SANTA CRUZ BIOTECHNOLOGY, INC.

KCTD7 siRNA (h): sc-89656

BACKGROUND

The BTB (broad-complex, tramtrack and bric a brac) domain, also known as the POZ (poxvirus and zinc finger) domain, is an N-terminal homodimerization domain that contains multiple copies of kelch repeats and/or C_2H_2-type zinc fingers. Proteins that contain BTB domains are thought to be involved in transcriptional regulation via control of chromatin structure and function. KCTD7 (potassium channel tetramerisation domain containing 7), also known as EPM3, is a 289 amino acid protein that contains one BTB (POZ) domain. Existing as two alternatively spliced isoforms, the gene encoding KCTD7 maps to human chromosome 7q11.21 and mouse chromosome 5 G1.3. Defects to the KCTD7 gene have been linked to progressive myoclonic epilepsy type 3 (EPM3), an autosomal recessive disorder characterized by severe early-onset epilepsy. Other phenotypic characteristics associated with EPM3 include mental retardation, truncal ataxia, dysarthria and loss of fine finger movement.

REFERENCES

1. Bardwell, V.J., et al. 1994. The POZ domain: a conserved protein-protein interaction motif. Genes Dev. 8: 1664-1677.
2. Zollman, S., et al. 1994. The BTB domain, found primarily in zinc finger proteins, defines an evolutionarily conserved family that includes several developmentally regulated genes in *Drosophila*. Proc. Natl. Acad. Sci. USA 91: 10717-10721.
3. Ahmad, K.F., et al. 1998. Crystal structure of the BTB domain from PLZF. Proc. Natl. Acad. Sci. USA 95: 12123-12128.
4. Van Bogaert, P., et al. 2007. Mutation of a potassium channel-related gene in progressive myoclonic epilepsy. Ann. Neurol. 61: 579-586.
5. Wineinger, N.E., et al. 2011. Genome-wide joint SNP and CNV analysis of aortic root diameter in African Americans: the HyperGEN study. BMC Med. Genomics 4: 4.
6. Azizieh, R., et al. 2011. Progressive myoclonic epilepsy-associated gene KCTD7 is a regulator of potassium conductance in neurons. Mol. Neurobiol. 44: 111-121.

CHROMOSOMAL LOCATION

Genetic locus: KCTD7 (human) mapping to 7q11.21.

PRODUCT

KCTD7 siRNA (h) is a pool of 3 target-specific 19-25 nt siRNAs 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 KCTD7 shRNA Plasmid (h): sc-89656-SH and KCTD7 shRNA (h) Lentiviral Particles: sc-89656-V as alternate gene silencing products.

For independent verification of KCTD7 (h) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-89656A, sc-89656B and sc-89656C.

RESEARCH USE

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

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

KCTD7 siRNA (h) is recommended for the inhibition of KCTD7 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor KCTD7 gene expression knockdown using RT-PCR Primer: KCTD7 (h)-PR: sc-89656-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. Sharma, J., et al. 2023. Calpain activity is negatively regulated by a KCTD7-Cullin-3 complex via non-degradative ubiquitination. Cell Discov. 9: 32.

PROTOCOLS

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