

# RasGRP4 (B-16): sc-81900

## BACKGROUND

RasGRP4 (Ras guanyl releasing protein 4) is a member of the RasGRP family of guanine nucleotide-releasing factors (GRFs) that activate Ras in mammalian cells and are preferentially expressed in hematopoietic cells. RasGRP4 is a mast cell-specific protein that is widely expressed during fetal development and can be found in spleen, liver, skeletal muscle, placenta, heart and lung tissues of adults. Localizing to the cytoplasm, RasGRP4 contains one EF-hand domain which binds calcium, an N-terminal Ras-GEF domain and a phorbol-ester/DAG-type zinc finger which binds DAG (diacylglycerol). RasGRP4 functions as a DAG-regulated, cation-dependent, guanine nucleotide exchange factor (GEF). Upon activation by DAG, RasGRP4 is recruited to the plasma membrane where it is believed to participate in membrane ruffling and the spreading of activated cells. Mutations in the gene encoding RASGRP4 can result in a higher susceptibility to asthma and cancer.

## REFERENCES

1. Yang, Y., et al. 2002. RasGRP4, a new mast cell-restricted Ras guanine nucleotide-releasing protein with calcium- and diacylglycerol-binding motifs. Identification of defective variants of this signaling protein in asthma, mastocytosis, and mast cell leukemia patients and demonstration of the importance of RasGRP4 in mast cell development and function. *J. Biol. Chem.* 277: 25756-25774.
2. Reuther, G.W., et al. 2002. RasGRP4 is a novel Ras activator isolated from acute myeloid leukemia. *J. Biol. Chem.* 277: 30508-30514.
3. Online Mendelian Inheritance in Man, OMIM™. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 607320. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>
4. Li, L., et al. 2003. RasGRP4 regulates the expression of prostaglandin D<sub>2</sub> in human and rat mast cell lines. *J. Biol. Chem.* 278: 4725-4729.
5. Li, L., et al. 2003. Mast cells in airway hypo-responsive C3H/HeJ mice express a unique isoform of the signaling protein Ras guanine nucleotide releasing protein 4 that is unresponsive to diacylglycerol and phorbol esters. *J. Immunol.* 171: 390-397.
6. Zheng, Y., et al. 2005. Phosphorylation of RasGRP3 on Threonine 133 provides a mechanistic link between PKC and Ras signaling systems in B cells. *Blood* 105: 3648-3654.
7. Stevens, R.L., et al. 2005. RasGRP4 in mast cell signalling and disease susceptibility. *Novartis Found. Symp.* 271: 54-68.

## CHROMOSOMAL LOCATION

Genetic locus: RASGRP4 (human) mapping to 19q13.2.

## SOURCE

RasGRP4 (B-16) is a mouse monoclonal antibody raised against recombinant RasGRP4 of human origin.

## PRODUCT

Each vial contains 100 µg IgG<sub>2a</sub> kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

## APPLICATIONS

RasGRP4 (B-16) is recommended for detection of RasGRP4 of human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for RasGRP4 siRNA (h): sc-97242, RasGRP4 shRNA Plasmid (h): sc-97242-SH and RasGRP4 shRNA (h) Lentiviral Particles: sc-97242-V.

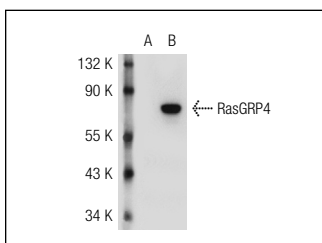
Molecular Weight of RasGRP4: 75 kDa.

Positive Controls: RasGRP4 (h2): 293T Lysate: sc-112846.

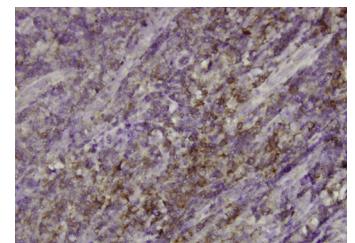
## RECOMMENDED SUPPORT REAGENTS

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, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) 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.

## DATA



RasGRP4 (B-16): sc-81900. Western blot analysis of RasGRP4 expression in non-transfected: sc-117752 (A) and human RasGRP4 transfected: sc-112846 (B) 293T whole cell lysates.



RasGRP4 (B-16): sc-81900. Immunoperoxidase staining of formalin-fixed, paraffin-embedded human tonsil tissue showing membrane and cytoplasmic localization.

## STORAGE

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

## 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.