SANTA CRUZ BIOTECHNOLOGY, INC.

GROα siRNA (h): sc-43816

BACKGROUND

Chemokines are members of a superfamily of small, inducible, secreted, pro-inflammatory cytokines. Members of the chemokine family exhibit 20% to 50% homology in their predicted amino acid sequences and are divided into four subfamilies. In the C-X-C or α subfamily, the first two of four cysteine motifs are separated by another amino acid residue. The C-X-C chemokine subfamily includes IL-8, GROα/β/γ (and the murine homologs KC, MIP-2α and MIP-2β), platelet basic protein, ENA-78, GCP-2, PF4, IP-10 (and its murine homolog, CRG) and MIG. GROα, β and γ (growth-related onconge α/β/γ) are C-X-C chemokines important for the regulation of cell motility and growth. They function as neutrophil chemoattractants and mediators of angiogenesis. The GRO proteins may play a role in melanocyte progression to malignant melanoma.

REFERENCES

1. Oppenheim, J.J., et al. 1991. Properties of the novel proinflammatory supergene "intercrine" cytokine family. Annu. Rev. Immunol. 9: 617-648.
2. Schall, T.J. 1991. Biology of the RANTES/SIS cytokine family. Cytokine 3: 165-183.
3. Miller, M.D., et al. 1992. Biology and biochemistry of the chemokines: a family of chemotactic and inflammatory cytokines. Crit. Rev. Immunol. 12: 17-46.

CHROMOSOMAL LOCATION

Genetic locus: CXCL1 (human) mapping to 4q13.3.

PRODUCT

GROα 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 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see GROα shRNA Plasmid (h): sc-43816-SH and GROα shRNA (h) Lentiviral Particles: sc-43816-V as alternate gene silencing products.

For independent verification of GROα (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-43816A, sc-43816B and sc-43816C.

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 µl of the RNAse-free water provided. Resuspension of the siRNA duplex in 330 µl of RNAse-free water makes a 10 µM solution in a 10 µM Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

GROα siRNA (h) is recommended for the inhibition of GROα 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 µM in 66 µl. 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

GROα (G-7): sc-514065 is recommended as a control antibody for monitoring of GROα 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 reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor GROα gene expression knockdown using RT-PCR Primer: GROα (h)-PR: sc-43816-PR (20 µl, 476 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Botton, T., et al. 2011. Ciglitazone negatively regulates CXCL1 signaling through MITF to suppress melanoma growth. Cell Death Differ. 18: 109-121.
2. Bhat, K., et al. 2017. GROα overexpression drives cell migration and invasion in triple negative breast cancer cells. Oncol. Rep. 38: 21-30.
3. Bernard, S., et al. 2018. CXCL1 derived from mammary fibroblasts promotes progression of mammary lesions to invasive carcinoma through CXCR2 dependent mechanisms. J. Mammary Gland Biol. Neoplasia 23: 249-267.
4. Catar, R.A., et al. 2022. Angiogenic role of mesothelium-derived chemokine CXCL1 during unfavorable peritoneal tissue remodeling in patients receiving peritoneal dialysis as renal replacement therapy. Front. Immunol. 13: 821681.

RESEARCH USE

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