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# NGAL shRNA (h) Lentiviral Particles: sc-43969-V

## BACKGROUND

In addition to the monomeric mammalian progelatinase, two additional forms of progelatinase have been identified. The shorter of these additional forms is a covalently linked, disulfide-bridged protein that heterodimerizes with a short protein; an  $\alpha$ 2-Microglobulin-related protein known as neutrophil gelatinase-associated lipocalin (NGAL), which is moderately expressed in breast and lung tissues. NGAL belongs to the lipocalin family and has a high degree of similarity with rat  $\alpha$ 2-Microglobulin-related protein and mouse protein 24p34.11. NGAL is able to bind a derivative of the bacterial chemotactic peptide, suggesting that it has important immuno-modulatory functions. NGAL has been described as an inflammatory protein; it is released into the circulation as a result of the inflammatory activation of leukocytes initiated by the extra-corporeal circulation. In addition, NGAL synthesis is induced in epithelial cells in inflammatory and neoplastic colorectal diseases. In conclusion, NGAL may serve as a scavenger of bacterial products to function in the anti-inflammatory process.

## REFERENCES

1. Triebel, S., et al. 1992. A 25 kDa  $\alpha$ -2-Microglobulin-related protein is a component of the 125 kDa form of human gelatinase. *FEBS Lett.* 314: 386-388.
2. Kjeldsen, L., et al. 1993. Isolation and primary structure of NGAL, a novel protein associated with human neutrophil gelatinase. *J. Biol. Chem.* 268: 10425-10432.
3. Bundgaard, J.R., et al. 1994. Molecular cloning and expression of a cDNA encoding NGAL: a lipocalin expressed in human neutrophils. *Biochem. Biophys. Res. Commun.* 202: 1468-1475.
4. Nielsen, B.S., et al. 1996. Induction of NGAL synthesis in epithelial cells of human colorectal neoplasia and inflammatory bowel diseases. *Gut* 38: 414-420.
5. Stoesz, S.P., et al. 1998. Heterogeneous expression of the lipocalin NGAL in primary breast cancers. *Int. J. Cancer* 79: 565-572.

## CHROMOSOMAL LOCATION

Genetic locus: LCN2 (human) mapping to 9q34.11.

## PRODUCT

NGAL 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  $\mu$ l frozen stock containing  $1.0 \times 10^6$  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 NGAL siRNA (h): sc-43969 and NGAL shRNA Plasmid (h): sc-43969-SH as alternate gene silencing products.

## STORAGE

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

## APPLICATIONS

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

## SUPPORT REAGENTS

Control shRNA Lentiviral Particles: sc-108080. Available as 200  $\mu$ l frozen viral stock containing  $1.0 \times 10^6$  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

NGAL (H-130): sc-50350 is recommended as a control antibody for monitoring of NGAL 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 goat anti-rabbit IgG-HRP: sc-2004 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible goat anti-rabbit IgG-HRP: sc-2030 (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 goat anti-rabbit IgG-FITC: sc-2012 (dilution range: 1:100-1:400) or goat anti-rabbit IgG-TR: sc-2780 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

## RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor NGAL gene expression knockdown using RT-PCR Primer: NGAL (h)-PR: sc-43969-PR (20  $\mu$ 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.