SANTA CRUZ BIOTECHNOLOGY, INC.

ODC siRNA (m): sc-44573

BACKGROUND

Ornithine decarboxylase (ODC) is an enzyme that performs the first step in polyamine biosynthesis by converting ornithine to putrescine and CO_2. ODC plays an important role in diverse biological processes, including cell growth, differentiation, transformation and apoptosis. The Sp1, c-Myc and c-Fos genes function as transactivators and ZBP-89 as a transrepressor of the ODC promoter. Overexpression of ODC gene plays important roles in cell proliferation and the development of cancer. High levels of protein binding in the ODC promoter are implicated to the elevated constitutive expression of this gene. Elevated polyamine levels lead to downregulation of ODC activity by enhancing the translation of antizyme mRNA, resulting in subsequent binding of antizyme to ODC monomers to target ODC for proteolysis by the 26S Proteosome. DFMO (DL-α-difluoromethylornithine) is an irreversible inhibitor of ODC, which can induce apoptosis and inhibits cell growth. ODC is also associated with angiogenesis, and ODC-overexpressing cells exhibit suppressed expression of Type XVIII Collagen and endostatin, suggesting that overexpression of ODC facilitates endothelial proliferation by suppressing endostatin expression. The ODC gene maps to human chromosme 2p25.

REFERENCES

1. Tabor, C.W. and Tabor, H. 1984. Polyamines. Annu. Rev. Biochem. 53: 749-790.
2. Yang-Feng, T.L., et al. 1987. Ribonucleotide reductase M2 subunit sequences mapped to four different chromosomal sites in humans and mice: functional locus identified by its amplification in hydroxyurea-resistant cell lines. Genomics 1: 77-86.
3. Pegg, A.E. 1988. Polyamine metabolism and its importance in neoplastic growth and as a target for chemotherapy. Cancer Res. 48: 759-774.
4. Heby, O. and Persson., L. 1990. Molecular genetics of polyamine synthesis in eucaryotic cells. Trends Biochem. Sci. 15: 153-158.
5. Moshier, J.A., et al. 1992. Multiple promoter elements govern expression of the human ornithine decarboxylase gene in colon carcinoma cells. Nucleic Acids Res. 20: 2581-2590.
6. Wrighton, C. and Busslinger, M. 1993. Direct transcripitional stimulation of the ornithine decarboxylase gene by Fos in PC12 cells but not in fibroblasts. Mol. Cell. Biol. 13: 4657-4669.

CHROMOSOMAL LOCATION

Genetic locus: Odc1 (mouse) mapping to 12 A1.1.

PRODUCT

ODC 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 ODC shRNA Plasmid (m): sc-44573-SH and ODC shRNA (m) Lentiviral Particles: sc-44573-V as alternate gene silencing products.

For independent verification of ODC (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-44573A, sc-44573B and sc-44573C.

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

ODC siRNA (m) is recommended for the inhibition of ODC 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

ODC (E-6): sc-398116 is recommended as a control antibody for monitoring of ODC 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 ODC gene expression knockdown using RT-PCR Primer: ODC (m)-PR: sc-44573-PR (20 µl, 590 bp). 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.