|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Gene name** | **Protein class** | **Gene Ontology** | **Protein expression** | **Disease association** |
| C1ORF125 | structual | motile cilia or flagella | component of the outer dynein arms complex| Axonemal\_dynein\_light\_chain| movement of sperm flagella |  | **Multiple Sclerosis**| Diabetes Type 2| **Huntington's disease**| essential hypertension |hypertension |
| C1ORF21 | Uncharacterized | Cytosol | Membrane | prostatic hypertrophy |prostatitis |prostate cancer |
| C1ORF94 | Protein binding | Protein binding | Plasma| fetal tissues restriced | **ataxia** |**neuroblastoma** |endotheliitis |
| C6ORF10 | Membrane|Testis-specific basic protein | Integral component of membrane| extracellular | Proximal fluid| membrane | **Multiple Sclerosis**| Asthma| Rhumatoid arthritis | vitiligo |graves' disease |liver cirrhosis |coronary artery disease |**atopic dermatitis** |systemic lupus erythematosus |psoriasis |lupus erythematosus |dermatitis |type 1 diabetes |asthma |rheumatoid arthritis |arthritis |obesity |
| C6ORF129 |  | Integral component of membrane |  | **alzheimer's disease** |
| C6ORF48 | Protein binding | Extracellular |  | gastroenteritis |celiac disease |diarrhea |systemic lupus erythematosus |lupus erythematosus |hiv-1 |
| C9ORF5 | Transmembrane | Glycoprotein | Integral component of membrane |  | **Neurobehavioral Manifestations**| malaria |**schizophrenia** |
| C9ORF72 | GDP/GTP exchange factor (GEF) | Nucleus|cytoplasm| protein binding| Rab GTPase binding| Expansion of a hexanucleotide repeat| extracellular| vacules| endocytosis| cell death | PBL| adult brain restricted | **c9orf72-related amyotrophic lateral sclerosis**/**frontotemporal dementia**|**semantic dementia** |**frontotemporal lobar degeneration with ubiquitin-positive inclusions** |**"dementia**| familial| **nonspecific" |**amyotrophic lateral sclerosis-parkinsonism**/dementia complex** |amyotrophic lateral sclerosis |lateral sclerosis |**aphasia** |**restless legs syndrome** |**motor neuron disease** |**essential tremor** |tremor |**parkinson's disease** |**alzheimer's disease** |**cerebritis** |**ataxia** |atherosclerosis |**neuronitis** |rheumatoid arthritis|**schizophrenia** |multiple myeloma |myeloma |endotheliitis |
| C10ORF112 | LDL-receptor class | protein binding| integral component of membrane| LDL-receptor |  | **Memory**|**mental competency** |
| C11ORF73 | nuclear import carrier | Cytoplasm| protein binding| nuclear import| protein transporter| Heat shock carrier| cellular response to stress| OP10 family | Brain| cerebral cortex| nucleus| cell associated | **Psychomotor Performance|** crescentic glomerulonephritis |glomerulonephritis |malaria |
| C20ORF132 | Protein binding|maestro heat-like repeat family | Binding | Proximal fluid | **alzheimer's disease| hippocampal atrophy** |
| C20ORF196 | uncharacterized | Cytoplasm |  | Carotid Artery Diseases} **Neurobehavioral Manifestations**|atherosclerosis |
| CCDC60 | Uncharacterized | Nucleus | Adult spinal cord restricted | **schizophrenia** |
| CCDC62 | Nuclear receptor coactivator|hormonal regulator | Nucleus | Plasma| pancreatic juice | **rhizomelic chondrodysplasia punctata** |**zellweger syndrome** |chondrodysplasia |**paraplegia** |**spasticity** |breast and colorectal cancer |**parkinson's disease** |prostatitis |prostate cancer |colorectal cancer |
| CCDC64 | Secretary trasnporter | Protein binding| cytoplasm| centrosome| Rab/GTPase binding| neuron projection and development| dynacrin binding| Golgi to secretary granule transport| inhibition g neuritogenesis | Urine | **neuronitis** |malaria| **Psychomotor Performance** |
| CCDC134 |  | extracellular | Brain| membrane| nucleus | **Alzheimer Disease**| ataxia |hiv-1 |
| FAM47E | lncRNA|transcription co factor|RNA binding|protein binding | Nucleus| transcription co-factor | Proximal fluid | **Parkinson Disease** |
| FAM69A | Cystine-rich type II transmembrane protein | Endoplasmic reticulum| intergral componnent of membrane | Saliva| membrane| T-cell restricted | **multiple sclerosis |bipolar disorder |parkinson's disease |schizophrenia** |
