--
ENSG00000143398	PIP5K1A	saddlebrown	--
ENSG00000076356	PLXNA2	saddlebrown	--
ENSG00000068654	POLR1A	saddlebrown	OFC
ENSG00000009830	POMT2	saddlebrown	--
ENSG00000108179	PPIF	saddlebrown	OFC
ENSG00000175470	PPP2R2D	saddlebrown	--
ENSG00000040487	PQLC2	saddlebrown	OFC
ENSG00000174899	PQLC2L	saddlebrown	OFC
ENSG00000126460	PRRG2	saddlebrown	--
ENSG00000243323	PTPRVP	saddlebrown	--
ENSG00000157927	RADIL	saddlebrown	--
ENSG00000226406	RBMX2P1	saddlebrown	OFC
ENSG00000164620	RELL2	saddlebrown	OFC
ENSG00000121446	RGSL1	saddlebrown	OFC
ENSG00000101883	RHOXF1	saddlebrown	--
ENSG00000150977	RILPL2	saddlebrown	--
ENSG00000124784	RIOK1	saddlebrown	--
ENSG00000252087	RN7SKP248	saddlebrown	OFC/PT
ENSG00000223324	RN7SKP273	saddlebrown	--
ENSG00000244748	RN7SL153P	saddlebrown	OFC
ENSG00000240589	RN7SL258P	saddlebrown	--
ENSG00000264582	RN7SL326P	saddlebrown	OFC
ENSG00000263410	RN7SL460P	saddlebrown	OFC
ENSG00000241587	RN7SL482P	saddlebrown	--
ENSG00000201413	RNA5SP141	saddlebrown	--
ENSG00000253570	RNF5P1	saddlebrown	OFC
ENSG00000252593	RNU6-1224P	saddlebrown	OFC

ENSG00000255080	RP11-1082L8.3	saddlebrown	--
ENSG00000273073	RP11-109E12.1	saddlebrown	--
ENSG00000257636	RP11-1103G16.1	saddlebrown	OFC
ENSG00000253659	RP11-1114I9.1	saddlebrown	--
ENSG00000257169	RP11-117N2.2	saddlebrown	--
ENSG00000225472	RP11-120J1.1	saddlebrown	OFC
ENSG00000267868	RP11-120K24.3	saddlebrown	--
ENSG00000280043	RP11-1281K21.8	saddlebrown	--
ENSG00000278376	RP11-158I9.8	saddlebrown	--
ENSG00000253875	RP11-16P20.3	saddlebrown	PT
ENSG00000270574	RP11-171I2.2	saddlebrown	OFC
ENSG00000273262	RP11-18I14.11	saddlebrown	--
ENSG00000244157	RP11-190P13.1	saddlebrown	--
ENSG00000227531	RP11-202G18.1	saddlebrown	OFC
ENSG00000229116	RP11-20J15.3	saddlebrown	--
ENSG00000254480	RP11-23F23.2	saddlebrown	OFC
ENSG00000256967	RP11-273B20.1	saddlebrown	PT
ENSG00000251152	RP11-281P23.1	saddlebrown	OFC
ENSG00000275197	RP11-295I5.4	saddlebrown	--
ENSG00000261291	RP11-295M3.2	saddlebrown	--
ENSG00000213431	RP11-301G23.1	saddlebrown	OFC
ENSG00000272764	RP11-318E3.9	saddlebrown	OFC
ENSG00000270367	RP11-331G2.6	saddlebrown	OFC
ENSG00000176868	RP11-334J6.7	saddlebrown	--
ENSG00000217334	RP11-33E24.3	saddlebrown	OFC
ENSG00000277873	RP11-33N14.3	saddlebrown	OFC
ENSG00000272644	RP11-33O4.1	saddlebrown	OFC
ENSG00000280281	RP11-340L3.1	saddlebrown	--
ENSG00000270996	RP11-342K6.4	saddlebrown	OFC
ENSG00000272509	RP11-347C18.5	saddlebrown	OFC
ENSG00000258699	RP11-356K23.2	saddlebrown	OFC
ENSG00000272750	RP11-378J18.8	saddlebrown	--
ENSG00000242278	RP11-382N13.1	saddlebrown	--
ENSG00000265799	RP11-387H17.6	saddlebrown	--
ENSG00000236378	RP11-394G3.2	saddlebrown	OFC
ENSG00000233369	RP11-396K3.1	saddlebrown	--
ENSG00000224972	RP11-403H13.1	saddlebrown	--
ENSG00000258729	RP11-404P21.6	saddlebrown	OFC
ENSG00000274031	RP11-413H22.3	saddlebrown	--
ENSG00000251432	RP11-420A23.1	saddlebrown	--
ENSG00000260747	RP11-421N8.1	saddlebrown	OFC
ENSG00000251298	RP11-425A23.1	saddlebrown	OFC
ENSG00000279106	RP11-426C22.1	saddlebrown	OFC
ENSG00000259577	RP11-430B1.2	saddlebrown	--
ENSG00000251456	RP11-436H11.5	saddlebrown	OFC

ENSG00000280345	RP11-438L7.1	saddlebrown	OFC
ENSG00000260385	RP11-450H6.3	saddlebrown	OFC
ENSG00000231508	RP11-452K12.6	saddlebrown	--
ENSG00000253894	RP11-45K10.2	saddlebrown	--
ENSG00000271848	RP11-464F9.21	saddlebrown	--
ENSG00000279140	RP11-477I4.4	saddlebrown	--
ENSG00000260614	RP11-491F9.1	saddlebrown	OFC
ENSG00000227619	RP11-492E3.2	saddlebrown	--
ENSG00000280205	RP11-504I13.2	saddlebrown	--
ENSG00000280389	RP11-512M8.11	saddlebrown	OFC
ENSG00000231612	RP11-522M21.3	saddlebrown	OFC
ENSG00000248729	RP11-531A21.3	saddlebrown	--
ENSG00000251580	RP11-539L10.3	saddlebrown	--
ENSG00000231906	RP11-541M12.3	saddlebrown	--
ENSG00000273466	RP11-548H3.1	saddlebrown	--
ENSG00000258144	RP11-554L12.1	saddlebrown	--
ENSG00000249345	RP11-575F12.1	saddlebrown	OFC
ENSG00000233547	RP11-57H14.2	saddlebrown	OFC
ENSG00000272006	RP11-583F2.6	saddlebrown	OFC
ENSG00000258122	RP11-61A14.1	saddlebrown	--
ENSG00000253882	RP11-61L23.2	saddlebrown	OFC
ENSG00000261357	RP11-626G11.1	saddlebrown	--
ENSG00000279600	RP11-637C24.5	saddlebrown	--
ENSG00000271931	RP11-63L7.5	saddlebrown	--
ENSG00000271172	RP11-660M5.1	saddlebrown	OFC
ENSG00000278969	RP11-662I13.3	saddlebrown	--
ENSG00000241439	RP11-666A20.3	saddlebrown	--
ENSG00000245498	RP11-677M14.7	saddlebrown	OFC
ENSG00000259245	RP11-684B21.1	saddlebrown	OFC
ENSG00000226765	RP11-694D5.1	saddlebrown	OFC
ENSG00000264019	RP11-6N17.6	saddlebrown	OFC
ENSG00000255348	RP11-700F16.3	saddlebrown	--
ENSG00000254974	RP11-702H23.2	saddlebrown	PT
ENSG00000280022	RP11-707O23.1	saddlebrown	--
ENSG00000245552	RP11-712B9.2	saddlebrown	--
ENSG00000269176	RP11-727F15.12	saddlebrown	--
ENSG00000256690	RP11-727F15.9	saddlebrown	OFC
ENSG00000268635	RP11-739B23.1	saddlebrown	--
ENSG00000231880	RP11-76I23.7	saddlebrown	PT
ENSG00000270540	RP11-785G17.1	saddlebrown	OFC
ENSG00000280296	RP11-78J21.6	saddlebrown	OFC
ENSG00000273851	RP11-809H16.3	saddlebrown	--
ENSG00000248469	RP11-826N14.2	saddlebrown	--
ENSG00000251623	RP11-826N14.4	saddlebrown	--
ENSG00000260986	RP11-854K16.3	saddlebrown	OFC

