

Rac 1/2/3 (G-2): sc-514583

BACKGROUND

A large number of low molecular weight, GTP binding proteins of the Ras superfamily have been identified. These proteins regulate many fundamental processes in all eukaryotic cells such as growth, vesicle traffic and cytoskeletal organization. GTPase-activating proteins (GAPs) accelerate the intrinsic rate of GTP hydrolysis of Ras-related proteins, resulting in downregulation of their active form. Two proteins in this family, Rac 1 and Rac 2, are 92% identical and share GTP binding and GTP hydrolysis motifs with other members of the Ras superfamily. Rac 1 is expressed in a large number of different cell types. Rac 2 is primarily expressed only in myeloid cells and has been reported to be a regulatory component of the human neutrophil NADPH oxidase.

SOURCE

Rac 1/2/3 (G-2) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 163-183 near the C-terminus of Rac 1 of human origin.

PRODUCT

Each vial contains 200 µg IgG_{2b} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Rac 1/2/3 (G-2) is available conjugated to agarose (sc-514583 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-514583 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-514583 PE), fluorescein (sc-514583 FITC), Alexa Fluor® 488 (sc-514583 AF488), Alexa Fluor® 546 (sc-514583 AF546), Alexa Fluor® 594 (sc-514583 AF594) or Alexa Fluor® 647 (sc-514583 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-514583 AF680) or Alexa Fluor® 790 (sc-514583 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

Blocking peptide available for competition studies, sc-514583 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

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APPLICATIONS

Rac 1/2/3 (G-2) is recommended for detection of Rac 1, Rac 2 and Rac 3 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, 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).

Molecular Weight of Rac 1/2/3: 22 kDa.

Positive Controls: Rac 1 (h): 293T Lysate: sc-116394, Jurkat whole cell lysate: sc-2204 or HL-60 whole cell lysate: sc-2209.

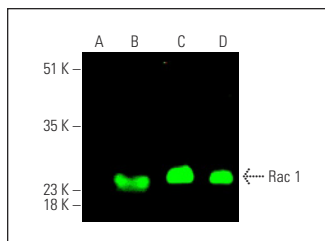
STORAGE

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

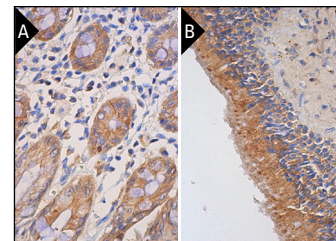
RESEARCH USE

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

DATA



Rac 1/2/3 (G-2): sc-514583. Near-infrared western blot analysis of Rac 1 expression in non-transfected 293T: sc-117752 (A), human Rac 1 transfected 293T: sc-116394 (B), HL-60 (C) and Jurkat (D) whole cell lysates. Blocked with UltraCruz® Blocking Reagent: sc-516214. Detection reagent used: m-IgGκ BP-CFL 680: sc-516180.



Rac 1/2/3 (G-2): sc-514583. Immunoperoxidase staining of formalin fixed, paraffin-embedded human rectum tissue showing cytoplasmic staining of glandular cells (A). Immunoperoxidase staining of formalin fixed, paraffin-embedded human nasopharynx tissue showing cytoplasmic staining of respiratory epithelial cells (B).

SELECT PRODUCT CITATIONS

- Mao, X., et al. 2017. DDEFL1 correlated with Rho GTPases activity in breast cancer. *Oncotarget* 8: 112487-112497.
- Shang, W., et al. 2018. Genome-wide CRISPR screen identifies FAM49B as a key regulator of Actin dynamics and T cell activation. *Proc. Natl. Acad. Sci. USA* 115: E4051-E4060.
- Srivastava, S., et al. 2019. *Mycobacterium tuberculosis* PPE2 protein interacts with p67^{phox} and inhibits reactive oxygen species production. *J. Immunol.* 203: 1218-1229.
- Yan, J., et al. 2020. T cell-intrinsic IRF5 regulates T cell signaling, migration, and differentiation and promotes intestinal inflammation. *Cell Rep.* 31: 107820.
- Bianchi-Smiraglia, A., et al. 2021. Regulation of local GTP availability controls Rac 1 activity and cell invasion. *Nat. Commun.* 12: 6091.
- Zhang, Y., et al. 2022. A-kinase interacting protein 1 regulates the cell proliferation, invasion, migration and angiogenesis of clear cell renal cell carcinoma cells and affects the ERK/c-Myc signaling pathway by binding to Rac 1. *Exp. Ther. Med.* 24: 558.
- Zhu, X., et al. 2023. S-ketamine exerts antidepressant effects by regulating Rac1 GTPase mediated synaptic plasticity in the hippocampus of stressed rats. *Cell. Mol. Neurobiol.* 43: 299-314.
- Davidson, A., et al. 2023. Salmonella invasion of a cell is self-limiting due to effector-driven activation of N-WASP. *iScience* 26: 106643.
- Zhang, Q., et al. 2024. Da-Chuan-Xiong decoction ameliorates sodium sensitivity and plasma norepinephrine via attenuation of brain oxidative stress in the DOCA-salt hypertensive rats. *Int. J. Hypertens.* 2024: 2226143.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.