

Rac 3 (F-20): sc-16698

BACKGROUND

The small GTP binding proteins Rac 1, Rac 2 and Rac 3 belong to the Rho subfamily of Ras proteins. The Rac proteins regulate multiple signal transduction pathways in eukaryotic cells and are implicated in tumorigenesis, cell growth/death and organization of the Actin cytoskeleton. The gene encoding human Rac 3 is mapped to chromosome 17q25.3, a region frequently deleted in breast cancer. Endogenous, hyperactive Rac 3 is present in the highly proliferative human breast cancer-derived cell lines and tumor tissues. Rac 3 activity in tumors results from both its distinct membrane localization and altered regulatory factors affecting the guanine nucleotide state of Rac 3. Rac 3 protein levels are not affected by organization of the Actin cytoskeleton, however they are serum-inducible. Active Rac 3 associates with two Rac effector proteins, p21-activated kinase (Pak) and c-Jun N-terminal kinase (JNK), which have deregulated, persistent kinase activity. Rac 3 drives Pak and JNK kinase activities by two separate pathways, but only the Rac 3-Pak pathway is critical for DNA synthesis, suggesting an important role for Rac 3 and Pak in tumor growth. A human homolog of the murine SUN-CoR protein, C1D, is identified as a Rac 3 effector that is involved in human follicular thyroid carcinomas. In addition, Rac 3 activity is regulated by Bcr.

REFERENCES

1. Courjal, F., et al. 1997. Structure and chromosomal assignment to 22q12 and 17qter of the Ras-related Rac 2 and Rac 3 human genes. *Genomics* 44: 242-246.
2. Haataja, L., et al. 1997. Characterization of Rac 3, a novel member of the Rho family. *J. Biol. Chem.* 272: 20384-20388.

SOURCE

Rac 3 (F-20) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of Rac 3 of human origin.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-16698 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

Rac 3 (F-20) is recommended for detection of small GTP binding protein Rac 1, Rac 2 and Rac 3 of mouse, rat and 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) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

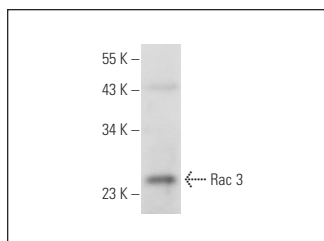
Rac 3 (F-20) is also recommended for detection of small GTP binding protein Rac 1, Rac 2 and Rac 3 in additional species, including equine, canine, bovine, porcine and avian.

Positive Controls: C6 whole cell lysate: sc-364373.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), 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 donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

DATA



Rac 3 (F-20): sc-16698. Western blot analysis of Rac 3 expression in C6 whole cell lysate.

SELECT PRODUCT CITATIONS

1. Wang, Q., et al. 2004. Mechanistic relationship between androgen receptor polyglutamine tract truncation and androgen-dependent transcriptional hyperactivity in prostate cancer cells. *J. Biol. Chem.* 279: 17319-17328.
2. Orioli, D., et al. 2006. Rac 3-induced neuritogenesis requires binding to Neurabin-I. *Mol. Biol. Cell* 17: 2391-2400.
3. Calaf, G.M., et al. 2007. Gene and protein expressions induced by 17β-estradiol and parathion in cultured breast epithelial cells. *Mol. Med.* 13: 255-265.

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.



Try **pan Rac (G-2): sc-514583**, our highly recommended monoclonal alternative to Rac 3 (F-20). Also, for AC, HRP, FITC, PE, Alexa Fluor® 488 and Alexa Fluor® 647 conjugates, see **pan Rac (G-2): sc-514583**.