ENSG00000260162	RP11-863P13.1	saddlebrown	--
ENSG00000259658	RP11-89K11.1	saddlebrown	OFC/PT
ENSG00000274372	RP11-94I2.4	saddlebrown	--
ENSG00000279170	RP1-199J3.6	saddlebrown	OFC
ENSG00000272223	RP1-20C7.6	saddlebrown	OFC/PT
ENSG00000233427	RP1-212P9.3	saddlebrown	--
ENSG00000223343	RP13-131K19.2	saddlebrown	OFC
ENSG00000228172	RP1-317E23.3	saddlebrown	--
ENSG00000271434	RP13-238F13.3	saddlebrown	--
ENSG00000255237	RP13-317D12.3	saddlebrown	--
ENSG00000234130	RP13-88F20.1	saddlebrown	--
ENSG00000233351	RP1-69D17.3	saddlebrown	--
ENSG00000220694	RP3-403A15.1	saddlebrown	OFC
ENSG00000219682	RP3-425P12.4	saddlebrown	OFC
ENSG00000225297	RP4-612C19.2	saddlebrown	--
ENSG00000230725	RP4-738P15.1	saddlebrown	OFC
ENSG00000225905	RP4-758J18.7	saddlebrown	--
ENSG00000223714	RP5-1172N10.2	saddlebrown	OFC/PT
ENSG00000231663	RP5-827C21.4	saddlebrown	--
ENSG00000230021	RP5-857K21.4	saddlebrown	--
ENSG00000136149	RPL13AP25	saddlebrown	OFC
ENSG00000233254	RPL21P134	saddlebrown	OFC
ENSG00000241045	RPL7P43	saddlebrown	OFC
ENSG00000151748	SAV1	saddlebrown	--
ENSG00000112167	SAYSD1	saddlebrown	--
ENSG00000252577	SCARNA20	saddlebrown	--
ENSG00000124935	SCGB1D2	saddlebrown	OFC
ENSG00000178217	SH2D4B	saddlebrown	--
ENSG00000109686	SH3D19	saddlebrown	OFC
ENSG00000259863	SH3RF3-AS1	saddlebrown	--
ENSG00000100170	SLC5A1	saddlebrown	--
ENSG00000130876	SLC7A10	saddlebrown	OFC
ENSG00000168273	SMIM4	saddlebrown	--
ENSG00000236610	SOCS5P1	saddlebrown	OFC
ENSG00000159674	SPON2	saddlebrown	OFC
ENSG00000166068	SPRED1	saddlebrown	--
ENSG00000136158	SPRY2	saddlebrown	--
ENSG00000134548	SPX	saddlebrown	--
ENSG00000166888	STAT6	saddlebrown	--
ENSG00000198870	STKLD1	saddlebrown	--
ENSG00000127952	STYXL1	saddlebrown	--
ENSG00000198829	SUCNR1	saddlebrown	--
ENSG00000143502	SUSD4	saddlebrown	--
ENSG00000224597	SVIL-AS1	saddlebrown	OFC
ENSG00000122728	TAF1L	saddlebrown	OFC

ENSG00000240280	TCAM1P	saddlebrown	--
ENSG00000166984	TCP10L2	saddlebrown	OFC
ENSG00000153060	TEKT5	saddlebrown	--
ENSG00000226674	TEX41	saddlebrown	--
ENSG00000221944	TIGD1	saddlebrown	OFC
ENSG00000184012	TMPRSS2	saddlebrown	--
ENSG00000229980	TOB1-AS1	saddlebrown	--
ENSG00000173769	TOPAZ1	saddlebrown	--
ENSG00000261594	TPBGL	saddlebrown	--
ENSG00000122435	TRMT13	saddlebrown	OFC
ENSG00000182612	TSPAN10	saddlebrown	--
ENSG00000100304	TTLL12	saddlebrown	--
ENSG00000215221	UBA52P6	saddlebrown	--
ENSG00000109103	UNC119	saddlebrown	--
ENSG00000198722	UNC13B	saddlebrown	OFC
ENSG00000226478	UPF3AP1	saddlebrown	--
ENSG00000119614	VSX2	saddlebrown	--
ENSG00000227232	WASH7P	saddlebrown	OFC
ENSG00000227165	WDR11-AS1	saddlebrown	--
ENSG00000184937	WT1	saddlebrown	OFC
ENSG00000251359	WWC2-AS2	saddlebrown	OFC
ENSG00000182489	XKRX	saddlebrown	--
ENSG00000154767	XPC	saddlebrown	OFC
ENSG00000181007	ZFP82	saddlebrown	--
ENSG00000251003	ZFPM2-AS1	saddlebrown	--
ENSG00000063587	ZNF275	saddlebrown	--
ENSG00000188283	ZNF383	saddlebrown	--
ENSG00000153896	ZNF599	saddlebrown	--
ENSG00000186777	ZNF732	saddlebrown	OFC
ENSG00000185869	ZNF829	saddlebrown	--
ENSG00000176723	ZNF843	saddlebrown	--
ENSG00000198205	ZXDA	saddlebrown	OFC

Anexo 9. Análise de enriquecimento dos módulos mais e menos preservados para categorias funcionais do circuito afetivo (ACC – NAC).

GO	Descrição	pvalor	FDR
circuito afetivo (ACC - NAC) - controles módulos mais preservados			
GO Biological process			
GO:0006955	immune response	7.77E-15	4.28E-11
GO:0002682	regulation of immune system process	5.00E-13	1.03E-09
GO:0002376	immune system process	5.60E-13	1.03E-09
GO:0050776	regulation of immune response	3.43E-12	4.72E-09
GO:0006952	defense response	5.18E-11	5.71E-08
GO:0002684	positive regulation of immune system process	2.09E-10	1.91E-07
GO:0002253	activation of immune response	4.91E-10	3.57E-07
GO:0045321	leukocyte activation	5.18E-10	3.57E-07
GO:0046649	lymphocyte activation	1.65E-09	1.01E-06
GO:0050778	positive regulation of immune response	2.48E-09	1.37E-06
GO:0001775	cell activation	3.64E-09	1.82E-06
GO:0046651	lymphocyte proliferation	6.06E-09	2.78E-06
GO:0032943	mononuclear cell proliferation	6.75E-09	2.86E-06
GO:0002366	leukocyte activation involved in immune response	8.64E-09	3.40E-06
GO:0002263	cell activation involved in immune response	1.11E-08	3.92E-06
GO:0002275	myeloid cell activation involved in immune response	1.14E-08	3.92E-06
GO:0002252	immune effector process	1.29E-08	4.18E-06
GO:0070661	leukocyte proliferation	1.73E-08	5.30E-06
GO:0050900	leukocyte migration	2.45E-08	7.11E-06
GO:0002757	immune response-activating signal transduction	3.12E-08	8.60E-06
GO:0002764	immune response-regulating signaling pathway	3.77E-08	9.89E-06
GO:0006954	inflammatory response	6.69E-08	1.67E-05

GO:0002429	immune response-activating cell surface receptor signaling pathway	7.45E-08	1.78E-05
GO:0002694	regulation of leukocyte activation	9.76E-08	2.20E-05
GO:0002768	immune response-regulating cell surface receptor signaling pathway	1.02E-07	2.20E-05
GO:0002274	myeloid leukocyte activation	1.04E-07	2.20E-05
GO:0050865	regulation of cell activation	1.37E-07	2.79E-05
GO:0045087	innate immune response	2.09E-07	4.12E-05
GO:0050670	regulation of lymphocyte proliferation	2.83E-07	5.37E-05
GO:0032944	regulation of mononuclear cell proliferation	3.14E-07	5.77E-05
GO:0070663	regulation of leukocyte proliferation	4.78E-07	8.48E-05
GO:0002886	regulation of myeloid leukocyte mediated immunity	5.09E-07	8.65E-05
GO:0043299	leukocyte degranulation	5.19E-07	8.65E-05
GO:0048584	positive regulation of response to stimulus	5.82E-07	9.23E-05
GO:0050867	positive regulation of cell activation	5.87E-07	9.23E-05
GO:0042100	B cell proliferation	1.16E-06	0.0001774
GO:0007159	leukocyte cell-cell adhesion	1.43E-06	0.00021244
GO:0002279	mast cell activation involved in immune response	1.52E-06	0.00021488
GO:0043303	mast cell degranulation	1.52E-06	0.00021488
GO:0002696	positive regulation of leukocyte activation	1.61E-06	0.00022128
GO:0042110	T cell activation	1.74E-06	0.00022426
GO:0070489	T cell aggregation	1.74E-06	0.00022426
GO:0050864	regulation of B cell activation	1.75E-06	0.00022426
GO:0071593	lymphocyte aggregation	1.85E-06	0.00023191
GO:0070887	cellular response to chemical stimulus	2.01E-06	0.00024611
GO:0007229	integrin-mediated signaling pathway	2.14E-06	0.000256
GO:0051249	regulation of lymphocyte activation	2.48E-06	0.00028548
GO:0002448	mast cell mediated immunity	2.49E-06	0.00028548
GO:0070486	leukocyte aggregation	2.82E-06	0.00031645
GO:0002444	myeloid leukocyte mediated immunity	2.87E-06	0.00031645

