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Datasheet for ABIN3134696  
**KCNQ1 Protein (AA 1-668) (Strep Tag)**

### Overview

Quantity:	1 mg
Target:	KCNQ1
Protein Characteristics:	AA 1-668
Origin:	Mouse
Source:	Tobacco ( <i>Nicotiana tabacum</i> )
Protein Type:	Recombinant
Purification tag / Conjugate:	This KCNQ1 protein is labelled with Strep Tag.
Application:	ELISA, SDS-PAGE (SDS), Western Blotting (WB)

### Product Details

Sequence: MDTASSPPSA ERKRAGWSRL LGARRGSAVV KKCPFSLELA EGGPEGSTVY APIAPTGAPG  
LAPPMSTPVS PAPAPADLGP RPRVSLDPRV SIYSARRPLL ARTHIQGRVY NFLERPTGWK  
CFVYHFTVFL IVLVCLIFSV LSTIEQYAAL ATGTLFWMEI VLVVFFGTEY VVRLWSAGCR  
SKYVGIWGRL RFARKPISII DLIVVVASMV VLCVGSKGQV FATS AIRGIR FLQILRMLHV  
DRQGGTWRL GSVVFIHRQE LITTLYIGFL GLIFSSYFVY LAEKDAVNES GRIEFGSYAD  
ALWWGVVTVT TIGYGDKVPQ TWVGKTIASC FSVFAISFFA LPAGILGSGF ALKVQKQQRQ  
KHFNRQIPAA ASLIQTAWRC YAAENPDSAT WKIYVRKPAR SHTLLSPSPK PKKSVMVKKK  
KFKLDKDNM SPGEKMFNVP HITYDPPEDR RPDHFSIDGY DSSVRKSPTL LEVSTPHFLR  
TNSFAEDLDL EGETLLTPIT HVSQLRDHHR ATIKVIRRMQ YFVAKKKFQQ ARKPYDVRDV  
IEQYSQGHLN LMVRIKELQR RLDQSIGKPS LFIPISEKSK DRGSNTIGAR LNRVEDKVTVQ  
LDQRLVIITD MLHQLLSMQQ GGPTCNSRSQ VVASNEGCSI NPELFLPSNS LPTYEQLTVP  
QTGPDEGS

**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.

### Purification:

Two step purification of proteins expressed in Almost Living Cell-Free Expression System (ALiCE®):

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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.

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Purity:  $\geq 80\%$  as determined by SDS PAGE, Size Exclusion Chromatography and Western Blot.

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Endotoxin Level: Low Endotoxin less than 1 EU/mg (< 0.1 ng/mg)

## Target Details

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Target: KCNQ1

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Alternative Name: Kcnq1 ([KCNQ1 Products](#))

Background: Potassium voltage-gated channel subfamily KQT member 1 (IKs producing slow voltage-gated potassium channel subunit alpha KvLQT1) (KQT-like 1) (Voltage-gated potassium channel subunit Kv7.1),FUNCTION: Potassium channel that plays an important role in a number of tissues, including heart, inner ear, stomach and colon (By similarity) (PubMed:16314573, PubMed:11120752, PubMed:15004216). Associates with KCNE beta subunits that modulates current kinetics (By similarity) (PubMed:17597584, PubMed:15004216). Induces a voltage-dependent by rapidly activating and slowly deactivating potassium-selective outward current (By similarity) (PubMed:8900282). Promotes also a delayed voltage activated potassium current showing outward rectification characteristic (By similarity). During beta-adrenergic receptor stimulation participates in cardiac repolarization by associating with KCNE1 to form the I(Ks) cardiac potassium current that increases the amplitude and slows down the activation kinetics of outward potassium current I(Ks) (By similarity) (PubMed:15004216, PubMed:17597584). Muscarinic agonist oxotremorine-M strongly suppresses KCNQ1/KCNE1 current (By similarity). When associated with KCNE3, forms the potassium channel that is important for cyclic AMP-stimulated intestinal secretion of chloride ions (By similarity). This interaction with KCNE3 is reduced by 17beta-estradiol, resulting in the reduction of currents (By similarity). During conditions of increased substrate load, maintains the driving force for proximal tubular and intestinal sodium ions absorption, gastric acid secretion, and cAMP-induced jejunal chloride ions secretion (PubMed:16314573). Allows the provision of potassium ions to the luminal membrane of the secretory canaliculus in the resting state as well as during stimulated acid secretion (PubMed:19491250). When associated with KCNE2, forms an heterooligomer complex leading to currents with an apparently instantaneous activation, a rapid deactivation process and a linear current-voltage relationship and decreases the

## Target Details

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amplitude of the outward current (By similarity). When associated with KCNE4, inhibits voltage-gated potassium channel activity (By similarity). When associated with KCNE5, this complex only conducts current upon strong and continued depolarization (By similarity). Also forms a heterotetramer with KCNQ5, has a voltage-gated potassium channel activity (By similarity). Binds with phosphatidylinositol 4,5-bisphosphate (By similarity). KCNQ1-KCNE2 channel associates with Na(+)-coupled myo-inositol symporter in the apical membrane of choroid plexus epithelium and regulates the myo-inositol gradient between blood and cerebrospinal fluid with an impact on neuron excitability. {ECO:0000250|UniProtKB:P51787, ECO:0000250|UniProtKB:Q9Z0N7, ECO:0000269|PubMed:11120752, ECO:0000269|PubMed:15004216, ECO:0000269|PubMed:16314573, ECO:0000269|PubMed:17597584, ECO:0000269|PubMed:19491250, ECO:0000269|PubMed:24595108, ECO:0000269|PubMed:8900282}.

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Molecular Weight: 74.5 kDa

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UniProt: [P97414](#)

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Pathways: [Negative Regulation of Hormone Secretion](#), [Sensory Perception of Sound](#)

## Application Details

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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: 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.

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Restrictions: For Research Use only

## Handling

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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)