SANTA CRUZ BIOTECHNOLOGY, INC.

XEDAR siRNA (m): sc-40250

BACKGROUND

The tumor necrosis factor receptor (TNFR) superfamily represents a growing family of type I transmembrane glycoproteins that are involved in various cellular functions, including proliferation, differentiation and programmed cell death. These proteins share homology for cysteine-rich repeats in the extracellular ligand binding domain and the intracellular death domain. Members of the TNFR superfamily transmit signals through protein-protein interactions, and these signals can lead to the activation of either the caspase and Jun kinase pathways, which promote cell death, or the NFκB pathway, which results in cell survival. The ectodermal dysplasia receptor (EDAR) promotes all three of these pathways and mediates ectodermal differentiation. EDAR is encoded by the downless gene and is mutated in ectodermal dysplasia syndromes, which are characterized by impaired hair, teeth and sweat gland development. Ectodysplasin A (EDA) is a type II membrane protein that is encoded by the Tabby gene and produces many splice variants, the longest of which, EDA-A1, serves as the ligand for EDAR. EDA-A2, which differs from EDA-A1 by the deletion of two amino acids, binds only the X-linked ectodysplasin-A2 receptor (XEDAR). Both EDAR and XEDAR exhibit homology with TROY.

REFERENCES

1. Gruss, H.J. 1996. Molecular, structural, and biological characteristics of the tumor necrosis factor ligand superfamily. Int. J. Clin. Lab. Res. 26: 143-159.
2. Gruss, H.J., et al. 1996. Structural and biological features of the TNF receptor and TNF ligand superfamilies: interactive signals in the pathobiology of Hodgkin's disease. Ann. Oncol. 7: 19-26.
3. Baker, S.J., et al. 1998. Modulation of life and death by the TNF receptor superfamily. Oncogene 17: 3261-3270.
4. Tucker, A.S., et al. 2000. EDAR/EDA interactions regulate enamel knot formation in tooth morphogenesis. Development 127: 4691-4700.
5. Yan, M., et al. 2000. Two-amino acid molecular switch in an epithelial morphogen that regulates binding to two distinct receptors. Science 290: 523-527.
6. Kojima, T., et al. 2000. TROY, a newly identified member of the tumor necrosis factor receptor superfamily, exhibits a homology with EDAR and is expressed in embryonic skin and hair follicles. J. Biol. Chem. 275: 20742-20747.
7. Kumar, A., et al. 2001. The ectodermal dysplasia receptor activates the nuclear factor-κB, JNK, and cell death pathways and binds to ectodysplasin A. J. Biol. Chem. 276: 2668-2677.
8. Elomaa, O., et al. 2001. Ectodysplasin is released by proteolytic shedding and binds to the EDAR protein. Hum. Mol. Genet. 10: 953-962.

CHROMOSOMAL LOCATION

Genetic locus: Eda2r (mouse) mapping to X C3.

PROTOCOLS

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

PRODUCT

XEDAR 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 XEDAR shRNA Plasmid (m): sc-40250-SH and XEDAR shRNA (m) Lentiviral Particles: sc-40250-V as alternate gene silencing products.

For independent verification of XEDAR (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-40250A, sc-40250B and sc-40250C.

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

XEDAR siRNA (m) is recommended for the inhibition of XEDAR 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 XEDAR gene expression knockdown using RT-PCR Primer: XEDAR (m)-PR: sc-40250-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.