Brain Genes

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# Interesting genes - brain

Most interesting genes of different brain tissues:

## Brain - Amygdala

#### ENST00000301686:

Methyltransferase-like 26  
<https://www.thermofisher.com/order/genome-database/details/gene-expression/Hs04403420_m1>

### ENST00000429794:

Cbp/p300 interacting transactivator with Glu/Asp rich carboxy-terminal domain 1 <https://www.thermofisher.com/order/genome-database/details/gene-expression/Hs00918445_g1>

## Brain - Anterior cingulate cortex

#### ENST00000337225

CXCL14 C-X-C motif chemokine ligand 14 [ Homo sapiens (human) ] This antimicrobial gene belongs to the cytokine gene family which encode secreted proteins involved in immunoregulatory and inflammatory processes. The protein encoded by this gene is structurally related to the CXC (Cys-X-Cys) subfamily of cytokines. Members of this subfamily are characterized by two cysteines separated by a single amino acid. This cytokine displays chemotactic activity for monocytes but not for lymphocytes, dendritic cells, neutrophils or macrophages. It has been implicated that this cytokine is involved in the homeostasis of monocyte-derived macrophages rather than in inflammation. [provided by RefSeq, Sep 2014] <https://www.ncbi.nlm.nih.gov/gene/9547>

### ENST00000409385

SPATS2L spermatogenesis associated serine rich 2 like [ Homo sapiens (human) ] Enables RNA binding activity. Located in cytosol; nucleolus; and nucleoplasm. Part of protein-containing complex. [provided by Alliance of Genome Resources, Apr 2022] <https://www.ncbi.nlm.nih.gov/gene/?term=ENST00000409385>

#### ENST00000602349

NXPH1 neurexophilin 1 [ Homo sapiens (human) ] This gene is a member of the neurexophilin family and encodes a secreted protein with a variable N-terminal domain, a highly conserved, N-glycosylated central domain, a short linker region, and a cysteine-rich C-terminal domain. This protein forms a very tight complex with alpha neurexins, a group of proteins that promote adhesion between dendrites and axons. [provided by RefSeq, Jul 2008] <https://www.ncbi.nlm.nih.gov/gene/?term=ENST00000602349>

## Brain - Cerebellar Hemisphere

#### ENST000002766

SYBU syntabulin [ Homo sapiens (human) ] Syntabulin/GOLSYN is part of a kinesin motor-adaptor complex that is critical for the anterograde axonal transport of active zone components and contributes to activity-dependent presynaptic assembly during neuronal development (Cai et al., 2007 [PubMed 17611281]).[supplied by OMIM, Mar 2008] <https://www.ncbi.nlm.nih.gov/gene/?term=ENST00000276646>

#### ENST00000356660

BDNF brain derived neurotrophic factor [ Homo sapiens (human) ] This gene encodes a member of the nerve growth factor family of proteins. Alternative splicing results in multiple transcript variants, at least one of which encodes a preproprotein that is proteolytically processed to generate the mature protein. Binding of this protein to its cognate receptor promotes neuronal survival in the adult brain. Expression of this gene is reduced in Alzheimer’s, Parkinson’s, and Huntington’s disease patients. This gene may play a role in the regulation of the stress response and in the biology of mood disorders. [provided by RefSeq, Nov 2015] <https://www.ncbi.nlm.nih.gov/gene/?term=ENST00000356660>

#### ENST00000518312 & ENST00000521485

SNAP91 synaptosome associated protein 91 [ Homo sapiens (human) ] Predicted to enable several functions, including SNARE binding activity; clathrin binding activity; and phosphatidylinositol binding activity. Acts upstream of or within regulation of clathrin-dependent endocytosis. Predicted to be located in several cellular components, including postsynaptic density; presynaptic endosome; and presynaptic membrane. Predicted to be extrinsic component of endosome membrane. Predicted to be active in several cellular components, including Schaffer collateral - CA1 synapse; cytoplasmic vesicle; and parallel fiber to Purkinje cell synapse. Predicted to be extrinsic component of presynaptic endocytic zone membrane. Biomarker of Alzheimer’s disease. [provided by Alliance of Genome Resources, Apr 2022] <https://www.ncbi.nlm.nih.gov/gene/?term=ENST00000518312>

#### ENST00000529690

SYBU syntabulin [ Homo sapiens (human) ] Syntabulin/GOLSYN is part of a kinesin motor-adaptor complex that is critical for the anterograde axonal transport of active zone components and contributes to activity-dependent presynaptic assembly during neuronal development (Cai et al., 2007 [PubMed 17611281]).[supplied by OMIM, Mar 2008] <https://www.ncbi.nlm.nih.gov/gene/?term=ENST00000529690>

#### ENST00000577440

SEPTIN4 septin 4 [ Homo sapiens (human) ] his gene is a member of the septin family of nucleotide binding proteins, originally described in yeast as cell division cycle regulatory proteins. Septins are highly conserved in yeast, Drosophila, and mouse, and appear to regulate cytoskeletal organization. Disruption of septin function disturbs cytokinesis and results in large multinucleate or polyploid cells. This gene is highly expressed in brain and heart. Alternatively spliced transcript variants encoding different isoforms have been described for this gene. One of the isoforms (known as ARTS) is distinct; it is localized to the mitochondria, and has a role in apoptosis and cancer. [provided by RefSeq, Nov 2010]

