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SerpinB1 shRNA (h) Lentiviral Particles: sc-45371-V

BACKGROUND

The serine proteinase inhibitors (serpins) compose a superfamily of proteins with a diverse set of functions, including the control of blood coagulation, complement activation, programmed cell death and development. Serpins are secreted glycoproteins that contain a stretch of peptide that mimics a true substrate for a corresponding serine protease. The monocyte/neutrophil elastase inhibitor gene, SERPINB1, belongs to the Ov-serpin family (ovalbumin-related serpins). Human SerpinB1, also designated monocyte/neutrophil elastase inhibitor (M/NEI) or leukocyte elastase inhibitor (LEI), is a cytoplasmic protein which acts as a fast-acting stoichiometric proteinase inhibitor that regulates the activity of neutrophil elastase (NE), cathepsin-G and proteinase-3. There are four homologous genes in mouse designated SerpinB1a, SerpinB1b, SerpinB1c and the pseudogene, Serpinb1-ps1. The three protein-coding genes share significant sequence identity, however SerpinB1a (also designated EIA) has been characterized as the functional ortholog of human SerpinB1.

REFERENCES

1. Packard, B.Z., et al. 1995. A serpin from human tumor cells with direct lymphoid immunomodulatory activity: mitogenic stimulation of human tumor-infiltrating lymphocytes. *Biochim. Biophys. Acta* 1269: 41-50.
2. Zeng, W., et al. 1998. Structure and sequence of human M/NEI (monocyte/neutrophil elastase inhibitor), an Ov-serpin family gene. *Gene* 213: 179-187.
3. Cooley, J., et al. 1998. Production of recombinant human monocyte/neutrophil elastase inhibitor (rM/NEI). *Protein Expr. Purif.* 14: 38-44.
4. Sun, J., et al. 1998. A serpin gene cluster on human chromosome 6p25 contains PI6, PI9 and ELANH2 which have a common structure almost identical to the 18q21 ovalbumin serpin genes. *Cytogenet. Cell Genet.* 82: 273-277.

CHROMOSOMAL LOCATION

Genetic locus: SERPINB1 (human) mapping to 6p25.

PRODUCT

SerpinB1 shRNA (h) Lentiviral Particles is a pool of concentrated, transduction-ready viral particles containing 3 target-specific constructs that encode 19-25 nt (plus hairpin) shRNA designed to knock down gene expression. Each vial contains 200 μ l frozen stock containing 1.0×10^6 infectious units of virus (IFU) in Dulbecco's Modified Eagle's Medium with 25 mM HEPES pH 7.3. Suitable for 10-20 transductions. Also see SerpinB1 siRNA (h): sc-45371 and SerpinB1 shRNA Plasmid (h): sc-45371-SH as alternate gene silencing products.

STORAGE

Store lentiviral particles at -80° C. Stable for at least one year from the date of shipment. Once thawed, particles can be stored at 4° C for up to one week. Avoid repeated freeze thaw cycles.

APPLICATIONS

SerpinB1 shRNA (h) Lentiviral Particles is recommended for the inhibition of SerpinB1 expression in human cells.

SUPPORT REAGENTS

Control shRNA Lentiviral Particles: sc-108080. Available as 200 μ l frozen viral stock containing 1.0×10^6 infectious units of virus (IFU); contains an shRNA construct encoding a scrambled sequence that will not lead to the specific degradation of any known cellular mRNA.

GENE EXPRESSION MONITORING

SerpinB1/B1a (K-17): sc-34304 is recommended as a control antibody for monitoring of SerpinB1 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 (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor SerpinB1 gene expression knockdown using RT-PCR Primer: SerpinB1 (h)-PR: sc-45371-PR (20 μ l). Annealing temperature for the primers should be $55-60^\circ$ C and the extension temperature should be $68-72^\circ$ C.

BIOSAFETY

Lentiviral particles can be employed in standard Biosafety Level 2 tissue culture facilities (and should be treated with the same level of caution as with any other potentially infectious reagent). Lentiviral particles are replication-incompetent and are designed to self-inactivate after transduction and integration of shRNA constructs into genomic DNA of target cells.

RESEARCH USE

The purchase of this product conveys to the buyer the nontransferable right to use the purchased amount of the product and all replicates and derivatives for research purposes conducted by the buyer in his laboratory only (whether the buyer is an academic or for-profit entity). The buyer cannot sell or otherwise transfer (a) this product (b) its components or (c) materials made using this product or its components to a third party, or otherwise use this product or its components or materials made using this product or its components for Commercial Purposes.

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