SANTA CRUZ BIOTECHNOLOGY, INC.

Pannexin-1 siRNA (m): sc-61288

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The Power to Question

BACKGROUND

Gap junctions are formed by a hexameric group of proteins called connexins for the transport of low molecular weight proteins from cell to cell. Connexins, which are present in all metazoan organisms, serve diverse functions ranging from control of cell growth and differentiation to electric conduction in excitable tissues. Several mammalian cells with malignant phenotypes exhibit decreased connexin expression and gap junction communication. The pannexin gene family encodes a second class of putative gap junction proteins. Pannexins are highly conserved in invertebrates and mammals, indicating the importance of their gap junctional coupling function. Mammalian Pannexin-1 and Pannexin-3 are closely related, while Pannexin-2 is a more distant relation. Pannexin-1 is a transmembrane protein that forms calcium-permeable gap junctions between adjacent cells and in the endoplasmic reticulum. In erythrocytes, Pannexin-1 forms a mechanosensitive ATP-permeable channel in the nonjunctional plasma membrane.

REFERENCES

1. Bao, L., et al. 2004. Pannexin membrane channels are mechanosensitive conduits for ATP. FEBS Lett. 572: 65-68.
2. Baranova, A., et al. 2004. The mammalian pannexin family is homologous to the invertebrate innexin gap junction proteins. Genomics 83: 706-716.
3. Panchin, Y.V. 2005. Evolution of gap junction proteins—the pannexin alternative. J. Exp. Biol. 208: 1415-1419.
4. Söhl, G., et al. 2005. Expression and functions of neuronal gap junctions. Nat. Rev. Neurosci. 6: 191-200.
5. Ray, A., et al. 2005. Site-specific and developmental expression of Pannexin-1 in the mouse nervous system. Eur. J. Neurosci. 21: 3277-3290.
6. Barbe, M.T., et al. 2006. Cell-cell communication beyond connexins: the pannexin channels. Physiology 21: 103-114.
7. Locovei, S., et al. 2006. Pannexin-1 in erythrocytes: function without a gap. Proc. Natl. Acad. Sci. USA 103: 7655-7659.
8. Locovei, S., et al. 2006. Activation of Pannexin-1 channels by ATP through P2Y receptors and by cytoplasmic calcium. FEBS Lett. 580: 239-244.

CHROMOSOMAL LOCATION

Genetic locus: Panx1 (mouse) mapping to 9 A2.

PRODUCT

Pannexin-1 siRNA (m) 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 Pannexin-1 shRNA Plasmid (m): sc-61288-SH and Pannexin-1 shRNA (m) Lentiviral Particles: sc-61288-V as alternate gene silencing products.

For independent verification of Pannexin-1 (m) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-61288A, sc-61288B and sc-61288C.

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

Pannexin-1 siRNA (m) is recommended for the inhibition of Pannexin-1 expression in mouse 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 Pannexin-1 gene expression knockdown using RT-PCR Primer: Pannexin-1 (m)-PR: sc-61288-PR (20 µl, 440 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Koyanagi, S., et al. 2016. Glucocorticoid regulation of ATP release from spinal astrocytes underlies diurnal exacerbation of neuropathic mechanical allodynia. Nat. Commun. 7: 13102.

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.