Tight Junction Proteomics Hits

Protein Name: Voltage-gated P/Q-type calcium channel alpha-1A subunit

Alternative Name: Voltage-dependent calcium channel alpha subunit Cav2.1, Calcium channel L type, Alpha-1 polypeptide

Accession Number: O00555

Family: Calcium channel alpha-1 subunit

Domains:

Binding Partner:

Configuration: Integral Membrane

Modulation
- ☐ Lipid ☐ P ☐ Acetyl ☐ Ned ☐ Methyl ☐ ADP-R
- ☐ Sugar ☐ U ☐ Arg ☐ SUMO ☐ Sulfate

Regulation
- ☐ PI's ☐ mRNA Level ☐ IRES ☐ GTP ☐ ATP ☐ Splicing
- ☐ Ca ☐ RNA Editing ☐ PKC ☐ AMP ☐ cAMP ☐ Calpain

Localization

☐ Tight Junction	☐ Endosome	☐ IF Cytoskeleton	☐ Ectosome	☐ Centrosome
☐ Plasma Membrane	☒ Synapse	☐ Ribosome	☐ Hnrnp	☐ Nuclear
☐ Golgi/Golgi-drived	☐ Synaptic Vesicle	☐ Proteasome	☐ PARPs	☐ Cilia
☐ Actin Cytoskeleton	☐ Neurite	☐ Extracellular	☐ Cytosolic	☐ Mitochondria
☐ Intracellular Membrane	☐ ER/ER-derived	☐ Exosome	☐ Microtubule	☐ Unknown

Molecular Function

☐ Structural	☐ Adaptor	☐ GTPase	☐ Kinase	☐ Translation Machinery
☐ Receptor	☐ Catalyst	☐ GEF/GAP	☐ Phosphatase	☐ IRES-Machinery
☐ Messenger	☐ Modifier	☐ Peptidase	☐ Helicase	☐ Memb Fusion/Fission
☐ Transducer	☐ Chaperone	☐ Antiprotease	☐ Ribosomal	☐ Unknown
☐ Modulator	☒ Channel	☐ Transporter	☐ Splicing Factor	
☐ Organizer	☐ ATPase	☐ Motor	☐ Transcription Factor	

Cellular Function

☐ Signalling	☐ mRNA Stability	☐ Mitosis	☐ Translation	☐ Gene Silencing
☐ Cell-Cell	☐ Cytoskeleton	☐ Cytokinesis	☐ IRES-Translation	☐ RNA Silencing
☐ Adhesion	☐ Cell Migration	☐ Transcription	☐ Protein Processing	☐ RNA Editing
☐ Endocytosis	☐ Cell Protrusion	☐ RNA Processing	☐ Protein Degradation	☐ Unknown
☒ Exocytosis	☐ Cell Death	☐ Viral/Bacterial	☐ Energy/Metabolism	☐ Other...
☒ Synaptic	☐ Pro-Apoptotic	☐ DNA Replication	☐ Cell Homeostasis	
☐ Vesicular Traffic	☐ Anti-Apoptotic	☐ DNA Repair	☐ Membrane Potential	
☐ mRNA Targeting	☐ Cell Growth	☐ Biosynthesis	☐ Stress Response	
☐ mRNA Turnover	☐ Cell Cycle	☐ Biodegradation	☐ Damage Control	

Signaling Pathway

☐ 14-3-3's	☐ PLC	☐ PKCd	☐ Rab6	☐ TGFb	☐ Formin	☐ KSR1	☐ ACH
☐ 14-3-3b	☐ PLCb	☐ PKCep	☐ Rab27	☐ TNFa	☐ Calpain	☐ Myc	☐ GABA
☐ 14-3-3e	☐ PLD	☐ PKCz	☐ Rho	☐ IL's	☐ COP9	☐ Dab1	☐ Glycine
☐ 14-3-3n	☐ PI3K	☐ Ras	☐ Rac	☐ Cytokine	☐ Shc	☐ PDK1	☐ Glutamate
☐ 14-3-3g	☐ Erk	☐ Raf	☐ Cdc42	☐ STAT1/2	☐ Abl	☐ WT1	☐ SCAR/WAVE
☐ 14-3-3t	☐ NO	☐ A-Raf	☐ PDGF	☐ Insulin	☐ Tec	☐ LKB1	☐ Notch/Deltex
☐ 14-3-3z	☐ cAMP	☐ B-Raf	☐ VEGF	☐ AMPK	☐ ARF6	☐ HSP90	☐ Semaphorin
☒ Calcium	☐ AMP	☐ Rap1	☐ FGF	☐ Serpin	☐ SHH	☐ Phox	☐ Caspase8
☐ G Protein	☐ ATP	☐ Rap2	☐ HGF	☐ p53/Myc	☐ Dbl	☐ Nck	☐ p53
☐ Gaq	☐ PKA	☐ Rab	☐ EGF	☐ Wnt/Frz	☐ ApoB	☐ NFkB	☐ LIMK
☐ PI's	☐ PKB	☐ Rab3	☐ IFNg	☐ GRP78	☐ PP2A	☐ JNK	
☐ PLA	☐ PKC	☐ Rab5	☐ IFNa	☐ LFA-1	☐ ATM	☐ 5HT	

Specialized Process

☐ Metastasis	☐ Myelination	☐ RNA Polymerase II	☐ Synaptogenesis
☐ Glycolysis	☐ Inflammation	☐ Lf-Rt Asymmetry	☐ Synaptic Plasticity
☒ Secretion	☒ Communication	☐ Membrane Rheology	☐ Synaptic Translation
☐ Cell Fate	☐ Differentiation	☐ Cerebral Cortex Size	☒ Neurotransmitter Release
☐ G1/S	☐ Morphogenesis	☐ Tumor Suppression	☐ Neurotransmitter Synthesis
☐ G2/M	☐ Nutrient Uptake	☐ Actin Polymerization	☐ Glucose-Regulated Response
☐ Polarity	☐ Memory/Learning	☐ Leukocyte Migration	☐ Oxygen-Regulated Response
☐ TJ Barrier	☐ Wound Healing	☐ Paracrine Signalling	☐ Glutathione Homeostasis
☐ TJ Formation	☐ Respiratory Burst	☐ Insulin Release	☐ Asymmetric Cell Division
☐ Defense/Immune	☐ H2O2 Production	☐ Axon Guidance	☐ Organogenesis
☐ Stemness	☐ Iron Homeostasis	☐ Neurite Outgrowth	

Multifactor Disease
- ☐ Cancer ☐ CMT ☒ Epilepsy ☐ Alzheimer's ☐ Schizophrenia ☐ Polycystic Kidney
- ☐ Diabetes ☒ Ataxia ☐ Deafness ☐ Huntington's ☐ Bowel Diseases

Disease: Familial hemiplegic migraine (FHM), Autosomal dominant spinocerebellar ataxia type 6 (SCA6), Episodic ataxia type-2 (EA-2, acetazolamide-responsive hereditary paroxysmal cerebellar ataxia APCA)