

Recombinant Human Potassium voltage-gated channel subfamily A member 1 protein(KCNA1),partial

Catalog No: #AP70461

Package Size: #AP70461-1 20ug #AP70461-2 100ug #AP70461-3 1mg

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Description

Product Name	Recombinant Human Potassium voltage-gated channel subfamily A member 1 protein(KCNA1),partial
Host Species	E.coli
Purification	Greater than 90% as determined by SDS-PAGE.
Immunogen Description	Expression Region:1-154aaSequence Info:Partial
Other Names	Voltage-gated K(+) channel HuK11
Accession No.	Q09470
Calculated MW	22.2 kDa
Tag Info	N-terminal 6xHis-tagged
Target Sequence	MTVMSENVDEASAAPGHPQDGSYPRQADHDDHECCERVVINISGLRFETQLKTLAQFPNTLLGNPKKRMRY FDPLRNEYFFDRNRPSFDAILYYYQSGGRLRRPVNVPLDMFSEEIKFYELGEEAMEKFREDEGFIKEEERPLPE KEYQRQVW
Formulation	Tris-based buffer50% glycerol
Storage	The shelf life is related to many factors, storage state, buffer ingredients, storage temperature and the stability of the protein itself. Generally, the shelf life of liquid form is 6 months at -20°C,-80°C. The shelf life of lyophilized form is 12 months at -20°C,-80°C.Notes:Repeated freezing and thawing is not recommended. Store working aliquots at 4°C for up to one week.

Background

Voltage-gated potassium channel that mediates transmembrane potassium transport in excitable membranes, primarily in the brain and the central nervous system, but also in the kidney. Contributes to the regulation of the membrane potential and nerve signaling, and prevents neuronal hyperexcitability. Forms tetrameric potassium-selective channels through which potassium ions pass in accordance with their electrochemical gradient. The channel alternates between opened and closed conformations in response to the voltage difference across the membrane. Can form functional homotetrameric channels and heterotetrameric channels that contain variable proportions of KCNA1, KCNA2, KCNA4, KCNA5, KCNA6, KCNA7, and possibly other family members as well; channel properties depend on the type of alpha subunits that are part of the channel. Channel properties are modulated by cytoplasmic domain beta subunits that regulate the subcellular location of the alpha subunits and promote rapid inactivation of delayed rectifier potassium channels. In vivo, membranes probably contain a mixture of heteromeric potassium channel complexes, making it difficult to assign currents observed in intact tissues to any particular potassium channel family member. Homotetrameric KCNA1 forms a delayed-rectifier potassium channel that opens in response to membrane depolarization, followed by slow spontaneous channel closure. In contrast, a heterotetrameric channel formed by KCNA1 and KCNA4 shows rapid inactivation. Regulates neuronal excitability in hippocampus, especially in mossy fibers and medial perforant path axons, preventing neuronal hyperexcitability. Response to toxins that are selective for KCNA1, respectively for KCNA2, suggests that heteromeric potassium channels composed of both KCNA1 and KCNA2 play a role in packaging and regulate the output of deep cerebellar nuclear neurons. May function as downstream effector for G protein-coupled receptors and inhibit GABAergic inputs to basolateral amygdala neurons. May contribute to the regulation of neurotransmitter release, such as gamma-aminobutyric acid (GABA) release. Plays a role in regulating the generation of action potentials and preventing hyperexcitability in myelinated axons of the vagus nerve, and thereby contributes to the regulation of heart contraction. Required for normal neuromuscular responses. Regulates the frequency of neuronal action potential firing in response to mechanical stimuli, and plays a role in the perception of pain caused by mechanical stimuli, but does not play a role in the perception of pain due to heat stimuli. Required for normal responses to auditory stimuli and precise location of sound sources, but not for sound perception. The use of toxins that block specific

channels suggest that it contributes to the regulation of the axonal release of the neurotransmitter dopamine . Required for normal postnatal brain development and normal proliferation of neuronal precursor cells in the brain . Plays a role in the reabsorption of Mg²⁺ in the distal convoluted tubules in the kidney and in magnesium ion homeostasis, probably via its effect on the mbrane potential .

