SANTA CRUZ BIOTECHNOLOGY, INC.

Tryptase ε siRNA (h): sc-93094

BACKGROUND

Tryptase ε, also known as brain-specific serine protease 4 (BSSP-4) or serine protease 22, is a member of the human 16p13.3 family of serine proteases. It is expressed in a developmentally regulated manner in esophagus, trachea and lung. Tryptase ε is a major product of the normal pulmonary epithelial cells. It is secreted as an active enzyme and, unlike other family members, Tryptase ε can autoactivate. Tryptase ε, once activated, cannot effectively be inhibited by the protease inhibitors that are found in normal plasma. It is a potent activator of uPA (urokinase-type plasminogen activator precursor), a serine protease that is responsible for cleaving plasminogen. Tryptase ε converts uPA into its mature, enzymatically active form and therefore plays an important role in fibrinolysis, connective tissue remodeling and innate immunity.

REFERENCES

1. Riccio, A., et al. 1985. The human urokinase-plasminogen activator gene and its promoter. Nucleic Acids Res. 13: 2759-2771.
2. Wong, G.W., et al. 2001. Human Tryptase ε (PRSS22), a new member of the chromosome 16p13.3 family of human serine proteases expressed in airway epithelial cells. J. Biol. Chem. 276: 49169-49182.
3. Netzel-Arnett, S., et al. 2003. Membrane anchored serine proteases: a rapidly expanding group of cell surface proteolytic enzymes with potential roles in cancer. Cancer Metastasis Rev. 22: 237-258.
4. Wong, G.W., et al. 2004. Mouse chromosome 17A3.3 contains 13 genes that encode functional tryptic-like serine proteases with distinct tissue and cell expression patterns. J. Biol. Chem. 279: 2438-2452.
5. Verghese, G.M., et al. 2004. Mouse prostasin gene structure, promoter analysis, and restricted expression in lung and kidney. Am. J. Respir. Cell Mol. Biol. 30: 519-529.
6. Yasuda, S., et al. 2005. Urokinase-type plasminogen activator is a preferred substrate of the human epithelium serine protease Tryptase ε/PRSS22. Blood 105: 3893-3901.
7. Wong, G.W. and Stevens, R.L. 2005. Identification of a subgroup of glycosylphosphatidylinositol-anchored tryptases. Biochem. Biophys. Res. Commun. 336: 579-584.

CHROMOSOMAL LOCATION

Genetic locus: PRSS22 (human) mapping to 16p13.3.

PRODUCT

Tryptase ε siRNA (h) 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 Tryptase ε shRNA Plasmid (h): sc-93094-SH and Tryptase ε shRNA (h) Lentiviral Particles: sc-93094-V as alternate gene silencing products.

For independent verification of Tryptase ε (h) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-93094A, sc-93094B and sc-93094C.

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

Tryptase ε siRNA (h) is recommended for the inhibition of Tryptase ε expression in human 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

Tryptase ε (G-9): sc-377427 is recommended as a control antibody for monitoring of Tryptase ε 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 Tryptase ε gene expression knockdown using RT-PCR Primer: Tryptase ε (h)-PR: sc-93094-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.