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SANTA CRUZ BIOTECHNOLOGY, INC.

ACTR-IC siRNA (m): sc-155862

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

ACTR-IC (Activin receptor type 1C), also referred to as Activin receptor-like kinase 7 (ALK-7), is a type I Serine/threonine kinase receptor. ACTA-IC contains an extracellular binding domain, an intracellular Serine/threonine kinase domain preceded by a GS box and a transmembrane domain. It is expressed throughout the digestive and central nervous system and localizes to the cell surface. Four ACTR-IC transcripts are generated by alternative splicing. Transcript 1 is the functional full length receptor, transcript 2 lacks a complete receptor binding domain and transcripts 3 and 4 are soluble proteins that lack a transmembrane domain. ACTR-IC is a receptor for Activin AB, Activin B and Nodal. In pancreatic cells, ACTR-IC forms a complex with Activin receptor type IIB (ACTR-IIB). The kinase domain of ACTR-IC can induce Smad2 and Smad3 signalling pathways. In some cell lines, ACTR-IC overexpression induces apoptosis and inhibits proliferation.

REFERENCES

1. Ryden, M., et al. 1997. A novel type I receptor Serine/threonine kinase predominantly expressed in the adult central nervous system. J. Biol. Chem. 271: 30603-30609.
2. Kim, B.C., et al. 2004. Activin receptor-like kinase-7 induces apoptosis through activation of MAPKs in a Smad3-dependent mechanism in hepatoma cells. J. Biol. Chem. 279: 28458-28465.
3. DaCosta Byfield, S., et al. 2004. SB-505124 is a selective inhibitor of transforming growth factor β type I receptors ALK-4, ALK-5, and ALK-7. Mol. Pharmacol. 65: 744-752.
4. Xu, G., et al. 2004. Nodal induces apoptosis and inhibits proliferation in human epithelial ovarian cancer cells via Activin receptor-like kinase-7. J. Clin. Endocrinol. Metab. 89: 5523-5534.
5. Munir, S., et al. 2004. Nodal and ALK7 inhibit proliferation and induce apoptosis in human trophoblast cells. J. Biol. Chem. 279: 31277-31286.
6. Tojo, M., et al. 2005. The ALK-5 inhibitor A-83-01 inhibits Smad signaling and epithelial-to-mesenchymal transition by transforming growth factor-β. Cancer Sci. 96: 791-800.

CHROMOSOMAL LOCATION

Genetic locus: Acvr1c (mouse) mapping to 2 C1.1.

PRODUCT

ACTR-IC siRNA (m) is a pool of 2 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 ACTR-IC shRNA Plasmid (m): sc-155862-SH and ACTR-IC shRNA (m) Lentiviral Particles: sc-155862-V as alternate gene silencing products.

For independent verification of ACTR-IC (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-155862A and sc-155862B.

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

ACTR-IC siRNA (m) is recommended for the inhibition of ACTR-IC 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

ACTR-IC (A-1): sc-374538 is recommended as a control antibody for monitoring of ACTR-IC 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 ACTR-IC gene expression knockdown using RT-PCR Primer: ACTR-IC (m)-PR: sc-155862-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.

PROTOCOLS

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