



Neutrophil Elastase siRNA (m): sc-42967

BACKGROUND

Neutrophil elastase (NE) is a serine protease that is expressed in bone marrow precursor cells, stored in peripheral blood granulocytes and implicated in the progression of a variety of inflammatory diseases, including idiopathic pulmonary fibrosis, rheumatoid arthritis, adult respiratory distress syndrome and cystic fibrosis. In neutrophils, NE contributes largely to the proteolysis of phagocytosed proteins, the migration of neutrophils and the remodeling of tissues following injury. NE, which is also designated medullasin, is secreted into the extracellular matrix, where it is then capable of destroying connective tissue proteins, including elastin, proteoglycans and Type IV Collagens. NE also mediates proteolysis by cleaving proteins that are associated with the complement system, such as antithrombin and fibrinogen. Additionally, NE functions as a potent platelet agonist, where it potentiates the aggregation, secretion and mobilization of calcium in response to cathepsin G binding to platelet surface receptors.

REFERENCES

- Farley, D., et al. 1988. Molecular cloning of human Neutrophil Elastase. *Biol. Chem. Hoppe-Seyler* 369: 3-7.
- Pulford, K.A., et al. 1988. Use of monoclonal antibody against human Neutrophil Elastase in normal and leukaemic myeloid cells. *J. Clin. Pathol.* 41: 853-860.
- Ralfkiaer, E., et al. 1989. Diagnosis of acute myeloid leukaemia with the use of monoclonal anti-Neutrophil Elastase (NP57) reactive with routinely processed biopsy samples. *Histopathology* 14: 637-643.
- Selak, M.A. 1992. Neutrophil Elastase potentiates cathepsin G-induced platelet activation. *Thromb. Haemost.* 68: 570-576.
- Abbinante-Nissen, J.M., et al. 1993. Neutrophil elastase increases secretory leukocyte protease inhibitor transcript levels in airway epithelial cells. *Am. J. Physiol.* 265: 286-292.
- Selak, M.A. 1994. Neutrophil-platelet interactions in inflammation. *Receptor* 4: 3-7.
- Selak, M.A. 1994. Cathepsin G and Thrombin: evidence for two different platelet receptors. *Biochem. J.* 297: 269-275.

CHROMOSOMAL LOCATION

Genetic locus: Elane (mouse) mapping to 10 C1.

PRODUCT

Neutrophil Elastase 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 Neutrophil Elastase shRNA Plasmid (m): sc-42967-SH and Neutrophil Elastase shRNA (m) Lentiviral Particles: sc-42967-V as alternate gene silencing products.

For independent verification of Neutrophil Elastase (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-42967A, sc-42967B and sc-42967C.

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

Neutrophil Elastase siRNA (m) is recommended for the inhibition of Neutrophil Elastase 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor Neutrophil Elastase gene expression knockdown using RT-PCR Primer: Neutrophil Elastase (m)-PR: sc-42967-PR (20 μ l, 416 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

- Uchiyama, K., et al. 2012. Serpin B1 protects colonic epithelial cell via blockage of neutrophil elastase activity and its expression is enhanced in patients with ulcerative colitis. *Am. J. Physiol. Gastrointest. Liver Physiol.* 302: G1163-G1170.

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.