GO:0002250	adaptive immune response	3.19E-06	0.00034479
GO:0060326	cell chemotaxis	4.06E-06	0.00042942
GO:0030888	regulation of B cell proliferation	4.91E-06	0.00050997
GO:0045730	respiratory burst	5.47E-06	0.0005577
GO:0002443	leukocyte mediated immunity	6.29E-06	0.00062966
GO:0007166	cell surface receptor signaling pathway	9.49E-06	0.00092057
GO:0050853	B cell receptor signaling pathway	9.62E-06	0.00092057
GO:0050851	antigen receptor-mediated signaling pathway	9.70E-06	0.00092057
GO:0002888	positive regulation of myeloid leukocyte mediated immunity	1.00E-05	0.00093689
GO:0045576	mast cell activation	1.11E-05	0.00101632
GO:0002703	regulation of leukocyte mediated immunity	1.17E-05	0.00105066
GO:0048002	antigen processing and presentation of peptide antigen	1.18E-05	0.00105066
GO:0050764	regulation of phagocytosis	1.34E-05	0.00116948
GO:0042113	B cell activation	1.37E-05	0.00117466
GO:0006909	phagocytosis	1.48E-05	0.00125747
GO:0032418	lysosome localization	1.61E-05	0.00134184
GO:1903039	positive regulation of leukocyte cell-cell adhesion	1.90E-05	0.00154096
GO:0042098	T cell proliferation	1.91E-05	0.00154096
GO:0051251	positive regulation of lymphocyte activation	1.93E-05	0.00154096
GO:1903037	regulation of leukocyte cell-cell adhesion	2.61E-05	0.00203974
GO:0097529	myeloid leukocyte migration	2.63E-05	0.00203974
GO:0022409	positive regulation of cell-cell adhesion	2.83E-05	0.00216124
GO:0042119	neutrophil activation	2.90E-05	0.00218385
GO:0030595	leukocyte chemotaxis	2.99E-05	0.00221882
GO:0097530	granulocyte migration	3.02E-05	0.00221882
GO:0050863	regulation of T cell activation	3.41E-05	0.00246853
GO:0050870	positive regulation of T cell activation	3.48E-05	0.00248913
GO:0002283	neutrophil activation involved in immune response	3.57E-05	0.00252298

GO:0045577	regulation of B cell differentiation	3.94E-05	0.00274869
GO:0019882	antigen processing and presentation	4.08E-05	0.00281123
GO:0042129	regulation of T cell proliferation	4.82E-05	0.00327554
GO:0036230	granulocyte activation	5.28E-05	0.00351639
GO:0002697	regulation of immune effector process	5.30E-05	0.00351639
GO:0030889	negative regulation of B cell proliferation	5.41E-05	0.00354797
GO:0001816	cytokine production	6.31E-05	0.00408798
GO:0043300	regulation of leukocyte degranulation	7.21E-05	0.00461524
GO:0002478	antigen processing and presentation of exogenous peptide antigen	7.72E-05	0.0048864
GO:0022407	regulation of cell-cell adhesion	8.70E-05	0.00538706
GO:0072593	reactive oxygen species metabolic process	8.71E-05	0.00538706
GO:0033006	regulation of mast cell activation involved in immune response	9.01E-05	0.00545144
GO:0043304	regulation of mast cell degranulation	9.01E-05	0.00545144
GO:0019884	antigen processing and presentation of exogenous antigen	9.25E-05	0.00553557
GO:0002685	regulation of leukocyte migration	0.00011033	0.00653197
GO:0098602	single organism cell adhesion	0.00011855	0.00694384
GO:1990266	neutrophil migration	0.00012047	0.00698223
GO:0016337	single organismal cell-cell adhesion	0.0001301	0.00734018
GO:0071345	cellular response to cytokine stimulus	0.00013045	0.00734018
GO:0001817	regulation of cytokine production	0.00013075	0.00734018
GO:0032945	negative regulation of mononuclear cell proliferation	0.00013465	0.00734018
GO:0042590	antigen processing and presentation of exogenous peptide antigen via MHC class I	0.00013465	0.00734018
GO:0050672	negative regulation of lymphocyte proliferation	0.00013465	0.00734018
GO:0050869	negative regulation of B cell activation	0.0001459	0.00787594
GO:0007155	cell adhesion	0.00016085	0.00859827
GO:0022610	biological adhesion	0.00017233	0.00905171
GO:0030100	regulation of endocytosis	0.00017262	0.00905171
GO:0002864	regulation of acute inflammatory response to antigenic stimulus	0.00019353	0.01005265

GO:0002861	regulation of inflammatory response to antigenic stimulus	0.00020815	0.01064523
GO:0070664	negative regulation of leukocyte proliferation	0.00020881	0.01064523
GO:0016477	cell migration	0.00022311	0.01127028
GO:0019221	cytokine-mediated signaling pathway	0.00023692	0.01185874
GO:0016064	immunoglobulin mediated immune response	0.00025435	0.01261652
GO:0050671	positive regulation of lymphocyte proliferation	0.00026141	0.01285104
GO:0006935	chemotaxis	0.00026448	0.01288695
GO:0042330	taxis	0.00027519	0.0132914
GO:0002474	antigen processing and presentation of peptide antigen via MHC class I	0.00028559	0.01348177
GO:0019724	B cell mediated immunity	0.00028559	0.01348177
GO:0032946	positive regulation of mononuclear cell proliferation	0.00028648	0.01348177
GO:0034097	response to cytokine	0.00030652	0.01430234
GO:0002532	production of molecular mediator involved in inflammatory response	0.00033733	0.01534979
GO:0046456	icosanoid biosynthetic process	0.00033733	0.01534979
GO:1901570	fatty acid derivative biosynthetic process	0.00033733	0.01534979
GO:0070665	positive regulation of leukocyte proliferation	0.00034274	0.01546846
GO:0030593	neutrophil chemotaxis	0.00035679	0.01575354
GO:0042102	positive regulation of T cell proliferation	0.00035764	0.01575354
GO:0071621	granulocyte chemotaxis	0.00035764	0.01575354
GO:0030155	regulation of cell adhesion	0.00036327	0.0158744
GO:0032103	positive regulation of response to external stimulus	0.00039358	0.0170454
GO:0045055	regulated exocytosis	0.00039663	0.0170454
GO:0002687	positive regulation of leukocyte migration	0.00039936	0.0170454
GO:0033003	regulation of mast cell activation	0.00040703	0.01723912
GO:0071346	cellular response to interferon-gamma	0.00043918	0.01845879
GO:0001819	positive regulation of cytokine production	0.00044261	0.01846236
GO:0006897	endocytosis	0.00045277	0.01874388
GO:0045785	positive regulation of cell adhesion	0.00045714	0.01878387

