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# GP49B siRNA (m): sc-42886

## BACKGROUND

GP49 is an Ig superfamily-related, type I transmembrane glycoprotein. GP49 is expressed on the surface of myeloid cells involved in innate and adaptive immunity, such as mast cells, NK (natural killer) cells and macrophages. The two major subtypes, GP49A and GP49B, are encoded by different genes that share approximately 95% homology. GP49B is an inhibitory isoform that contains two C-terminal immunoreceptor tyrosine-based inhibitory motifs (ITIMs). GP49A is a non-inhibitory isoform that has a shorter cytoplasmic domain, which does not have ITIMs or tyrosine-based signaling motifs. GP49A may coordinate into a homodimer and induce calcium mobilization, eicosanoid production and cytokine gene transcription. HM18 is a human Fc receptor for IgA and NK cell inhibitory receptors that is believed to be a homolog to murine GP49B.

## REFERENCES

1. Arm, J.P., et al. 1997. Molecular identification of a novel family of human Ig superfamily members that possess immunoreceptor tyrosine-based inhibition motifs and homology to the mouse GP49B1 inhibitory receptor. *J. Immunol.* 159: 2342-2349.
2. McCormick, M.J., et al. 1999. The GP49A gene has extensive sequence conservation with the GP49B gene and provides GP49A protein, a unique member of a large family of activating and inhibitory receptors of the immunoglobulin superfamily. *Immunogenetics* 50: 286-294.
3. Wagtmann, N. 1999. GP49: an Ig-like receptor with inhibitory properties on mast cells and natural killer cells. *Curr. Top. Microbiol. Immunol.* 244: 107-113.
4. Subramanian, A.B., et al. 2000. Role of exogenous inositol and phosphatidylinositol in glycosylphosphatidylinositol anchor synthesis of GP49 by *Giardia lamblia*. *Biochim. Biophys. Acta* 1483: 69-80.
5. Wang, L.L., et al. 2000. Inducible expression of the GP49B inhibitory receptor on NK cells. *J. Immunol.* 164: 5215-5220.
6. Lee, K.H., et al. 2000. Stimulatory function of GP49A, a murine Ig-like receptor, in rat basophilic leukemia cells. *J. Immunol.* 165: 4970-4977.

## CHROMOSOMAL LOCATION

Genetic locus: Liltrb4 (mouse) mapping to 10 B3.

## PRODUCT

GP49B 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  $\mu$ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see GP49B shRNA Plasmid (m): sc-42886-SH and GP49B shRNA (m) Lentiviral Particles: sc-42886-V as alternate gene silencing products.

For independent verification of GP49B (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-42886A, sc-42886B and sc-42886C.

## 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

GP49B siRNA (m) is recommended for the inhibition of GP49B 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  $\mu$ 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.

## GENE EXPRESSION MONITORING

GP49 (H1.1): sc-53584 is recommended as a control antibody for monitoring of GP49B 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).

## RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor GP49B gene expression knockdown using RT-PCR Primer: GP49B (m)-PR: sc-42886-PR (20  $\mu$ l). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

## SELECT PRODUCT CITATIONS

1. Li, Q., et al. 2019. Leukocyte immunoglobulin-like receptor B4 (LILRB4) negatively mediates the pathological cardiac hypertrophy by suppressing fibrosis, inflammation and apoptosis via the activation of NF $\kappa$ B signaling. *Biochem. Biophys. Res. Commun.* 509: 16-23.

## RESEARCH USE

For research use only, not for use in diagnostic procedures.

## PROTOCOLS

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