

Rae-1 δ siRNA (m): sc-72383

BACKGROUND

Natural killer (NK) cells attack tumor and infected cells, but the receptors and ligands that stimulate them are poorly understood. Two murine ligands for the lectin-like receptor NKG2D, H60 and retinoic acid early inducible (Rae-1 α , β , γ , δ and ϵ), are distant relatives of major histocompatibility complex class I molecules. These molecules are encoded by Rae-1 and H60 minor histocompatibility antigen genes on mouse chromosome 10 and show weak homology with MHC class I. Expression of the NKG2D ligands is low or absent on normal, adult tissues; however, they are constitutively expressed on some tumors and upregulated by retinoic acid. Ectopic expression of Rae-1 and H60 confers target susceptibility to NK cell attack. NKG2D binds to H60 with approximately 25-fold higher affinity than to Rae-1. Rae-1 and H60 compete directly for occupancy of NKG2D; therefore, NKG2D can be occupied by only one ligand at a time. Additionally, Rae-1 and H60 ligands of the NKG2D receptor stimulate tumor immunity.

REFERENCES

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4. Steinle, A., et al. 2001. Interactions of human NKG2D with its ligands MICA, MICB, and homologs of the mouse RAE-1 protein family. *Immunogenetics* 53: 279-287.
5. Diefenbach, A., et al. 2001. Rae1 and H60 ligands of the NKG2D receptor stimulate tumour immunity. *Nature* 413: 165-171.
6. O'Callaghan, C.A., et al. 2001. Molecular competition for NKG2D: H60 and RAE1 compete unequally for NKG2D with dominance of H60. *Immunity* 15: 201-211.
7. Carayannopoulos, L.N., et al. 2002. Ligands for murine NKG2D display heterogeneous binding behavior. *Eur. J. Immunol.* 32: 597-605.
8. Li, P., et al. 2002. Crystal structures of RAE-1 β and its complex with the activating immunoreceptor NKG2D. *Immunity* 16: 77-86.
9. Backstrom, E., et al. 2003. Natural killer cell-mediated lysis of dorsal root ganglia neurons via RAE1/NKG2D interactions. *Eur. J. Immunol.* 33: 92-100.

CHROMOSOMAL LOCATION

Genetic locus: Raet1d (mouse) mapping to 10 A3.

PROTOCOLS

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

PRODUCT

Rae-1 δ 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see Rae-1 δ shRNA Plasmid (m): sc-72383-SH and Rae-1 δ shRNA (m) Lentiviral Particles: sc-72383-V as alternate gene silencing products.

For independent verification of Rae-1 δ (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-72383A, sc-72383B and sc-72383C.

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 μ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330 μ l of RNase-free water makes a 10 μ M solution in a 10 μ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

Rae-1 δ siRNA (m) is recommended for the inhibition of Rae-1 δ 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 μ M in 66 μ l. 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

Rae-1 δ (Charlotte 1.23): sc-53601 is recommended as a control antibody for monitoring of Rae-1 δ 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).

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor Rae-1 δ gene expression knockdown using RT-PCR Primer: Rae-1 δ (m)-PR: sc-72383-PR (20 μ l). 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.