

# PDGFR- $\alpha$ (RM0004-3G28): sc-101569

## BACKGROUND

Platelet-derived growth factor (PDGF) is a mitogen for mesenchyme- and glia-derived cells. PDGF consists of two chains, A and B, which dimerize to form functionally distinct isoforms, PDGF-AA, PDGF-AB and PDGF-BB. These three isoforms bind with different affinities to two receptor types, PDGFR- $\alpha$  and - $\beta$ , which are endowed with protein tyrosine kinase domains. PDGFR- $\alpha$  can bind to both A and B subunits of PDGF, while PDGFR- $\beta$  can only bind the B subunit. Ligand binding promotes either homo- or heterodimerization of the PDGF receptors in a specific manner. PDGF-AA induces the dimerization of two  $\alpha$  receptors, PDGF-AB induces dimerization of  $\alpha\alpha$  and  $\alpha\beta$  and PDGF-BB induces the formation of three types of dimers,  $\alpha\alpha$ ,  $\alpha\beta$  and  $\beta\beta$ . Translocation of the PDGFR- $\beta$  gene with the Tel gene is linked to chronic myelomonocytic leukemia (CMML), a myelodysplastic syndrome, and demonstrates the oncogenic potential of the PDGF receptors.

## REFERENCES

- Ross, R., et al. 1986. The biology of platelet-derived growth factor. *Cell* 46: 155-169.
- Hart, C.E., et al. 1988. Two classes of PDGF receptor recognize different isoforms of PDGF. *Science* 240: 1529-1531.
- Heldin, C., et al. 1988. Binding of different dimeric forms of PDGF to human fibroblasts: evidence for two separate receptor types. *EMBO J.* 7: 1387-1393.
- Rupp, E., et al. 1994. A unique autophosphorylation site in the platelet-derived growth factor alpha receptor from a heterodimeric receptor complex. *Eur. J. Biochem.* 225: 29-41.
- Bazenet, C.E., et al. 1996. Phosphorylation of tyrosine 720 in the platelet-derived growth factor alpha receptor is required for binding of Grb2 and SHP-2 but not for activation of Ras or cell proliferation. *Mol. Cell. Biol.* 16: 6926-6936.

## CHROMOSOMAL LOCATION

Genetic locus: *Pdgfra* (mouse) mapping to 5 C3.3.

## SOURCE

PDGFR- $\alpha$  (RM0004-3G28) is a rat monoclonal antibody raised against the extracellular domain of PDGFR- $\alpha$  of mouse origin.

## PRODUCT

Each vial contains 100  $\mu$ g IgG<sub>2</sub> in 1.0 ml PBS with < 0.1% sodium azide and 0.1% gelatin.

## STORAGE

Store at 4° C, **\*\*DO NOT FREEZE\*\***. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

## PROTOCOLS

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

## APPLICATIONS

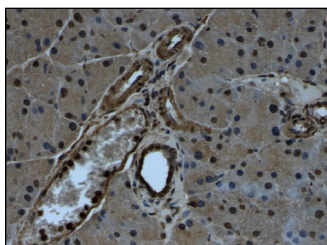
PDGFR- $\alpha$  (RM0004-3G28) is recommended for detection of PDGFR- $\alpha$  of mouse origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500); non cross-reactive with PDGFR- $\beta$ .

Suitable for use as control antibody for PDGFR- $\alpha$  siRNA (m): sc-29444, PDGFR- $\alpha$  shRNA Plasmid (m): sc-29444-SH and PDGFR- $\alpha$  shRNA (m) Lentiviral Particles: sc-29444-V.

Molecular Weight of PDGFR- $\alpha$ : 170 kDa.

Positive Controls: NIH/3T3 + PDGF cell lysate: sc-3803 or NIH/3T3 whole cell lysate: sc-2210.

## DATA



PDGFR- $\alpha$  (RM0004-3G28): sc-101569. Immunoperoxidase staining of formalin-fixed, paraffin embedded, LPS-treated mouse pancreas tissue showing nuclear and cytoplasmic staining of exocrine glandular cells and pancreatic duct cells.

## SELECT PRODUCT CITATIONS

- Anam, K. and Davis, T.A. 2013. Comparative analysis of gene transcripts for cell signaling receptors in bone marrow-derived hematopoietic stem/progenitor cell and mesenchymal stromal cell populations. *Stem Cell Res. Ther.* 4: 112.
- Li, A., et al. 2014. PDGF-AA promotes osteogenic differentiation and migration of mesenchymal stem cell by down-regulating PDGFR $\alpha$  and derepressing BMP-Smad1/5/8 signaling. *PLoS ONE* 9: e113785.

## RESEARCH USE

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



See **PDGFR- $\alpha$  (C-9): sc-398206** for PDGFR- $\alpha$  antibody conjugates, including AC, HRP, FITC, PE, Alexa Fluor® 488 and Alexa Fluor® 647.