GO:0055114	oxidation-reduction process	0.00046697	0.01904549
GO:0009605	response to external stimulus	0.00048576	0.01966617
GO:0006690	icosanoid metabolic process	0.00051631	0.0205999
GO:1901568	fatty acid derivative metabolic process	0.00051631	0.0205999
GO:0048870	cell motility	0.00057756	0.02267886
GO:0051674	localization of cell	0.00057756	0.02267886
GO:0060333	interferon-gamma-mediated signaling pathway	0.00058077	0.02267886
GO:0002695	negative regulation of leukocyte activation	0.00061816	0.02396911
GO:0002521	leukocyte differentiation	0.0006258	0.02403498
GO:0002479	antigen processing and presentation of exogenous peptide antigen via MHC class I, TAP-dependent	0.00062938	0.02403498
GO:0051250	negative regulation of lymphocyte activation	0.00063296	0.02403498
GO:0045727	positive regulation of translation	0.00066867	0.02521715
GO:2000249	regulation of actin cytoskeleton reorganization	0.0007155	0.02674403
GO:0050852	T cell receptor signaling pathway	0.00071887	0.02674403
GO:0002690	positive regulation of leukocyte chemotaxis	0.0007292	0.0269463
GO:0030098	lymphocyte differentiation	0.00079498	0.02918113
GO:0002673	regulation of acute inflammatory response	0.00081915	0.02986918
GO:0002460	adaptive immune response based on somatic recombination of immune receptors built from immunoglobulin superfamily domains	0.00083721	0.03032672
GO:0050921	positive regulation of chemotaxis	0.00089252	0.03211919
GO:0046686	response to cadmium ion	0.00093967	0.0335962
GO:0071310	cellular response to organic substance	0.00097134	0.03450456
GO:0002683	negative regulation of immune system process	0.00099132	0.03498863
GO:0050871	positive regulation of B cell activation	0.00105145	0.03687457
GO:0045088	regulation of innate immune response	0.00106123	0.0369818
GO:0098609	cell-cell adhesion	0.00108588	0.03755983
GO:0006968	cellular defense response	0.00109146	0.03755983

GO:1903706	regulation of hemopoiesis	0.00112538	0.03848668
GO:0045089	positive regulation of innate immune response	0.00124056	0.04216376
GO:0032760	positive regulation of tumor necrosis factor production	0.00126137	0.04260787
GO:0050907	detection of chemical stimulus involved in sensory perception	0.00128002	0.0429744
GO:0006636	unsaturated fatty acid biosynthetic process	0.00145077	0.04783208
GO:0045453	bone resorption	0.00145077	0.04783208
GO:1903557	positive regulation of tumor necrosis factor superfamily cytokine production	0.00145077	0.04783208
GO:0002699	positive regulation of immune effector process	0.0015083	0.04914038
GO:0050866	negative regulation of cell activation	0.0015083	0.04914038
GO:0034250	positive regulation of cellular amide metabolic process	0.0015197	0.04918044
GO:0042592	homeostatic process	0.0015274	0.04918044
GO:0002704	negative regulation of leukocyte mediated immunity	0.00154365	0.04941463
circuito afetivo (ACC - NAC) - controles módulos menos preservados			
GO Biological process			
GO:0032879	regulation of localization	0.00	0.01
circuito afetivo (ACC - NAC) - TOC módulos mais preservados			
GO Biological process			
GO:0034622	cellular macromolecular complex assembly	9.76E-14	5.34E-10
GO:0043933	macromolecular complex subunit organization	9.72E-13	2.66E-09
GO:0065003	macromolecular complex assembly	9.48E-12	1.73E-08
GO:0010608	posttranscriptional regulation of gene expression	2.59E-11	3.54E-08
GO:0071822	protein complex subunit organization	9.87E-10	1.08E-06
GO:0044265	cellular macromolecule catabolic process	4.30E-09	3.71E-06
GO:0006412	translation	4.75E-09	3.71E-06
GO:0051436	negative regulation of ubiquitin-protein ligase activity involved in mitotic cell cycle	5.58E-09	3.81E-06

GO:0051439	regulation of ubiquitin-protein ligase activity involved in mitotic cell cycle	8.16E-09	4.34E-06
GO:0042773	ATP synthesis coupled electron transport	8.29E-09	4.34E-06
GO:0044248	cellular catabolic process	9.70E-09	4.34E-06
GO:0043043	peptide biosynthetic process	1.18E-08	4.34E-06
GO:0051437	positive regulation of ubiquitin-protein ligase activity involved in regulation of mitotic cell cycle transition	1.18E-08	4.34E-06
GO:1904667	negative regulation of ubiquitin protein ligase activity	1.18E-08	4.34E-06
GO:0031145	anaphase-promoting complex-dependent catabolic process	1.19E-08	4.34E-06
GO:0051444	negative regulation of ubiquitin-protein transferase activity	1.67E-08	5.15E-06
GO:0006461	protein complex assembly	1.69E-08	5.15E-06
GO:0070271	protein complex biogenesis	1.69E-08	5.15E-06
GO:0006518	peptide metabolic process	1.79E-08	5.15E-06
GO:0042787	protein ubiquitination involved in ubiquitin-dependent protein catabolic process	2.55E-08	6.97E-06
GO:0042775	mitochondrial ATP synthesis coupled electron transport	3.22E-08	8.39E-06
GO:0043603	cellular amide metabolic process	3.48E-08	8.66E-06
GO:0002474	antigen processing and presentation of peptide antigen via MHC class I	4.42E-08	1.01E-05
GO:2000060	positive regulation of protein ubiquitination involved in ubiquitin-dependent protein catabolic process	4.42E-08	1.01E-05
GO:1904668	positive regulation of ubiquitin protein ligase activity	4.72E-08	1.03E-05
GO:0022607	cellular component assembly	5.12E-08	1.08E-05
GO:0044403	symbiosis, encompassing mutualism through parasitism	7.15E-08	1.32E-05
GO:0044419	interspecies interaction between organisms	7.15E-08	1.32E-05
GO:2000058	regulation of protein ubiquitination involved in ubiquitin-dependent protein catabolic process	7.21E-08	1.32E-05
GO:1901990	regulation of mitotic cell cycle phase transition	7.23E-08	1.32E-05
GO:1901564	organonitrogen compound metabolic process	7.85E-08	1.36E-05
GO:0022900	electron transport chain	8.23E-08	1.36E-05
GO:0022904	respiratory electron transport chain	8.23E-08	1.36E-05

GO:0006521	regulation of cellular amino acid metabolic process	8.74E-08	1.41E-05
GO:0016032	viral process	8.99E-08	1.41E-05
GO:0043604	amide biosynthetic process	9.74E-08	1.48E-05
GO:0044764	multi-organism cellular process	1.27E-07	1.84E-05
GO:0043623	cellular protein complex assembly	1.28E-07	1.84E-05
GO:1904666	regulation of ubiquitin protein ligase activity	1.64E-07	2.31E-05
GO:0002479	antigen processing and presentation of exogenous peptide antigen via MHC class I, TAP-dependent	1.92E-07	2.62E-05
GO:1901987	regulation of cell cycle phase transition	1.99E-07	2.66E-05
GO:0006119	oxidative phosphorylation	2.32E-07	3.02E-05
GO:0019941	modification-dependent protein catabolic process	2.55E-07	3.24E-05
GO:0009057	macromolecule catabolic process	2.68E-07	3.33E-05
GO:0006511	ubiquitin-dependent protein catabolic process	2.81E-07	3.40E-05
GO:0000209	protein polyubiquitination	2.86E-07	3.40E-05
GO:0051603	proteolysis involved in cellular protein catabolic process	3.12E-07	3.63E-05
GO:0006413	translational initiation	3.24E-07	3.69E-05
GO:0034248	regulation of cellular amide metabolic process	3.70E-07	4.14E-05
GO:0042590	antigen processing and presentation of exogenous peptide antigen via MHC class I	3.99E-07	4.31E-05
GO:0043632	modification-dependent macromolecule catabolic process	4.02E-07	4.31E-05
GO:0051443	positive regulation of ubiquitin-protein transferase activity	4.32E-07	4.55E-05
GO:1903047	mitotic cell cycle process	6.53E-07	6.74E-05
GO:0051641	cellular localization	7.94E-07	8.04E-05
GO:0044257	cellular protein catabolic process	1.06E-06	0.00010255
GO:0006417	regulation of translation	1.07E-06	0.00010255
GO:0046034	ATP metabolic process	1.07E-06	0.00010255
GO:0010256	endomembrane system organization	1.11E-06	0.00010428
GO:0046907	intracellular transport	1.18E-06	0.00010893
GO:0010564	regulation of cell cycle process	1.21E-06	0.00011002