| FAM83B | Uncharacterized |  | Proximal fluid| brain| cerebral cortex| adrenal gland| gall bladder-restricted| cell associated | **neuroblastoma** |
| FAM110C | lncRNA|Alpha-tubulin binding|protein binding|microtubules | Nucleus| #spindle pole| microtubule organizing center| positive regulation of protein kinase B signaling regulation of cell projection assembly| AKT1 signaling pathway| PKC signaling| cell spreading and cell migration of epithelial cells |  | **Neurobehavioral Manifestations**|thyroiditis |prostatitis |
| FAM114A1 | Neuronal cell developmental protein | Cytoplasm | Secretion by cell| brain| cerebral cortex| membrane| cell associated | teratocarcinoma |**neuroblastoma |neuronitis** |
| FAM131C | Uncharacterized | Cytoplasm |  | **Psychomotor Performance** |
| FAM177B | Uncharacterized | Cytoplasm |  | **Psychomotor Performance** |
| KIAA0368 | Adapter/scaffolding protein|motor transport protein|transporter | Proteosome compelx|early eodosome|endoplasmic reticulum| vesicle|Golgi transport vesicle|#ER-associated ubiquitin-dependent protein catabolic process|contains 27 HEAT repeats | Ascites | Contact dermatitis| allegic contact dermatatitis|**Neuroblastoma**|Maleria |
| KIAA0427 | translation initiation factor | Perinuclear region of cytoplasm| RNA binding| protein binding| nonsense-mediated| editing and translation of mRNA| mRNA decay | Ascites| urine | **Parkinson Disease**|breast and colorectal cancer |colorectal cancer |
| KIAA1217 | Histone binding|protein binding| regulation of transcription | Cytoplasm| invertibrate disk development|Embronal development | Bile| plasma| serum| PBL| brain| cerebral cortex| testis restricted| membrane | krukenberg carcinoma |**thoracic outlet syndrome** |gingivitis |dementia |
| KIAA1267 | Transcritional regulator |  |  | **Parkinson Disease**| **intellectual disability syndrome**|**koolen-de vries syndrome** |**kansl1-related intellectual disability syndrome** |**17q21.31 microdeletion syndrome** |**koolen-de vries syndrome due to a point mutation** |**intellectual disability** |**parkinson's disease** |**schizophrenia** |**thyroiditis** |**cerebritis** |prostatitis |
| KIAA1529 | post-transcriptional regulation|ribonucleoprotein | Lens morphogenesis|mitochondrial matirx|ribonucleoprotein complex|granule|lens fiber cell differentiation|spermatogenesis |  | behcet's disease |cleft lip| **Natriuretic Peptide**| **Brain** | cataract| autosomal recessive congenital 4 |cataract 36 |cataract-glaucoma |"cataracts| autosomal recessive" |glaucoma |cataract |blindness |**ataxia** |multiple myeloma |myeloma |breast cancer |
| TMEM55A | Enzyme|hydrolase | Intergral componenent of membrane|lysosomal membrane| endosome membrane| hydrolase activity| D-myo-inositol-5-phosphate metabolism|3-phosphoinositide degradation|superpathway of inositol phosphate compounds | PBL|brain| membrane | **Parkinson Disease** |
| TMEM175 | Transmembrane | Glycoprotein | lysosomal membrane| transmembrane | PBL| membrane| cell associated | **Parkinson Disease** |

Table 2: NeuroORF characterization. The uncharacterized protein classes were inferred using the proteomics tools. The protein expression data were obtained from the Multi Omics Protein Expression Database (MOPED), the Proteomics DB and the Human Proteome Map. The protein class, disease association and Gene Ontology from the GeneCards, the UniProt and the NCBI Phenome Genome Integrator, PheGenI are shown.

Abbreviations: Akt: Serine-Threonine Specific Protein Kinase; CCDC: Coiled Coil Domain Containing; FAM: Family; KIAA: Uncharacterized Human Genes; LDL: Low Density Lipoprotein; ORF: Open Reading Frame; TMEM: Transmembrane. Neuro traits are bolded; body fluid expression (Multi Omics Protein Expression Database, the Proteomics DB) underlined. Tissue expression data (brain, cerebral cortex, spinal cord, fetal- or adult-restricted expression) from the Human Proteome Map is shown (Supplemental Table S4).