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Datasheet for ABIN3114880

**Kv2.1/KCNB1 Protein (AA 1-858) (Strep Tag)**

## Overview

Quantity:	1 mg
Target:	Kv2.1/KCNB1 (KCNB1)
Protein Characteristics:	AA 1-858
Origin:	Human
Source:	Tobacco (Nicotiana tabacum)
Protein Type:	Recombinant
Purification tag / Conjugate:	This Kv2.1/KCNB1 protein is labelled with Strep Tag.
Application:	ELISA, Western Blotting (WB), SDS-PAGE (SDS)

## Product Details

Sequence:	MPAGMTKHGS RSTSSLPPEP MEIVRSKACS RRVRLNVGGL AHEVLWRTL D RLPRTLGLKL RDCNTHDSLLEVCDDYSLDD NEYFFDRHPG AFTSILNFYR TGR LHMMMEEM CALSFSQELD YWGIDEIYLE SCCQARYHQK KEQMNEELKR EAETLREREG EEF DNTCCAE KRKKLWDLLE KPNSSVAAKI LAISIMFIV LSTIALSLNT LPELQSLDEF GQSTDNPQLA HVEAVCIAWF TMEYLLRFLS SPKKWKFFKG PLNAIDLLAI LPYYVTIFLT ESNKSVLQFQ NVRRVVQIFR IMRILRILKL ARHSTGLQSL GFTLRRSYNE LGLLILFLAM GIMIFSSLVF FAEKDEDDTK FKSIPASFWW ATITMTTVGY GDIYPKTLLG KIVGGLCCIA GVLVIALPIP IIVNNFSEFY KEQKRQEKAI KRREALERAK RNGSIVSMNM KDAFARSIEM MDIVVEKNGE NMGKKDKVQD NHLSPNKWKW TKRTLSETSS SKSFETKEQG SPEKARSSSS PQHLNVQQL E DMYNKMAKTQ SQPILNTKES AAQSKPKEEL EMESIPSPA PLPTRTEGVI DMRSMSIDS FISCATDFPE ATRFHSPLT SLPSKTGGST APEVGWRGAL GASGGRFVEA NPSPDASQHS SFFIESPKSS MKTNNPLKLR ALKVNFMEGD PSPLLPVLGM YHDPLRNRGS AAAVAGLEC ATLLDKAVLS
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PESSYTTAS AKTPPRSPEK HTAIAFNFEA GVHQYIDADT DDEGQLLYSV DSSPPKSLPG  
STSPKFSTGT RSEKNHFESS PLPTSPKFLR QNCIYSTEAL TGKGPSGQEK CKLENHISPD  
VRVLPGGGAH GSTRDQSI

**Sequence without tag. The proposed Strep-Tag is based on experience s with the expression system, a different complexity of the protein could make another tag necessary. In case you have a special request, please contact us.**

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### Characteristics:

#### Key Benefits:

- Made in Germany - from design to production - by highly experienced protein experts.
- Protein expressed with ALiCE® and purified by multi-step, protein-specific process to ensure correct folding and modification.
- These proteins are normally active (enzymatically functional) as our customers have reported (not tested by us and not guaranteed).
- 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.

#### Expression System:

- ALiCE®, our Almost Living Cell-Free Expression System is based on a lysate obtained from *Nicotiana tabacum* c.v.. This contains all the protein expression machinery needed to produce even the most difficult-to-express proteins, including those that require post-translational modifications.
- During lysate production, the cell wall and other cellular components that are not required for protein production are removed, leaving only the protein production machinery and the mitochondria to drive the reaction. During our lysate completion steps, the additional components needed for protein production (amino acids, cofactors, etc.) are added to produce something that functions like a cell, but without the constraints of a living system - all that's needed is the DNA that codes for the desired protein!

#### Concentration:

- 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.
- We use the ExPASy's ProtParam tool to determine the absorption coefficient of each protein.

## Product Details

Purification:	Two step purification of proteins expressed in Almost Living Cell-Free Expression System (ALICE®):  1. In a first purification step, the protein is purified from the cleared cell lysate using StrepTag capture material. Eluate fractions are analyzed by SDS-PAGE. 2. 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:	>80 % as determined by SDS PAGE, Size Exclusion Chromatography and Western Blot.
Endotoxin Level:	Low Endotoxin less than 1 EU/mg (< 0.1 ng/mg)
Grade:	Crystallography grade

