SANTA CRUZ BIOTECHNOLOGY, INC.

IP3R-I siRNA (h): sc-42475

BACKGROUND

Inositol 1,4,5-triphosphate (IP3) functions as a second messenger for a myriad of extracellular stimuli including hormones, growth factors and neurotransmitters. Receptor tyrosine kinases indirectly increase the intracellular levels of IP3 through the activation of phospholipases such as phospholipase C (PLC), which convert phosphatidylinositol-4,5 bisphosphate into IP3 and diacylglycerol (DAG). The inositol 1,4,5-triphosphate receptor, IP3R, acts as an inositol triphosphate (IP3)-gated calcium release channel in a variety of cell types. Three IP3 receptor subtypes have been described and are designated IP3R-I, IP3R-II and IP3R-III. IP3R-I is the predominant IP3R subtype expressed in neuronal tissues and the central nervous system, but is also expressed at high levels in the liver.

REFERENCES

1. Blondel, O., et al. 1993. Sequence and functional characterization of a third inositol trisphosphate receptor subtype, IP3R-3, expressed in pancreatic islets, kidney, gastrointestinal tract, and other tissues. J. Biol. Chem. 268: 11356-11363.
2. Cameron, A.M., et al. 1995. Calcineurin associated with the inositol 1,4,5-trisphosphate receptor-FKBP12 complex modulates Ca^{2+} flux. Cell 83: 463-472.

CHROMOSOMAL LOCATION

Genetic locus: ITPR1 (human) mapping to 3p26.1.

PRODUCT

IP3R-I 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 IP3R-I shRNA Plasmid (h): sc-42475-SH and IP3R-I shRNA (h) Lentiviral Particles: sc-42475-V as alternate gene silencing products.

For independent verification of IP3R-I (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-42475A, sc-42475B and sc-42475C.

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

IP3R-I siRNA (h) is recommended for the inhibition of IP3R-I 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

IP3R-I (E-8): sc-271197 is recommended as a control antibody for monitoring of IP3R-I 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 IP3R-I gene expression knockdown using RT-PCR Primer: IP3R-I (h)-PR: sc-42475-PR (20 µl, 517 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Yaroslavskiy, B.B., et al. 2007. Necessity of inositol (1,4,5)-trisphosphate receptor 1 and µ-calpain in NO-induced osteoclast motility. J. Cell Sci. 120: 2884-2894.
2. Ryan, A.J., et al. 2014. Asbestos-induced disruption of calcium homeostasis induces endoplasmic reticulum stress in macrophages. J. Biol. Chem. 289: 33391-33403.
3. Li, G., et al. 2018. Bradykinin-mediated Ca^{2+} signalling regulates cell growth and mobility in human cardiac c-Kit^{+} progenitor cells. J. Cell. Mol. Med. 22: 4688-4699.
4. Kim, M.S., et al. 2020. Potential role of PDGFRβ-associated THBS4 in colorectal cancer development. Cancers 12: 2533.
5. Wang, C., et al. 2021. FUNDC1-dependent mitochondria-associated endoplasmic reticulum membranes are involved in angiogenesis and neoangiogenesis. Nat. Commun. 12: 2616.

RESEARCH USE

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