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# GP-39 shRNA (m) Lentiviral Particles: sc-44581-V

## BACKGROUND

Human cartilage glycoprotein 39 (GP-39), also known as YKL-40, is a glycoprotein secreted by articular chondrocytes, synoviocytes and macrophages. Serum and synovial fluid GP-39 levels are elevated in inflammatory diseases and correlate with the degree of joint destruction in rheumatoid arthritis. GP-39 is expressed in articular chondrocytes and synovial cells, as well as in liver, but is undetectable in muscle tissues, lung, pancreas, mononuclear cells and fibroblasts. GP-39 is a candidate autoantigen in rheumatoid arthritis and is important in the capacity of cells to respond to and cope with changes in their environment.

## REFERENCES

1. Hakala, B.E., et al. 1993. Human cartilage GP-39, a major secretory product of articular chondrocytes and synovial cells, is a mammalian member of a chitinase protein family. *J. Biol. Chem.* 268: 25803-25810.
2. Liu, H.W., et al. 2000. GP-83 and GP-39, two glycoproteins secreted by human epididymis are conjugated to spermatozoa during maturation. *Mol. Hum. Reprod.* 6: 422-428.
3. De Ceuninck, F., et al. 2001. YKL-40 (cartilage GP-39) induces proliferative events in cultured chondrocytes and synoviocytes and increases glycosaminoglycan synthesis in chondrocytes. *Biochem. Biophys. Res. Commun.* 285: 926-931.
4. Tsuji, T., et al. 2002. Analysis of chondrex (YKL-40, HC GP-39) in the cerebrospinal fluid of patients with spine disease. *Spine* 27: 732-735.
5. Recklies, A.D., et al. 2002. The chitinase 3-like protein human cartilage glycoprotein 39 (HC-GP39) stimulates proliferation of human connective-tissue cells and activates both extracellular signal-regulated kinase- and protein kinase B-mediated signalling pathways. *Biochem J.* 365: 119-126.
6. Steenbakkers, P.G., et al. 2003. Localization of MHC class II/human cartilage glycoprotein-39 complexes in synovia of rheumatoid arthritis patients using complex-specific monoclonal antibodies. *J. Immunol.* 170: 5719-5727.

## CHROMOSOMAL LOCATION

Genetic locus: Chi311 (mouse) mapping to 1 E4.

## PRODUCT

GP-39 shRNA (m) 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 GP-39 siRNA (m): sc-44581 and GP-39 shRNA Plasmid (m): sc-44581-SH as alternate gene silencing products.

## STORAGE

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

## APPLICATIONS

GP-39 shRNA (m) Lentiviral Particles is recommended for the inhibition of GP-39 expression in mouse 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

GP-39 (D-11): sc-393494 is recommended as a control antibody for monitoring of GP-39 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-mouse IgM-HRP: sc-2064 (dilution range: 1:500-1:5,000), TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use goat anti-mouse IgM-FITC: sc-2082 (dilution range: 1:100-1:400) or goat anti-mouse IgM-TR: sc-2983 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

## RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor GP-39 gene expression knockdown using RT-PCR Primer: GP-39 (m)-PR: sc-44581-PR (20  $\mu$ l). Annealing temperature for the primers should be  $55-60^\circ\text{C}$  and the extension temperature should be  $68-72^\circ\text{C}$ .

## 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.

## PROTOCOLS

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