SANTA CRUZ BIOTECHNOLOGY, INC.

TALK-2 siRNA (h): sc-61641

BACKGROUND

Potassium channels play an important role in cell excitability and plasticity. The pore loop domain, a highly conserved region common to all potassium channels, is involved in determining potassium ion selectivity. The family of potassium channels possessing two-pore loop domains consists of both inward- and outwardly-rectifying channels and includes THIK-1, THIK-2, TRESK, TALK-1 and TALK-2. Members of this family are all characterized by four transmembrane domains and may function to help influence the resting membrane potential of cells. TALK-2 is expressed in the exocrine pancreas and the Langherans islets, and at lower levels in liver, placenta, heart and lung. TALK-2 is strongly- and specifically-activated by nitric oxide and dithiothreitol.

REFERENCES

1. Girard, C., et al. 2001. Genomic and functional characteristics of novel human pancreatic 2P domain K^+ channels. Biochem. Biophys. Res. Commun. 282: 249-256.
2. Han, J., et al. 2003. Functional properties of four splice variants of a human pancreatic tandem-pore K^+ channel, TALK-1. Am. J. Physiol., Cell Physiol. 285: C529-C538.
3. Sáez-Hernández, L., et al. 2003. Characterization of a 6p21 translocation breakpoint in a generalized epilepsy. Epilepsy Res. 56: 155-163.
4. Kang, D. and Kim, D. 2004. Single-channel properties and pH sensitivity of two-pore domain K^+ channels of the TALK family. Biochem. Biophys. Res. Commun. 315: 836-844.
5. Lin, W., et al. 2004. Taste receptor cells express pH-sensitive leak K^+ channels. J. Neurophysiol. 92: 2909-2919.
6. Duprat, F., et al. 2005. Pancreatic 2P domain K^+ channels TALK-1 and TALK-2 are activated by nitric oxide and reactive oxygen species. J. Physiol. 562: 235-244.

CHROMOSOMAL LOCATION

Genetic locus: KCNK17 (human) mapping to 6p21.2.

PRODUCT

TALK-2 siRNA (h) is a target-specific 19-25 nt siRNA designed to knock down gene expression. Each vial contains 3.3 nmol of lyophilized siRNA, sufficient for a 10 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see TALK-2 shRNA Plasmid (h): sc-61641-SH and TALK-2 shRNA (h) Lentiviral Particles: sc-61641-V as alternate gene silencing products.

STORAGE AND RESUSPENSION

Store lyophilized siRNA duplex at -20° C with desiccant. Stable for at least one year from the date of shipment. Once resuspended, store at -20° C, avoid contact with RNAses and repeated freeze thaw cycles.

Resuspend lyophilized siRNA duplex in 330 µl of the RNAse-free water provided. Resuspension of the siRNA duplex in 330 µl of RNAse-free water makes a 10 µM solution in a 10 µM Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

TALK-2 siRNA (h) is recommended for the inhibition of TALK-2 expression in human cells.

SUPPORT REAGENTS

For optimal siRNA transfection efficiency, Santa Cruz Biotechnology's siRNA Transfection Reagent: sc-29528 (0.3 ml), siRNA Transfection Medium: sc-36868 (20 ml) and siRNA Dilution Buffer: sc-29527 (1.5 ml) are recommended. Control siRNAs or Fluorescein Conjugated Control siRNAs are available as 10 µM in 66 µl. Each contain a scrambled sequence that will not lead to the specific degradation of any known cellular mRNA. Fluorescein Conjugated Control siRNAs include: sc-36869, sc-44239, sc-44240 and sc-44241. Control siRNAs include: sc-37007, sc-44230, sc-44231, sc-44232, sc-44233, sc-44234, sc-44235, sc-44236, sc-44237 and sc-44238.

GENE EXPRESSION MONITORING

TALK-2 (F-6): sc-390435 is recommended as a control antibody for monitoring of TALK-2 gene expression knockdown by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) or immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor TALK-2 gene expression knockdown using RT-PCR Primer: TALK-2 (h)-PR: sc-61641-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Chai, S., et al. 2017. Contribution of two-pore K^+ channels to cardiac ventricular action potential revealed using human iPSC-derived cardiomyocytes. Am. J. Physiol. Heart Circ. Physiol. 312: H1144-H1153.
2. Chai, S., et al. 2018. Physiological genomics identifies genetic modifiers of long QT syndrome type 2 severity. J. Clin. Invest. 128: 1043-1056.

RESEARCH USE

For research use only, not for use in diagnostic procedures.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.