## Brain - Cerebellum

#### ENST00000551219

PTPRR protein tyrosine phosphatase receptor type R [ Homo sapiens (human) ] The protein encoded by this gene is a member of the protein tyrosine phosphatase (PTP) family. PTPs are known to be signaling molecules that regulate a variety of cellular processes including cell growth, differentiation, mitotic cycle, and oncogenic transformation. This PTP possesses an extracellular region, a single transmembrane region, and a single intracellular catalytic domain, and thus represents a receptor-type PTP. Silencing of this gene has been associated with colorectal cancer. Multiple transcript variants encoding different isoforms have been found for this gene. This gene shares a symbol (PTPRQ) with another gene, protein tyrosine phosphatase, receptor type, Q (GeneID 374462), which is also located on chromosome 12. [provided by RefSeq, May 2011] <https://www.ncbi.nlm.nih.gov/gene/?term=ENST00000551219>

## Brain - Cortex

#### ENST00000249776

KNSTRN kinetochore localized astrin (SPAG5) binding protein [ Homo sapiens (human) ] Enables microtubule plus-end binding activity and protein homodimerization activity. Involved in several processes, including cellular response to epidermal growth factor stimulus; mitotic sister chromatid segregation; and regulation of attachment of spindle microtubules to kinetochore. Located in several cellular components, including kinetochore; microtubule cytoskeleton; and ruffle. Implicated in actinic keratosis and skin squamous cell carcinoma. [provided by Alliance of Genome Resources, Apr 2022] <https://www.ncbi.nlm.nih.gov/gene/?term=ENST00000249776>

#### ENST00000357481

ACIN1 apoptotic chromatin condensation inducer 1 [ Homo sapiens (human) ] Apoptosis is defined by several morphologic nuclear changes, including chromatin condensation and nuclear fragmentation. This gene encodes a nuclear protein that induces apoptotic chromatin condensation after activation by caspase-3, without inducing DNA fragmentation. This protein has also been shown to be a component of a splicing-dependent multiprotein exon junction complex (EJC) that is deposited at splice junctions on mRNAs, as a consequence of pre-mRNA splicing. It may thus be involved in mRNA metabolism associated with splicing. Alternatively spliced transcript variants encoding different isoforms have been described for this gene. [provided by RefSeq, Oct 2011] <https://www.ncbi.nlm.nih.gov/gene/?term=ENST00000357481>

## Brain - Frontal Cortex

#### ENST00000579298

NUP85 nucleoporin 85 [ Homo sapiens (human) ] This gene encodes a protein component of the Nup107-160 subunit of the nuclear pore complex. Nuclear pore complexes are embedded in the nuclear envelope and promote bidirectional transport of macromolecules between the cytoplasm and nucleus. The encoded protein can also bind to the C-terminus of chemokine (C-C motif) receptor 2 (CCR2) and promote chemotaxis of monocytes, thereby participating in the inflammatory response. Alternative splicing results in multiple transcript variants. [provided by RefSeq, Dec 2014] <https://www.ncbi.nlm.nih.gov/gene/?term=ENST00000579298>

## Brain - Hippocampus

#### ENST00000439476

BDNF brain derived neurotrophic factor [ Homo sapiens (human) ] This gene encodes a member of the nerve growth factor family of proteins. Alternative splicing results in multiple transcript variants, at least one of which encodes a preproprotein that is proteolytically processed to generate the mature protein. Binding of this protein to its cognate receptor promotes neuronal survival in the adult brain. Expression of this gene is reduced in Alzheimer’s, Parkinson’s, and Huntington’s disease patients. This gene may play a role in the regulation of the stress response and in the biology of mood disorders. [provided by RefSeq, Nov 2015] <https://www.ncbi.nlm.nih.gov/gene/?term=%23+ENST00000439476>

#### ENST00000543365

ARHGAP45 Rho GTPase activating protein 45 [ Homo sapiens (human) ] Predicted to enable GTPase activator activity. Predicted to be involved in activation of GTPase activity. Located in membrane. [provided by Alliance of Genome Resources, Apr 2022] <https://www.ncbi.nlm.nih.gov/gene/?term=%23+ENST00000543365>

## Brain - Nucleus accumbens

#### ENST00000314177

Meis homeobox 2 <https://www.thermofisher.com/taqman-gene-expression/product/Hs01035451_m1?CID=&ICID=&subtype=>

#### ENST00000353414

COL11A1 collagen type XI alpha 1 chain [ Homo sapiens (human) ] This gene encodes one of the two alpha chains of type XI collagen, a minor fibrillar collagen. Type XI collagen is a heterotrimer but the third alpha chain is a post-translationally modified alpha 1 type II chain. Mutations in this gene are associated with type II Stickler syndrome and with Marshall syndrome. A single-nucleotide polymorphism in this gene is also associated with susceptibility to lumbar disc herniation. Multiple transcript variants have been identified for this gene. [provided by RefSeq, Nov 2009] <https://www.ncbi.nlm.nih.gov/gene/?term=ENST00000353414>