## Target Details

Target:	Kv2.1/KCNB1 (KCNB1)
Alternative Name:	KCNB1 ( <a href="#">KCNB1 Products</a> )
Background:	<p>Potassium voltage-gated channel subfamily B member 1 (Delayed rectifier potassium channel 1) (DRK1) (h-DRK1) (Voltage-gated potassium channel subunit Kv2.1),FUNCTION: Voltage-gated potassium channel that mediates transmembrane potassium transport in excitable membranes, primarily in the brain, but also in the pancreas and cardiovascular system. Contributes to the regulation of the action potential (AP) repolarization, duration and frequency of repetitive AP firing in neurons, muscle cells and endocrine cells and plays a role in homeostatic attenuation of electrical excitability throughout the brain (PubMed:23161216). Plays also a role in the regulation of exocytosis independently of its electrical function (By similarity). 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. Homotetrameric channels mediate a delayed-rectifier voltage-dependent outward potassium current that display rapid activation and slow inactivation in response to membrane depolarization (PubMed:8081723, PubMed:1283219, PubMed:10484328, PubMed:12560340, PubMed:19074135, PubMed:19717558, PubMed:24901643). Can form functional homotetrameric and heterotetrameric channels that contain variable proportions of KCNB2, channel properties depend on the type of alpha subunits that are part of the channel (By similarity). Can also form functional heterotetrameric channels with other alpha subunits that are non-conducting when expressed alone, such as KCNF1, KCNG1, KCNG3, KCNG4, KCNH1, KCNH2, KCNS1, KCNS2, KCNS3 and KCNV1, creating a functionally diverse range of channel</p>

complexes (PubMed:10484328, PubMed:11852086, PubMed:12060745, PubMed:19074135, PubMed:19717558, PubMed:24901643). Heterotetrameric channel activity formed with KCNS3 show increased current amplitude with the threshold for action potential activation shifted towards more negative values in hypoxic-treated pulmonary artery smooth muscle cells (By similarity). Channel properties are also modulated by cytoplasmic ancillary beta subunits such as AMIGO1, KCNE1, KCNE2 and KCNE3, slowing activation and inactivation rate of the 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. Major contributor to the slowly inactivating delayed-rectifier voltage-gated potassium current in neurons of the central nervous system, sympathetic ganglion neurons, neuroendocrine cells, pancreatic beta cells, cardiomyocytes and smooth muscle cells. Mediates the major part of the somatodendritic delayed-rectifier potassium current in hippocampal and cortical pyramidal neurons and sympathetic superior cervical ganglion (CGC) neurons that acts to slow down periods of firing, especially during high frequency stimulation. Plays a role in the induction of long-term potentiation (LTP) of neuron excitability in the CA3 layer of the hippocampus (By similarity). Contributes to the regulation of glucose-induced action potential amplitude and duration in pancreatic beta cells, hence limiting calcium influx and insulin secretion (PubMed:23161216). Plays a role in the regulation of resting membrane potential and contraction in hypoxia-treated pulmonary artery smooth muscle cells. May contribute to the regulation of the duration of both the action potential of cardiomyocytes and the heart ventricular repolarization QT interval. Contributes to the pronounced pro-apoptotic potassium current surge during neuronal apoptotic cell death in response to oxidative injury. May confer neuroprotection in response to hypoxia/ischemic insults by suppressing pyramidal neurons hyperexcitability in hippocampal and cortical regions (By similarity). Promotes trafficking of KCNG3, KCNH1 and KCNH2 to the cell surface membrane, presumably by forming heterotetrameric channels with these subunits (PubMed:12060745). Plays a role in the calcium-dependent recruitment and release of fusion-competent vesicles from the soma of neurons, neuroendocrine and glucose-induced pancreatic beta cells by binding key components of the fusion machinery in a pore-independent manner (By similarity). {ECO:0000250|UniProtKB:P15387, ECO:0000250|UniProtKB:Q03717, ECO:0000269|PubMed:10484328, ECO:0000269|PubMed:11852086, ECO:0000269|PubMed:12060745, ECO:0000269|PubMed:12560340, ECO:0000269|PubMed:1283219, ECO:0000269|PubMed:19074135, ECO:0000269|PubMed:19717558, ECO:0000269|PubMed:23161216, ECO:0000269|PubMed:24901643, ECO:0000269|PubMed:8081723}.

## Target Details

Molecular Weight:	95.9 kDa
UniProt:	<a href="#">Q14721</a>
Pathways:	<a href="#">Synaptic Membrane</a>

## 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:	<p>ALiCE®, our Almost Living Cell-Free Expression System is based on a lysate obtained from <i>Nicotiana tabacum</i> c.v.. This contains all the protein expression machinery needed to produce even the most difficult-to-express proteins, including those that require post-translational modifications.</p> <p>During lysate production, the cell wall and other cellular components that are not required for protein production are removed, leaving only the protein production machinery and the mitochondria to drive the reaction. During our lysate completion steps, the additional components needed for protein production (amino acids, cofactors, etc.) are added to produce something that functions like a cell, but without the constraints of a living system - all that's needed is the DNA that codes for the desired protein!</p>
Restrictions:	For Research Use only

## Handling

Format:	Liquid
Buffer:	The buffer composition is at the discretion of the manufacturer. If you have a special request, please contact us.
Handling Advice:	Avoid repeated freeze-thaw cycles.
Storage:	-80 °C
Storage Comment:	Store at -80°C.
Expiry Date:	Unlimited (if stored properly)