

# Ganglioside sialidase siRNA (h): sc-62366

## BACKGROUND

Ganglioside sialidase is a 428 amino acid protein encoded by the human gene NEU3. Ganglioside sialidase is a peripheral membrane protein that belongs to the glycosyl hydrolase 33 family. Members of this family contain multiple BNR (bacterial neuraminidase repeat) repeats or Asp-boxes. The repeats are short, however the repeats are never found closer than 40 residues together suggesting that the repeat is structurally longer. These repeats are found in a variety of non-homologous proteins, including bacterial ribonucleases, Reelin, netrins, sialidases, neuraminidases and a variety of glycosyl hydrolases. Ganglioside sialidase plays a role in modulating the ganglioside content of the lipid bilayer at the level of membrane-bound sialyl glycoconjugates. Ganglioside sialidase is responsible for the catalytic hydrolysis of  $\alpha$ -glycosidic linkages on terminal sialic residues in oligosaccharides, glycoproteins, glycolipids, colominic acid and synthetic substrates. Ganglioside sialidase is highly expressed in skeletal muscle, testis, adrenal gland and thymus, followed by pancreas, liver, heart and thymus. It is weakly expressed in kidney, placenta, brain and lung.

## REFERENCES

1. Mueller, O.T. and Wenger, D.A. 1981. Mucopolidosis I: studies of sialidase activity and a prenatal diagnosis. Clin. Chim. Acta 109: 313-324.
2. Yamaguchi, K., et al. 2006. Epidermal growth factor-induced mobilization of a ganglioside-specific sialidase (NEU3) to membrane ruffles. Biochem. Biophys. Res. Commun. 346: 484-490.
3. Valaperta, R., et al. 2006. Plasma membrane production of ceramide from ganglioside GM3 in human fibroblasts. FASEB J. 20: 1227-1229.
4. Chung, E.S. and Jin, B.K. 2006. Disialogangliosides induce neurodegeneration in rat mesencephalic cultures. Biochem. Biophys. Res. Commun. 346: 572-577.
5. Kato, K., et al. 2006. Plasma-membrane-associated sialidase (NEU3) differentially regulates integrin-mediated cell proliferation through Laminin- and Fibronectin-derived signalling. Biochem. J. 394: 647-656.

## CHROMOSOMAL LOCATION

Genetic locus: NEU3 (human) mapping to 11q13.4.

## PRODUCT

Ganglioside sialidase 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  $\mu$ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see Ganglioside sialidase shRNA Plasmid (h): sc-62366-SH and Ganglioside sialidase shRNA (h) Lentiviral Particles: sc-62366-V as alternate gene silencing products.

For independent verification of Ganglioside sialidase (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-62366A, sc-62366B and sc-62366C.

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) for detailed protocols and support products.

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

## APPLICATIONS

Ganglioside sialidase siRNA (h) is recommended for the inhibition of Ganglioside sialidase 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  $\mu$ M in 66  $\mu$ 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 Ganglioside sialidase gene expression knockdown using RT-PCR Primer: Ganglioside sialidase (h)-PR: sc-62366-PR (20  $\mu$ 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.