GO:0009141	nucleoside triphosphate metabolic process	1.27E-06	0.00011427
GO:0045333	cellular respiration	1.67E-06	0.00014699
GO:0022613	ribonucleoprotein complex biogenesis	2.13E-06	0.00018505
GO:0030163	protein catabolic process	3.07E-06	0.00026195
GO:0000278	mitotic cell cycle	3.24E-06	0.00027293
GO:1901575	organic substance catabolic process	3.46E-06	0.00028631
GO:0051438	regulation of ubiquitin-protein transferase activity	3.55E-06	0.00028985
GO:0006446	regulation of translational initiation	4.89E-06	0.00038754
GO:0033238	regulation of cellular amine metabolic process	4.89E-06	0.00038754
GO:0007005	mitochondrion organization	4.96E-06	0.00038754
GO:0009144	purine nucleoside triphosphate metabolic process	5.37E-06	0.00041355
GO:0009056	catabolic process	5.82E-06	0.00043706
GO:0031329	regulation of cellular catabolic process	5.83E-06	0.00043706
GO:0070647	protein modification by small protein conjugation or removal	6.21E-06	0.00045896
GO:0009205	purine ribonucleoside triphosphate metabolic process	6.35E-06	0.00046292
GO:0051649	establishment of localization in cell	7.30E-06	0.00052566
GO:0009408	response to heat	7.65E-06	0.00054314
GO:0002478	antigen processing and presentation of exogenous peptide antigen	8.58E-06	0.00059441
GO:0032446	protein modification by small protein conjugation	8.74E-06	0.00059441
GO:1901566	organonitrogen compound biosynthetic process	8.80E-06	0.00059441
GO:0043488	regulation of mRNA stability	8.80E-06	0.00059441
GO:0031331	positive regulation of cellular catabolic process	9.27E-06	0.00061844
GO:0009199	ribonucleoside triphosphate metabolic process	1.05E-05	0.00069046
GO:0070727	cellular macromolecule localization	1.06E-05	0.00069046
GO:0019884	antigen processing and presentation of exogenous antigen	1.20E-05	0.00077237
GO:0090090	negative regulation of canonical Wnt signaling pathway	1.28E-05	0.00081099
GO:0034613	cellular protein localization	1.66E-05	0.00104499
GO:0048002	antigen processing and presentation of peptide antigen	1.71E-05	0.00106017

GO:0043487	regulation of RNA stability	1.79E-05	0.00109983
GO:0009123	nucleoside monophosphate metabolic process	2.05E-05	0.00124334
GO:0046128	purine ribonucleoside metabolic process	2.20E-05	0.00132495
GO:0043161	proteasome-mediated ubiquitin-dependent protein catabolic process	2.29E-05	0.00136057
GO:1901657	glycosyl compound metabolic process	2.51E-05	0.00147433
GO:0051276	chromosome organization	2.54E-05	0.00147811
GO:0042278	purine nucleoside metabolic process	2.69E-05	0.00154295
GO:0022402	cell cycle process	2.71E-05	0.00154295
GO:0008104	protein localization	2.88E-05	0.00162458
GO:0006457	protein folding	3.02E-05	0.00168328
GO:0044281	small molecule metabolic process	3.36E-05	0.00185454
GO:0007346	regulation of mitotic cell cycle	3.44E-05	0.00188285
GO:1903321	negative regulation of protein modification by small protein conjugation or removal	3.48E-05	0.00188285
GO:0030177	positive regulation of Wnt signaling pathway	3.56E-05	0.00191119
GO:0009161	ribonucleoside monophosphate metabolic process	3.65E-05	0.00193662
GO:0007049	cell cycle	3.86E-05	0.00203026
GO:0009167	purine ribonucleoside monophosphate metabolic process	3.93E-05	0.00203316
GO:0031397	negative regulation of protein ubiquitination	3.94E-05	0.00203316
GO:0009126	purine nucleoside monophosphate metabolic process	4.38E-05	0.00223705
GO:0033554	cellular response to stress	4.59E-05	0.00232649
GO:1903052	positive regulation of proteolysis involved in cellular protein catabolic process	4.83E-05	0.00242562
GO:0006120	mitochondrial electron transport, NADH to ubiquinone	5.29E-05	0.00262912
GO:0006623	protein targeting to vacuole	5.54E-05	0.00272891
GO:0009896	positive regulation of catabolic process	6.23E-05	0.00304365
GO:0010565	regulation of cellular ketone metabolic process	6.49E-05	0.00314184
GO:0034605	cellular response to heat	6.56E-05	0.00314472
GO:0033365	protein localization to organelle	6.86E-05	0.003262
GO:0010498	proteasomal protein catabolic process	6.98E-05	0.00328932

GO:1903050	regulation of proteolysis involved in cellular protein catabolic process	7.38E-05	0.00344838
GO:0051123	RNA polymerase II transcriptional preinitiation complex assembly	7.44E-05	0.00344838
GO:0030178	negative regulation of Wnt signaling pathway	7.66E-05	0.00351993
GO:0060071	Wnt signaling pathway, planar cell polarity pathway	7.82E-05	0.00355825
GO:0072665	protein localization to vacuole	7.87E-05	0.00355825
GO:0071826	ribonucleoprotein complex subunit organization	7.98E-05	0.00357682
GO:0072666	establishment of protein localization to vacuole	8.08E-05	0.00359133
GO:1903364	positive regulation of cellular protein catabolic process	8.26E-05	0.00364263
GO:0009894	regulation of catabolic process	8.73E-05	0.00381523
GO:1990542	mitochondrial transmembrane transport	8.79E-05	0.00381523
GO:0090175	regulation of establishment of planar polarity	9.29E-05	0.00400018
GO:0002223	stimulatory C-type lectin receptor signaling pathway	9.48E-05	0.00405242
GO:0090263	positive regulation of canonical Wnt signaling pathway	9.73E-05	0.00409432
GO:0009116	nucleoside metabolic process	9.80E-05	0.00409432
GO:0065004	protein-DNA complex assembly	9.82E-05	0.00409432
GO:0019058	viral life cycle	9.88E-05	0.00409432
GO:0009119	ribonucleoside metabolic process	0.00010028	0.0041237
GO:0010605	negative regulation of macromolecule metabolic process	0.00011523	0.0046739
GO:0000289	nuclear-transcribed mRNA poly(A) tail shortening	0.00011537	0.0046739
GO:0045184	establishment of protein localization	0.00012279	0.0049376
GO:0080134	regulation of response to stress	0.00012868	0.00513669
GO:0034660	ncRNA metabolic process	0.00013458	0.00533339
GO:0002220	innate immune response activating cell surface receptor signaling pathway	0.00013708	0.00539339
GO:1902580	single-organism cellular localization	0.00014015	0.00547504
GO:0016567	protein ubiquitination	0.00014932	0.00579169
GO:0038095	Fc-epsilon receptor signaling pathway	0.00015283	0.00588629
GO:0032543	mitochondrial translation	0.0001638	0.00626458
GO:0070897	DNA-templated transcriptional preinitiation complex assembly	0.00016516	0.00627256