References

The finished DNA sequence of human chromosome 12.Scherer S.E., Muzny D.M., Buhay C.J., Chen R., Cree A., Ding Y., Dugan-Rocha S., Gill R., Gunaratne P., Harris R.A., Hawes A.C., Hernandez J., Hodgson A.V., Hume J., Jackson A., Khan Z.M., Kovar-Smith C., Lewis L.R. , Lozado R.J., Metzker M.L., Milosavljevic A., Miner G.R., Montgomery K.T., Morgan M.B., Nazareth L.V., Scott G., Sodergren E., Song X.-Z., Steffen D., Lovering R.C., Wheeler D.A., Worley K.C., Yuan Y., Zhang Z., Adams C.Q., Ansari-Lari M.A., Ayele M., Brown M.J., Chen G., Chen Z., Clerc-Blankenburg K.P., Davis C., Delgado O., Dinh H.H., Draper H., Gonzalez-Garay M.L., Havlak P., Jackson L.R., Jacob L.S., Kelly S.H., Li L., Li Z., Liu J., Liu W., Lu J., Maheshwari M., Nguyen B.-V., Okwuonu G.O., Pasternak S., Perez L.M., Plopper F.J.H., Santibanez J., Shen H., Tabor P.E., Verduzco D., Waldron L., Wang Q., Williams G.A., Zhang J., Zhou J., Allen C.C., Amin A.G., Anyalebechi V., Bailey M., Barbaria J.A., Bimage K.E., Bryant N.P., Burch P.E., Burkett C.E., Burrell K.L., Calderon E., Cardenas V., Carter K., Casias K., Cavazos I., Cavazos S.R., Ceasar H., Chacko J., Chan S.N., Chavez D., Christopoulos C., Chu J., Cockrell R., Cox C.D., Dang M., Dathorne S.R., David R., Davis C.M., Davy-Carroll L., Deshazo D.R., Donlin J.E., D'Souza L., Eaves K.A., Egan A., Emery-Cohen A.J., Escotto M., Flagg N., Forbes L.D., Gabisi A.M., Garza M., Hamilton C., Henderson N., Hernandez O., Hines S., Hogues M.E., Huang M., Idlebird D.G., Johnson R., Jolivet A., Jones S., Kagan R., King L.M., Leal B., Lebow H., Lee S., LeVan J.M., Lewis L.C., London P., Lorensuhewa L.M., Loulseged H., Lovett D.A., Lucier A., Lucier R.L., Ma J., Madu R.C., Mapua P., Martindale A.D., Martinez E., Massey E., Mawhiney S., Meador M.G., Mendez S., Mercado C., Mercado I.C., Merritt C.E., Miner Z.L., Minja E., Mitchell T., Mohabbat F., Mohabbat K., Montgomery B., Moore N., Morris S., Munidasa M., Ngo R.N., Nguyen N.B., Nickerson E., Nwaakelemeh O.O., Nwokenkwo S., Obregon M., Oguh M., Oragunye N., Oviedo R.J., Parish B.J., Parker D.N., Parrish J., Parks K.L., Paul H.A., Payton B.A., Perez A., Perrin W., Pickens A., Primus E.L., Pu L.-L., Puazo M., Quiles M.M., Quiroz J.B., Rabata D., Reeves K., Ruiz S.J., Shao H., Sisson I., Sonaikie T., Sorelle R.P., Sutton A.E., Svatek A.F., Svetz L.A., Tamerisa K.S., Taylor T.R., Teague B., Thomas N., Thorn R.D., Trejos Z.Y., Trevino B.K., Ukegbu O.N., Urban J.B., Vasquez L.I., Vera V.A., Villasana D.M., Wang L., Ward-Moore S., Warren J.T., Wei X., White F., Williamson A.L., Wleczyk R., Wooden H.S., Wooden S.H., Yen J., Yoon L., Yoon V., Zorrilla S.E., Nelson D., Kucheralapati R., Weinstock G., Gibbs R.A.Nature 440:346-351(2006)Research Topic:Neuroscience

Note: This product is for in vitro research use only and is not intended for use in humans or animals.