SANTA CRUZ BIOTECHNOLOGY, INC.

Ras-GRF1/2 (H-223): sc-28580

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The Power to Question

BACKGROUND

A critical step in signal transduction responses to stimulation of cell surface receptors by their ligands involves the accumulation of Ras proteins in their active GTP-bound state. To reach their active GTP-bound state, Ras proteins must first release bound GDP, a rate limiting step mediated by a guanine nucleotide releasing factor (GRF). The mammalian Ras p21 GRF protein has been designated Ras-GRF1 p140. Ras-GRF1 accelerates release of GDP from H- and N-Ras p21 protein *in vitro,* but not from the related Ral A or Cdc42Hs GTP-binding proteins. Of interest, a region mapping within the amino terminal domain of Ras-GRF1 is similar to both the human breakpoint cluster protein, Bcr, and the Dbl proto-oncogene product, a guanine nucleotide-releasing factor for Cdc42Hs. Ras-GRF2 p135 has also been identified. Ras-GRF2 p135 is highly homologous to Ras-GRF1 p140 except in the region between the REM and CDC25 domains and appears to function similarly to Ras-GRF1 p140.

REFERENCES

1. Ron, D., et al. 1988. Molecular cloning and characterization of the human Dbl proto-oncogene: evidence that its overexpression is sufficient to transform NIH/3T3 cells. EMBO J. 7: 2465-2473.
2. Gibbs, J.B., et al. 1990. Modulation of guanine nucleotides bound to Ras in NIH3T3 cells by oncogenes, growth factors, and the GTPase activating protein (GAP). J. Biol. Chem. 265: 20437-20442.
3. Wolfman, A., et al. 1990. Cytosolic protein catalyzes the release of GDP from p21Ras. Science 248: 247-249.
4. Downward, J., et al. 1990. Identification of a nucelotide exchange-promoting activity for p21Ras. Proc. Natl. Acad. Sci. USA 87: 5998-6002.
5. Downward, J., et al. 1990. Stimulation of p21Ras upon T-cell activation. Nature 346: 719-723.
6. Hart, M.J., et al. 1991. Catalysis of guanine nucleotide exchange on the CDC42Hs protein by the Dbl oncogene product. Nature 354: 311-313.
7. Shou, C., et al. 1992. Molecular cloning of cDNAs encoding a guanine-nucelotide-releasing factor for Ras p21. Nature 358: 351-354.
8. Fam, N.P., et al. 1997. Cloning and characterization of Ras-GRF2, a novel guanine nucleotide exchange factor for Ras. Mol. Cell. Biol. 17: 1396-1406.

CHROMOSOMAL LOCATION

Genetic locus: RASGRF1 (human) mapping to 15q25.1, RASGRF2 (human) mapping to 5q14.1; Rasgrf1 (mouse) mapping to 9 E3.1, Rasgrf2 (mouse) mapping to 13 C3.

SOURCE

Ras-GRF1/2 (H-223) is a rabbit polyclonal antibody raised against amino acids 1051-1273 mapping at the C-terminus of Ras-GRF1 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.

APPLICATIONS

Ras-GRF1/2 (H-223) is recommended for detection of Ras-GRF1 and Ras-GRF2 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).

Ras-GRF1/2 (H-223) is also recommended for detection of Ras-GRF1 and Ras-GRF2 in additional species, including equine, canine, bovine and porcine.

Molecular Weight of Ras-GRF1/2 isoforms: 140/55 kDa.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use goat anti-rabbit IgG-HRP: sc-2004 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible goat anti-rabbit IgG-HRP: sc-2030 (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 goat anti-rabbit IgG-FITC: sc-2012 (dilution range: 1:100-1:400) or goat anti-rabbit IgG-TR: sc-2780 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

SELECT PRODUCT CITATIONS

1. Bennett, K.L., et al. 2009. AP-2α induces epigenetic silencing of tumor suppressive genes and microsatellite instability in head and neck squamous cell carcinoma. PLoS ONE 4: e6931.

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 or our catalog for detailed protocols and support products.