GO:0072594	establishment of protein localization to organelle	0.00017125	0.00645901
GO:0006289	nucleotide-excision repair	0.00017334	0.00649313
GO:1903362	regulation of cellular protein catabolic process	0.00018504	0.00688438
GO:0055086	nucleobase-containing small molecule metabolic process	0.00019356	0.00715242
GO:1905330	regulation of morphogenesis of an epithelium	0.00020033	0.00735315
GO:0044772	mitotic cell cycle phase transition	0.00020185	0.00735929
GO:0015980	energy derivation by oxidation of organic compounds	0.0002115	0.0076603
GO:0044770	cell cycle phase transition	0.00021512	0.00774
GO:0031398	positive regulation of protein ubiquitination	0.00025054	0.0089556
GO:0042254	ribosome biogenesis	0.00025738	0.00914048
GO:0022618	ribonucleoprotein complex assembly	0.00026925	0.00950028
GO:0015031	protein transport	0.00028121	0.00984317
GO:0042176	regulation of protein catabolic process	0.00028257	0.00984317
GO:0006415	translational termination	0.00028726	0.00994321
GO:0061024	membrane organization	0.00029836	0.01018325
GO:0048193	Golgi vesicle transport	0.00029887	0.01018325
GO:0019882	antigen processing and presentation	0.00029978	0.01018325
GO:0038061	NIK/NF-kappaB signaling	0.00032166	0.01085914
GO:0080135	regulation of cellular response to stress	0.00032608	0.01094055
GO:0006091	generation of precursor metabolites and energy	0.00033214	0.01100891
GO:0016050	vesicle organization	0.00033214	0.01100891
GO:0042180	cellular ketone metabolic process	0.00034706	0.01143431
GO:0001736	establishment of planar polarity	0.0003812	0.01240955
GO:0007164	establishment of tissue polarity	0.0003812	0.01240955
GO:0006914	autophagy	0.00039915	0.01291673
GO:0070126	mitochondrial translational termination	0.00041093	0.01321997
GO:0071824	protein-DNA complex subunit organization	0.00043802	0.01400895
GO:0044106	cellular amine metabolic process	0.00044381	0.01405287

GO:0045732	positive regulation of protein catabolic process	0.00044453	0.01405287
GO:0001738	morphogenesis of a polarized epithelium	0.00049218	0.01546983
GO:0007093	mitotic cell cycle checkpoint	0.00051399	0.01606296
GO:0051701	interaction with host	0.0005384	0.01673027
GO:0055114	oxidation-reduction process	0.00057005	0.01761358
GO:0006122	mitochondrial electron transport, ubiquinol to cytochrome c	0.00057765	0.01774827
GO:0006414	translational elongation	0.00059776	0.01826356
GO:0019080	viral gene expression	0.00061166	0.0185843
GO:0018205	peptidyl-lysine modification	0.00062066	0.01875343
GO:0006886	intracellular protein transport	0.00065781	0.01976684
GO:2000144	positive regulation of DNA-templated transcription, initiation	0.00069063	0.02063955
GO:0009266	response to temperature stimulus	0.00071188	0.02115901
GO:0050000	chromosome localization	0.00079648	0.02329374
GO:0051303	establishment of chromosome localization	0.00079648	0.02329374
GO:0070125	mitochondrial translational elongation	0.00079648	0.02329374
GO:0007034	vacuolar transport	0.00080561	0.02343548
GO:0010257	NADH dehydrogenase complex assembly	0.00085569	0.02421976
GO:0032981	mitochondrial respiratory chain complex I assembly	0.00085569	0.02421976
GO:0046794	transport of virus	0.00085569	0.02421976
GO:0097031	mitochondrial respiratory chain complex I biogenesis	0.00085569	0.02421976
GO:1902582	single-organism intracellular transport	0.00085996	0.02421976
GO:0060828	regulation of canonical Wnt signaling pathway	0.00086433	0.02421976
GO:0044033	multi-organism metabolic process	0.00086633	0.02421976
GO:1900034	regulation of cellular response to heat	0.000868	0.02421976
GO:0006605	protein targeting	0.00087608	0.02432114
GO:0009308	amine metabolic process	0.00089618	0.02464179
GO:1903322	positive regulation of protein modification by small protein conjugation or removal	0.00089664	0.02464179
GO:0050687	negative regulation of defense response to virus	0.00093268	0.02550422

GO:0016236	macroautophagy	0.00093823	0.02552838
GO:0044711	single-organism biosynthetic process	0.00096565	0.02614421
GO:0035567	non-canonical Wnt signaling pathway	0.00099163	0.02671546
GO:0010629	negative regulation of gene expression	0.0010132	0.02716258
GO:0032268	regulation of cellular protein metabolic process	0.00102647	0.02738433
GO:0016072	rRNA metabolic process	0.00104231	0.02767171
GO:0033209	tumor necrosis factor-mediated signaling pathway	0.00105325	0.02782719
GO:0006900	membrane budding	0.00107976	0.02839051
GO:2000142	regulation of DNA-templated transcription, initiation	0.00109079	0.02854312
GO:0043923	positive regulation by host of viral transcription	0.00110285	0.02872125
GO:0034470	ncRNA processing	0.00114688	0.02972641
GO:0006998	nuclear envelope organization	0.00115616	0.02982567
GO:0009892	negative regulation of metabolic process	0.00117987	0.0302944
GO:0010941	regulation of cell death	0.00124496	0.03181631
GO:1903902	positive regulation of viral life cycle	0.00125657	0.03196371
GO:0044766	multi-organism transport	0.00127287	0.03207982
GO:1902579	multi-organism localization	0.00127287	0.03207982
GO:0051704	multi-organism process	0.0012886	0.03232732
GO:0072521	purine-containing compound metabolic process	0.00135433	0.03380466
GO:0016071	mRNA metabolic process	0.00135985	0.03380466
GO:0006364	rRNA processing	0.00137676	0.03407019
GO:0043067	regulation of programmed cell death	0.00141913	0.03480374
GO:0051172	negative regulation of nitrogen compound metabolic process	0.00141913	0.03480374
GO:0033522	histone H2A ubiquitination	0.00143444	0.0349779
GO:0006297	nucleotide-excision repair, DNA gap filling	0.00143903	0.0349779
GO:0042981	regulation of apoptotic process	0.00145463	0.03520088
GO:0022411	cellular component disassembly	0.0014992	0.03611949
GO:0008219	cell death	0.00152097	0.03648338

GO:0006753	nucleoside phosphate metabolic process	0.00157073	0.03731289
GO:0031047	gene silencing by RNA	0.00157477	0.03731289
GO:0051726	regulation of cell cycle	0.00157602	0.03731289
GO:0045088	regulation of innate immune response	0.00159037	0.03749014
GO:0000288	nuclear-transcribed mRNA catabolic process, deadenylation-dependent decay	0.00164206	0.03854264
GO:0075733	intracellular transport of virus	0.00167753	0.03920698
GO:0051246	regulation of protein metabolic process	0.00173494	0.04024447
GO:2000027	regulation of organ morphogenesis	0.00173664	0.04024447
GO:0006281	DNA repair	0.00176436	0.04071438
GO:0019083	viral transcription	0.00179702	0.04129372
GO:0038093	Fc receptor signaling pathway	0.00181334	0.04149441
GO:0034655	nucleobase-containing compound catabolic process	0.00183513	0.04181795
GO:0030150	protein import into mitochondrial matrix	0.00186956	0.04190425
GO:0043248	proteasome assembly	0.00186956	0.04190425
GO:0045898	regulation of RNA polymerase II transcriptional preinitiation complex assembly	0.00186956	0.04190425
GO:0046599	regulation of centriole replication	0.00186956	0.04190425
GO:0033108	mitochondrial respiratory chain complex assembly	0.00198063	0.04421241
GO:0060260	regulation of transcription initiation from RNA polymerase II promoter	0.00198927	0.04422481
GO:1902581	multi-organism cellular localization	0.00203934	0.0449723
GO:1902583	multi-organism intracellular transport	0.00203934	0.0449723
GO:0060261	positive regulation of transcription initiation from RNA polymerase II promoter	0.00211822	0.04636731
GO:0006259	DNA metabolic process	0.00212296	0.04636731
GO:0060070	canonical Wnt signaling pathway	0.00212803	0.04636731
GO:2000113	negative regulation of cellular macromolecule biosynthetic process	0.00213976	0.04643791
GO:0006508	proteolysis	0.00219233	0.04739068
GO:0050851	antigen receptor-mediated signaling pathway	0.00221007	0.04758621
GO:0006396	RNA processing	0.00227788	0.04867827
GO:0048524	positive regulation of viral process	0.00227859	0.04867827

circuito afetivo (ACC - NAC) - TOC módulos menos preservados			
GO Cellular component			
GO:0044459	plasma membrane part	1.35E-05	0.00877234
GO:0044420	extracellular matrix component	2.89E-05	0.009364
GO:0005615	extracellular space	7.12E-05	0.0124447
GO:0005604	basement membrane	7.67E-05	0.0124447
GO:0005887	integral component of plasma membrane	9.85E-05	0.0127862
GO:0031226	intrinsic component of plasma membrane	0.00014354	0.01552571
GO:0005578	proteinaceous extracellular matrix	0.00022843	0.0211787
GO:0031012	extracellular matrix	0.0005675	0.04603845

Anexo 10. Análise de enriquecimento dos módulos mais e menos preservados para categorias funcionais do circuito cognitivo ventral (OFC – PT).

