Ca2+ channel P/Q-type, α-1A subunit

Cat.No. 152 103; Polyclonal rabbit antibody, 50 µg specific antibody (lyophilized)

Data Sheet

<table>
<thead>
<tr>
<th>Reconstitution/Storage</th>
<th>50 µg specific antibody, lyophilized. Affinity purified with the immunogen. Rabbit serum albumin was added for stabilization. For reconstitution add 50 µl H2O to get a 1mg/ml solution in PBS. Then aliquot and store at -20°C until use.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Applications</td>
<td>WB: 1 : 1000 (see remarks) IP: not tested yet IHC: yes (see remarks) IHC-P/FFPE: not tested yet</td>
</tr>
<tr>
<td>Immunogen</td>
<td>Recombinant protein corresponding to AA 856 to 888 from mouse Ca2+ channel P/Q-type alpha-1A (UniProt Id: P97445)</td>
</tr>
<tr>
<td>Reactivity</td>
<td>Reacts with: rat (PS4282), mouse (P97445). Other species not tested yet.</td>
</tr>
<tr>
<td>Specificity</td>
<td>Specific for Ca2+ channel α-1A (K.O. verified).</td>
</tr>
</tbody>
</table>

Remarks

WB: Due to its large size, this antibody requires special gel-electrophoresis and Western blot protocols for visualization by immunoblotting. Excellent results can be obtained with the 4-12% TRIS-glycine gradient gels of anamed or NuPage TRIS-acetate gels from Invitrogen. This protein tends to aggregate after boiling, making it necessary to run SDS-PAGE with non-boiled samples. IHC: Antibody 2, cat. no. 152 203, is highly recommended for this application. 

Selected References SYSY Antibodies

Postnatal loss of P/Q-type channels confined to rhombic lip-derived neurons alters synaptic transmission at the parallel fiber to purkinje cell synapse and replicates genomic Cacna1a mutation phenotype of ataxia and seizures in mice.

Maejima T, Wollenweber P, Teusner LU, Noebels JL, Herlitze S, Mark MD

α2δ expression sets presynaptic calcium channel abundance and release probability.

Hoppa MB, Lana B, Margas W, Dolphin AC, Ryan TA

Delayed postnatal loss of P/Q-type calcium channels recapitulates the absence epilepsy, dyskinesia, and ataxia phenotypes of genomic Cacna1a mutations.


Alternative Splicing of P/Q-Type Ca2+ Channels Shapes Presynaptic Plasticity.

Thalhammer A, Contestabile A, Ermoluk YS, Ng T, Volynski KE, Soong TW, Goda Y, Cingolani LA

Nanostructural Plasticity of the Active Zone Matrix Modulates Presynaptic Function.


Differential calcium signaling mediated by voltage-gated calcium channels in rat retinal ganglion cells and their unmyelinated axons.

Sargoy A, Sun X, Barnes S, Brecha NC

The active zone protein family ELKS supports Ca2+ influx at nerve terminals of inhibitory hippocampal neurons.

Liu C, Bickford LS, Held RG, Nyitray H, Südhof TC, Kaerer PS

Extensive remodeling of the presynaptic cytomatrix upon homostatic adaptation to network activity silencing.

Lazarevic V, Schöne C, Heine M, Gundelfinger ED, Fejtova A

Reciprocal interactions regulate targeting of calcium channel beta subunits and membrane expression of alpha1 subunits in cultured hippocampal neurons.


Active zone protein Bassoon co-localizes with presynaptic calcium channel, modifies channel function, and recovers from aging related loss by exercise.

PloS one (2012) 7(6): e38029. ; tested species: mouse

Selected General References

Calcium channel types with distinct presynaptic localization couple differentially to transmitter release in single calyx-type synapses.

Wu LG, Westenbroek RE, Borst JC, Catterall WA, Sakmann B

Differential calcium signaling mediated by voltage-gated calcium channels in rat retinal ganglion cells and their unmyelinated axons.

Sargoy A, Sun X, Barnes S, Brecha NC

Calcium channel types with distinct presynaptic localization couple differentially to transmitter release in single calyx-type synapses.

Wu LG, Westenbroek RE, Borst JC, Catterall WA, Sakmann B

Differential calcium signaling mediated by voltage-gated calcium channels in rat retinal ganglion cells and their unmyelinated axons.

Sargoy A, Sun X, Barnes S, Brecha NC

Localizaton of Ca2+ channel subtypes on rat spinal motor neurons, interneurons, and nerve terminals.

Westenbroek RE, Hoskins L, Catterall WA

Biochemical properties and subcellular distribution of the Bl and blα isoforms of alpha 1A subunits of brain calcium channels.

Sakurai T, Westenbroek RE, Retting J, Hell J, Catterall WA

Immunohistochemical identification and subcellular distribution of the alpha 1A subunits of brain calcium channels.

Westenbroek RE, Sakurai T, Elliott EM, Hell JW, Starr TV, Snutch TP, Catterall WA

Immunohistochemical identification and differential phosphorylation of alternatively spliced forms of the alpha 1A subunit of brain calcium channels.

Sakurai T, Hell JW, Woopmann A, Miljanich GP, Catterall WA

Primary structure of a calcium channel that is highly expressed in the rat cerebellum.

Starr TV, Prystay W, Snutch TP