SANTA CRUZ BIOTECHNOLOGY, INC.

OXSR1 siRNA (m): sc-61274

BACKGROUND

Oxidative stress-responsive 1 protein (OXSR1), a protein of 527 amino acids, belongs to the STE20 subfamily. OXSR1 is one of two human homologs of Fray, a serine/threonine kinase expressed in *Drosophila*. OXSR1 binds to and phosphorylates p21-activated protein kinase PAK1 and regulates downstream kinases in response to environmental stress. Endogenous OXSR1 is activated only by osmotic stresses, notably sorbitol and to a lesser extent NaCl. OXSR1 may also play a role in regulating the actin cytoskeleton. The chloride channel proteins SLC12A1, SLC12A2, and SLC12A6 isoform 2 interact with OXSR1, but SLC12A4 and SLC12A7 do not. The WNK1 and WNK4 protein kinases activate OXSR1 by phosphorlating its T-loop. The OXSR1 protein is widely expressed in mammalian tissues.

REFERENCES

1. Tamari, M., et al. 1999. Isolation and characterization of a novel serine threonine kinase gene on chromosome 3p22-21.3. J. Hum. Genet. 44: 116-120.
2. Online Mendelian Inheritance in Man, OMIM™. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 604046. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
3. Chen, W., et al. 2004. Characterization of OSR1, a member of the mammalian Ste20p/germinal center kinase subfamily. J. Biol. Chem. 279: 11129-11136.
4. Hu, W., et al. 2004. The novel molecule porcine OSR1 up-regulated expression on porcine endothelial cell by human peripheral blood mononuclear cell activation. Transplant. Proc. 36: 2475-2477.
5. Marshall, W.S., et al. 2005. Hypotonic shock mediation by p38 MAPK, JNK, PKC, FAK, OSR1 and SPAK in osmosensing chloride secreting cells of killifish opercular epithelium. J. Exp. Biol. 208: 1063-1077.
6. Vitari, A.C., et al. 2005. The WNK1 and WNK4 protein kinases that are mutated in Gordon's hypertension syndrome phosphorylate and activate SPAK and OSR1 protein kinases. Biochem. J. 391: 17-24.

CHROMOSOMAL LOCATION

Genetic locus: Oxsr1 (mouse) mapping to 9 F3.

PRODUCT

OXSR1 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 OXSR1 shRNA Plasmid (m): sc-61274-SH and OXSR1 shRNA (m) Lentiviral Particles: sc-61274-V as alternate gene silencing products.

For independent verification of OXSR1 (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-61274A, sc-61274B and sc-61274C.

PROTOCOLS

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

OXSR1 siRNA (m) is recommended for the inhibition of OXSR1 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.

GENE EXPRESSION MONITORING

OXSR1 (A-4): sc-271707 is recommended as a control antibody for monitoring of OXSR1 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 OXSR1 gene expression knockdown using RT-PCR Primer: OXSR1 (m)-PR: sc-61274-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

RESEARCH USE

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