GO	Descrição	pvalor	FDR
circuito cognitivo ventral (OFC - PT) - controles módulos mais preservados			
GO Biological process			
GO:0002376	immune system process	4.67E-07	0.001682814
GO:0050776	regulation of immune response	6.15E-07	0.001682814
GO:0002286	T cell activation involved in immune response	1.17E-06	0.002013023
GO:0002682	regulation of immune system process	1.47E-06	0.002013023
GO:0006955	immune response	9.84E-06	0.010486997
GO:0002285	lymphocyte activation involved in immune response	1.15E-05	0.010486997
GO:0002366	leukocyte activation involved in immune response	1.64E-05	0.012813863
GO:0002263	cell activation involved in immune response	1.99E-05	0.013617129
GO:0002684	positive regulation of immune system process	2.68E-05	0.016272262
GO:0001775	cell activation	3.49E-05	0.019081468
GO:0002252	immune effector process	3.93E-05	0.019265088
GO:0050900	leukocyte migration	4.23E-05	0.019265088
GO:0050778	positive regulation of immune response	6.13E-05	0.025791379
GO:0002250	adaptive immune response	8.11E-05	0.030537374
GO:0002274	myeloid leukocyte activation	8.38E-05	0.030537374
GO:0045321	leukocyte activation	0.000106425	0.036377549
GO:0034097	response to cytokine	0.000117035	0.037650927
GO:0007159	leukocyte cell-cell adhesion	0.000126991	0.037699773
GO:0002460	adaptive immune response based on somatic recombination of immune receptors built from immunoglobulin superfamily domains	0.000130974	0.037699773
GO:0022407	regulation of cell-cell adhesion	0.000150087	0.041041418
GO:0071219	cellular response to molecule of bacterial origin	0.000167729	0.043681512

GO:0046649	lymphocyte activation	0.000183793	0.045689337
circuito cognitivo ventral (OFC - PT) - controles módulos menos preservados			
GO Cellular component			
GO:0070062	extracellular exosome	6.56E-07	0.000186012
GO:1903561	extracellular vesicle	8.41E-07	0.000186012
GO:0043230	extracellular organelle	8.59E-07	0.000186012
GO:0045111	intermediate filament cytoskeleton	2.84E-06	0.000461791
GO:0005856	cytoskeleton	7.27E-06	0.000944484
GO:0016604	nuclear body	0.000153048	0.014274713
GO:0044430	cytoskeletal part	0.000153728	0.014274713
GO:0044451	nucleoplasm part	0.000191842	0.015356391
GO:0031012	extracellular matrix	0.00022366	0.015356391
GO:0030864	cortical actin cytoskeleton	0.000236252	0.015356391
GO:0005911	cell-cell junction	0.000425796	0.025160691
GO:0044448	cell cortex part	0.000521336	0.02823901
GO:0005913	cell-cell adherens junction	0.000634379	0.031718964
GO:0015629	actin cytoskeleton	0.000753995	0.034979915
GO:0005882	intermediate filament	0.000807229	0.034979915
GO:0016605	PML body	0.001070638	0.040936178
GO:0030863	cortical cytoskeleton	0.001070638	0.040936178
circuito cognitivo ventral (OFC - PT) - TOC módulos mais preservados			
GO Biological process			
GO:0070647	protein modification by small protein conjugation or removal	2.21E-12	1.21E-08
GO:0006511	ubiquitin-dependent protein catabolic process	4.87E-12	1.33E-08
GO:0019941	modification-dependent protein catabolic process	1.19E-11	2.16E-08
GO:0043632	modification-dependent macromolecule catabolic process	2.21E-11	2.94E-08

GO:0042787	protein ubiquitination involved in ubiquitin-dependent protein catabolic process	2.69E-11	2.94E-08
GO:0031145	anaphase-promoting complex-dependent catabolic process	3.47E-11	3.16E-08
GO:0051444	negative regulation of ubiquitin-protein transferase activity	5.27E-11	4.11E-08
GO:0051436	negative regulation of ubiquitin-protein ligase activity involved in mitotic cell cycle	8.78E-11	6.00E-08
GO:0051439	regulation of ubiquitin-protein ligase activity involved in mitotic cell cycle	1.36E-10	8.28E-08
GO:0051437	positive regulation of ubiquitin-protein ligase activity involved in regulation of mitotic cell cycle transition	2.09E-10	1.04E-07
GO:1904667	negative regulation of ubiquitin protein ligase activity	2.09E-10	1.04E-07
GO:0007005	mitochondrion organization	2.95E-10	1.34E-07
GO:0044257	cellular protein catabolic process	6.59E-10	2.77E-07
GO:0034622	cellular macromolecular complex assembly	7.39E-10	2.88E-07
GO:1904668	positive regulation of ubiquitin protein ligase activity	1.04E-09	3.78E-07
GO:0006521	regulation of cellular amino acid metabolic process	1.24E-09	4.25E-07
GO:0051603	proteolysis involved in cellular protein catabolic process	1.62E-09	5.22E-07
GO:0030163	protein catabolic process	1.97E-09	5.98E-07
GO:1904666	regulation of ubiquitin protein ligase activity	4.41E-09	1.27E-06
GO:2000060	positive regulation of protein ubiquitination involved in ubiquitin-dependent protein catabolic process	6.20E-09	1.69E-06
GO:0043933	macromolecular complex subunit organization	6.86E-09	1.78E-06
GO:0065003	macromolecular complex assembly	9.43E-09	2.28E-06
GO:0051438	regulation of ubiquitin-protein transferase activity	9.61E-09	2.28E-06
GO:2000058	regulation of protein ubiquitination involved in ubiquitin-dependent protein catabolic process	1.09E-08	2.49E-06
GO:0016567	protein ubiquitination	1.41E-08	3.08E-06
GO:0051443	positive regulation of ubiquitin-protein transferase activity	1.48E-08	3.11E-06
GO:0032446	protein modification by small protein conjugation	1.60E-08	3.24E-06
GO:0071822	protein complex subunit organization	2.80E-08	5.46E-06
GO:0046907	intracellular transport	3.91E-08	7.36E-06
GO:0043161	proteasome-mediated ubiquitin-dependent protein catabolic process	5.05E-08	9.19E-06

GO:0002223	stimulatory C-type lectin receptor signaling pathway	7.24E-08	1.28E-05
GO:0051641	cellular localization	8.25E-08	1.41E-05
GO:0070646	protein modification by small protein removal	9.14E-08	1.51E-05
GO:0002220	innate immune response activating cell surface receptor signaling pathway	1.26E-07	2.02E-05
GO:0033238	regulation of cellular amine metabolic process	1.52E-07	2.37E-05
GO:0031397	negative regulation of protein ubiquitination	2.24E-07	3.40E-05
GO:0010498	proteasomal protein catabolic process	2.33E-07	3.44E-05
GO:0032543	mitochondrial translation	7.12E-07	0.000100229
GO:0070727	cellular macromolecule localization	7.20E-07	0.000100229
GO:0034613	cellular protein localization	7.34E-07	0.000100229
GO:1903321	negative regulation of protein modification by small protein conjugation or removal	7.78E-07	0.00010365
GO:0038095	Fc-epsilon receptor signaling pathway	9.05E-07	0.000117685
GO:0042176	regulation of protein catabolic process	9.58E-07	0.000121656
GO:0006415	translational termination	1.06E-06	0.000131124
GO:0022607	cellular component assembly	1.15E-06	0.000137675
GO:1903050	regulation of proteolysis involved in cellular protein catabolic process	1.16E-06	0.000137675
GO:0006508	proteolysis	1.23E-06	0.000142729
GO:0043623	cellular protein complex assembly	1.29E-06	0.000146405
GO:0002479	antigen processing and presentation of exogenous peptide antigen via MHC class I, TAP-dependent	1.31E-06	0.000146415
GO:0010608	posttranscriptional regulation of gene expression	1.64E-06	0.000179495
GO:0051649	establishment of localization in cell	2.39E-06	0.000255496
GO:0042590	antigen processing and presentation of exogenous peptide antigen via MHC class I	2.51E-06	0.00025898
GO:0006461	protein complex assembly	2.56E-06	0.00025898
GO:0070271	protein complex biogenesis	2.56E-06	0.00025898
GO:0000278	mitotic cell cycle	2.61E-06	0.00025921
GO:0009057	macromolecule catabolic process	2.85E-06	0.000277695
GO:0031398	positive regulation of protein ubiquitination	3.20E-06	0.000306619

