

Datasheet for ABIN3134601  
**KCNA2 Protein (AA 1-499) (rho-1D4 tag)**[Go to Product page](#)

## 1 Image

## Overview

Quantity:	1 mg
Target:	KCNA2
Protein Characteristics:	AA 1-499
Origin:	Mouse
Source:	Insect Cells
Protein Type:	Recombinant
Purification tag / Conjugate:	This KCNA2 protein is labelled with rho-1D4 tag.
Application:	Crystallization (Crys), ELISA, SDS-PAGE (SDS), Western Blotting (WB)

## Product Details

Sequence:	MTVATGDPVD EAAALPGHPQ DTYDPEADHE CCERVVINIS GLRFETQLKT LAQFPETLLG DPKKRMRYFD PLRNEYFFDR NRPSFDAILY YYQSGGRLRR PVNVPLDIFS EEIRFYELGE EAMEMFREDE GYIKKEERPL PENEFRQVW LLFEYPESSG PARIIAIVSV MVILISIVSF CLETLPIFRD ENEDMHGGGV TFHTYSNSTI GYQQSTSFTD PFFIVETLCI IWFSFEFLVR FFACPSKAGF FTNIMNIIDI VAIIPYFITL GTELAEPED AQQGQQAMSL AILRVIRLVR VFRIFKLSRH SKGLQILGQT LKASMRELGL LIFFLFIGVI LFSSAVYFAE ADERDSQFPS IPDAFWWAVV SMTTVGYGDM VPTTIGGKIV GSLCAIAGVL TIALPVPVIV SNFNIFYHRE TEGEEQAQYL QVTSCPKIPS SPDLKKS RSA STISKSDYME IQEGVNNSNE DFREENLKTA NCTLANTNYV NITKMLTDV
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**Sequence without tag. Tag location is at the discretion of the manufacturer. If you have a special request, please contact us.**

## Product Details

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- Characteristics:
- Made in Germany - from design to production - by highly experienced protein experts.
  - Mouse Kcna2 Protein (raised in Insect Cells) purified by multi-step, protein-specific process to ensure crystallization grade.
  - State-of-the-art algorithm used for plasmid design (Gene synthesis).

This protein is a made to order protein and will be made for the first time for your order. Our experts in the lab will ensure that you receive a correctly folded protein.

The big advantage of ordering our made-to-order proteins in comparison to ordering custom made proteins from other companies is that there is no financial obligation in case the protein cannot be expressed or purified.

In the unlikely event that the protein cannot be expressed or purified we do not charge anything (other companies might charge you for any performed steps in the expression process for custom-made proteins, e.g. fees might apply for the expression plasmid, the first expression experiments or purification optimization).

When you order this made-to-order protein you will only pay upon receipt of the correctly folded protein. With no financial risk on your end you can rest assured that our experienced protein experts will do everything to make sure that you receive the protein you ordered.

The concentration of our recombinant proteins is measured using the absorbance at 280nm.

The protein's absorbance will be measured in several dilutions and is measured against its specific reference buffer.

The concentration of the protein is calculated using its specific absorption coefficient. We use the Expasy's protparam tool to determine the absorption coefficient of each protein.

- Purification:
- Three step purification of membrane proteins expressed in baculovirus infected SF9 insect cells:
1. Membrane proteins are fractionated by ultracentrifugation and subsequently solubilized with different detergents (detergent screen). Samples are analyzed by Western blot.
  2. The best performing detergent is used for solubilization and the proteins are purified via their rho1D4 tag via two rho1D4 antibody columns: one DTT resistant, the other one not. Eluate fractions are analyzed by Western blot.
  3. Protein containing fractions of the best purification are subjected to second purification step through size exclusion chromatography. Eluate fractions are analyzed by SDS-PAGE and Western blot.

Purity: >95 % as determined by SDS PAGE, Size Exclusion Chromatography and Western Blot.

Sterility: 0.22 µm filtered

Endotoxin Level: Protein is endotoxin-free.

Grade: Crystallography grade

## Target Details

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Target: KCNA2

Alternative Name: Kcna2 ([KCNA2 Products](#))

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 cardiovascular system. Prevents aberrant action potential firing and regulates neuronal output. 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 (PubMed:12527813, PubMed:21233214). 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 (PubMed:20696761). Channel properties are modulated by cytoplasmic beta subunits that regulate the subcellular location of the alpha subunits and promote rapid inactivation of delayed rectifier potassium channels (By similarity). 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 KCNA2 forms a delayed-rectifier potassium channel that opens in response to membrane depolarization, followed by slow spontaneous channel closure (PubMed:23864368). In contrast, a heteromultimer formed by KCNA2 and KCNA4 shows rapid inactivation (PubMed:23864368). Contributes to the regulation of action potentials in neurons (PubMed:12527813, PubMed:17925011). KCNA2-containing channels play a presynaptic role and prevent hyperexcitability and aberrant action potential firing (PubMed:17634333, PubMed:17925011). 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 pacemaking and regulate the output of deep cerebellar nuclear neurons (By similarity). Response to toxins that are selective for KCNA2-containing potassium channels suggests that in Purkinje cells, dendritic subthreshold KCNA2-containing potassium channels prevent random spontaneous calcium spikes, suppressing dendritic hyperexcitability without hindering the generation of somatic action potentials, and thereby play an important role in motor coordination (By similarity). KCNA2-containing channels play a role in GABAergic transmission from basket cells to Purkinje cells in the cerebellum, and thereby play an important role in motor coordination (PubMed:20696761). Plays a role in the induction of long-term potentiation of neuron excitability in the CA3 layer of the hippocampus (PubMed:23981714). May function as down-stream effector for G protein-coupled receptors and inhibit GABAergic inputs to basolateral amygdala neurons (By similarity). May contribute to

## Target Details

the regulation of neurotransmitter release, such as gamma-aminobutyric acid (GABA) (By similarity). Contributes to the regulation of the axonal release of the neurotransmitter dopamine (PubMed:21233214). Reduced KCNA2 expression plays a role in the perception of neuropathic pain after peripheral nerve injury, but not acute pain (By similarity). Plays a role in the regulation of the time spent in non-rapid eye movement (NREM) sleep (PubMed:17925011). {ECO:0000250, ECO:0000269|PubMed:12527813, ECO:0000269|PubMed:17634333, ECO:0000269|PubMed:17925011, ECO:0000269|PubMed:20696761, ECO:0000269|PubMed:21233214, ECO:0000269|PubMed:23864368, ECO:0000269|PubMed:23981714, ECO:0000305}.

Molecular Weight: 57.9 kDa Including tag.

UniProt: [P63141](#)

## Application Details

Application Notes: In addition to the applications listed above we expect the protein to work for functional studies as well. As the protein has not been tested for functional studies yet we cannot offer a guarantee though.

Comment: Protein has not been tested for activity yet. In cases in which it is highly likely that the recombinant protein with the default tag will be insoluble our protein lab may suggest a higher molecular weight tag (e.g. GST-tag) instead to increase solubility. We will discuss all possible options with you in detail to assure that you receive your protein of interest.

Restrictions: For Research Use only

## Handling

Format: Liquid

Buffer: 100 mM NaCL, 20 mM Hepes, 10% glycerol. pH value is at the discretion of the manufacturer.

Handling Advice: Avoid repeated freeze-thaw cycles.

Storage: -80 °C

Storage Comment: Store at -80°C.

Expiry Date: Unlimited (if stored properly)



**Image 1.** „Crystallography Grade“ protein due to multi-step, protein-specific purification process