#### ENST00000531293

SLN sarcolipin [ Homo sapiens (human) ] Sarcoplasmic reticulum Ca(2+)-ATPases are transmembrane proteins that catalyze the ATP-dependent transport of Ca(2+) from the cytosol into the lumen of the sarcoplasmic reticulum in muscle cells. This gene encodes a small proteolipid that regulates several sarcoplasmic reticulum Ca(2+)-ATPases. The transmembrane protein interacts with Ca(2+)-ATPases and reduces the accumulation of Ca(2+) in the sarcoplasmic reticulum without affecting the rate of ATP hydrolysis. [provided by RefSeq, Jul 2008] <https://www.ncbi.nlm.nih.gov/gene/?term=ENST00000531293>

## Brain - Putamen

#### ENST00000539563

LSAMP limbic system associated membrane protein [ Homo sapiens (human) ] This gene encodes a member of the immunoglobulin LAMP, OBCAM and neurotrimin (IgLON) family of proteins. The encoded preproprotein is proteolytically processed to generate a neuronal surface glycoprotein. This protein may act as a selective homophilic adhesion molecule during axon guidance and neuronal growth in the developing limbic system. The encoded protein may also function as a tumor suppressor and may play a role in neuropsychiatric disorders. Alternative splicing results in multiple transcript variants, at least one of which encodes a preproprotein that is proteolytically processed. [provided by RefSeq, Jan 2016] <https://www.ncbi.nlm.nih.gov/gene/?term=%23+ENST00000539563>

## Brain - Putamen

#### ENST00000475226

hemoglobin subunit beta <https://www.ensembl.org/Homo_sapiens/Transcript/Summary?db=core;g=ENSG00000244734;r=11:5225464-5227071;t=ENST00000475226>

#### ENST00000506554 & ENST00000519042

MEF2C myocyte enhancer factor 2C [ Homo sapiens (human) ] This locus encodes a member of the MADS box transcription enhancer factor 2 (MEF2) family of proteins, which play a role in myogenesis. The encoded protein, MEF2 polypeptide C, has both trans-activating and DNA binding activities. This protein may play a role in maintaining the differentiated state of muscle cells. Mutations and deletions at this locus have been associated with severe cognitive disability, stereotypic movements, epilepsy, and cerebral malformation. Alternatively spliced transcript variants have been described. [provided by RefSeq, Jul 2010] <https://www.ncbi.nlm.nih.gov/gene/?term=%23+ENST00000506554>

#### ENST00000555247

IL11RA interleukin 11 receptor subunit alpha [ Homo sapiens (human) ] Interleukin 11 is a stromal cell-derived cytokine that belongs to a family of pleiotropic and redundant cytokines that use the gp130 transducing subunit in their high affinity receptors. This gene encodes the IL-11 receptor, which is a member of the hematopoietic cytokine receptor family. This particular receptor is very similar to ciliary neurotrophic factor, since both contain an extracellular region with a 2-domain structure composed of an immunoglobulin-like domain and a cytokine receptor-like domain. Multiple alternatively spliced transcript variants have been found for this gene. [provided by RefSeq, Jun 2012] <https://www.ncbi.nlm.nih.gov/gene/?term=%23+ENST00000555247>

## Brain - Substantia nigra

#### ENST00000537612

EMP1 epithelial membrane protein 1 [ Homo sapiens (human) ] Involved in bleb assembly and cell death. Located in plasma membrane. [provided by Alliance of Genome Resources, Apr 2022] <http://genome.ucsc.edu/cgi-bin/hgGene?hgg_gene=ENST00000537612.1&hgg_chrom=chr12&hgg_start=13211510&hgg_end=13216773&hgg_type=knownGene&db=hg38> <https://www.ncbi.nlm.nih.gov/gene/?term=ENSG00000134531>

#### ENST00000590261

ILF3 interleukin enhancer binding factor 3 [ Homo sapiens (human) ] This gene encodes a double-stranded RNA (dsRNA) binding protein that complexes with other proteins, dsRNAs, small noncoding RNAs, and mRNAs to regulate gene expression and stabilize mRNAs. This protein (NF90, ILF3) forms a heterodimer with a 45 kDa transcription factor (NF45, ILF2) required for T-cell expression of interleukin 2. This complex has been shown to affect the redistribution of nuclear mRNA to the cytoplasm. Knockdown of NF45 or NF90 protein retards cell growth, possibly by inhibition of mRNA stabilization. In contrast, an isoform (NF110) of this gene that is predominantly restricted to the nucleus has only minor effects on cell growth when its levels are reduced. Alternative splicing results in multiple transcript variants encoding distinct isoforms.[provided by RefSeq, Dec 2014] <https://www.ncbi.nlm.nih.gov/gene/?term=ENST00000590261>