GO:0044265	cellular macromolecule catabolic process	3.27E-06	0.000308139
GO:1990542	mitochondrial transmembrane transport	3.42E-06	0.000316402
GO:1903052	positive regulation of proteolysis involved in cellular protein catabolic process	4.30E-06	0.000389711
GO:0033365	protein localization to organelle	4.35E-06	0.000389711
GO:0038093	Fc receptor signaling pathway	5.26E-06	0.000463498
GO:1903322	positive regulation of protein modification by small protein conjugation or removal	6.13E-06	0.000531353
GO:0031396	regulation of protein ubiquitination	6.56E-06	0.000560125
GO:0038061	NIK/NF-kappaB signaling	6.99E-06	0.000587823
GO:0009308	amine metabolic process	9.01E-06	0.00074542
GO:0000209	protein polyubiquitination	9.52E-06	0.00077616
GO:1903362	regulation of cellular protein catabolic process	1.01E-05	0.000809986
GO:0044106	cellular amine metabolic process	1.19E-05	0.00094258
GO:0006289	nucleotide-excision repair	1.29E-05	0.001006852
GO:0002474	antigen processing and presentation of peptide antigen via MHC class I	1.85E-05	0.001421103
GO:1903320	regulation of protein modification by small protein conjugation or removal	2.02E-05	0.001532226
GO:0070126	mitochondrial translational termination	2.32E-05	0.001733553
GO:1903364	positive regulation of cellular protein catabolic process	2.35E-05	0.001733774
GO:1901990	regulation of mitotic cell cycle phase transition	2.47E-05	0.001796463
GO:0000715	nucleotide-excision repair, DNA damage recognition	2.63E-05	0.001893576
GO:0043473	pigmentation	2.86E-05	0.002025818
GO:0045732	positive regulation of protein catabolic process	3.01E-05	0.002108501
GO:1903047	mitotic cell cycle process	3.06E-05	0.002118513
GO:0050852	T cell receptor signaling pathway	3.74E-05	0.002550587
GO:0006839	mitochondrial transport	4.23E-05	0.002853416
GO:0070125	mitochondrial translational elongation	4.69E-05	0.003126355
GO:0042776	mitochondrial ATP synthesis coupled proton transport	5.13E-05	0.003378094
GO:0043488	regulation of mRNA stability	5.80E-05	0.003731684
GO:0016050	vesicle organization	5.81E-05	0.003731684

GO:0072594	establishment of protein localization to organelle	6.14E-05	0.003895918
GO:0008104	protein localization	6.20E-05	0.003895918
GO:0010565	regulation of cellular ketone metabolic process	7.79E-05	0.004834992
GO:0065002	intracellular protein transmembrane transport	8.31E-05	0.005099182
GO:0071806	protein transmembrane transport	9.17E-05	0.005564853
GO:0006457	protein folding	9.43E-05	0.00564015
GO:1901987	regulation of cell cycle phase transition	9.50E-05	0.00564015
GO:0006099	tricarboxylic acid cycle	9.98E-05	0.005863612
GO:0006886	intracellular protein transport	0.000106248	0.006174799
GO:0043487	regulation of RNA stability	0.00010866	0.006248524
GO:0070925	organelle assembly	0.000112365	0.006394256
GO:0016579	protein deubiquitination	0.000119961	0.006756156
GO:0009408	response to heat	0.000121609	0.006779082
GO:0033554	cellular response to stress	0.000132761	0.007253763
GO:1901797	negative regulation of signal transduction by p53 class mediator	0.000133516	0.007253763
GO:1902582	single-organism intracellular transport	0.000134108	0.007253763
GO:0000375	RNA splicing, via transesterification reactions	0.000157651	0.008443588
GO:0006414	translational elongation	0.000167783	0.008899038
GO:0006283	transcription-coupled nucleotide-excision repair	0.000188341	0.009893354
GO:0007049	cell cycle	0.000201063	0.010461021
GO:0006605	protein targeting	0.000205685	0.010600518
GO:0045184	establishment of protein localization	0.00022425	0.011449309
GO:0002429	immune response-activating cell surface receptor signaling pathway	0.000250881	0.012690407
GO:0000377	RNA splicing, via transesterification reactions with bulged adenosine as nucleophile	0.000256648	0.012746055
GO:0000398	mRNA splicing, via spliceosome	0.000256648	0.012746055
GO:0061024	membrane organization	0.000268048	0.012966734
GO:0015985	energy coupled proton transport, down electrochemical gradient	0.000268212	0.012966734
GO:0015986	ATP synthesis coupled proton transport	0.000268212	0.012966734

GO:0015031	protein transport	0.000273689	0.013115448
GO:0042180	cellular ketone metabolic process	0.000299839	0.014243661
GO:0034389	lipid particle organization	0.00031022	0.014609738
GO:0006900	membrane budding	0.000313653	0.014645165
GO:0002768	immune response-regulating cell surface receptor signaling pathway	0.000342494	0.015856316
GO:0009894	regulation of catabolic process	0.000364544	0.016735329
GO:0006101	citrate metabolic process	0.000410717	0.018697871
GO:0031331	positive regulation of cellular catabolic process	0.000416801	0.018818039
GO:0009896	positive regulation of catabolic process	0.00042568	0.019061372
GO:0007346	regulation of mitotic cell cycle	0.000449919	0.019982998
GO:0007029	endoplasmic reticulum organization	0.000493275	0.021731948
GO:0034605	cellular response to heat	0.0004988	0.021799552
GO:0050851	antigen receptor-mediated signaling pathway	0.000545046	0.023631656
GO:0045333	cellular respiration	0.000556683	0.023946124
GO:0030177	positive regulation of Wnt signaling pathway	0.00056397	0.023959041
GO:0008380	RNA splicing	0.000565754	0.023959041
GO:0031329	regulation of cellular catabolic process	0.000587772	0.024699975
GO:0010256	endomembrane system organization	0.000667101	0.027665301
GO:0022402	cell cycle process	0.000672512	0.027665301
GO:0006626	protein targeting to mitochondrion	0.000677071	0.027665301
GO:0007034	vacuolar transport	0.000678592	0.027665301
GO:0072350	tricarboxylic acid metabolic process	0.000743761	0.030097548
GO:0044743	intracellular protein transmembrane import	0.000978263	0.039295973
GO:1902580	single-organism cellular localization	0.000996958	0.039754615
GO:0033059	cellular pigmentation	0.001007647	0.039889694
GO:0006397	mRNA processing	0.001063914	0.041814104
GO:0009060	aerobic respiration	0.001115079	0.043203396
GO:0090114	COPII-coated vesicle budding	0.001115079	0.043203396

GO:0044802	single-organism membrane organization	0.001212029	0.046628966
circuito cognitivo ventral (OFC - PT) - TOC módulos menos preservados GO Cellular component			
GO:0005578	proteinaceous extracellular matrix	1.72E-06	0.000750963
GO:0070161	anchoring junction	3.46E-06	0.000750963
GO:0030054	cell junction	3.47E-06	0.000750963
GO:0005912	adherens junction	6.36E-06	0.001032329
GO:0005615	extracellular space	1.21E-05	0.001569207
GO:0031012	extracellular matrix	6.49E-05	0.007014669
GO:0005924	cell-substrate adherens junction	0.000138461	0.012837321
GO:0030055	cell-substrate junction	0.000161414	0.013094701
GO:0030016	myofibril	0.000214516	0.01546896
GO:0043292	contractile fiber	0.000316374	0.020532647
GO:0005925	focal adhesion	0.000385134	0.022722934
GO:0042383	sarcolemma	0.000828329	0.044798814

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