SANTA CRUZ BIOTECHNOLOGY, INC.

Rap1GAP (E-11): sc-390826

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Rap1 GTPase activating protein (Rap1GAP) specifically stimulates GTP hydrolytic activity of the monomeric G protein Rap1. Physical interaction between $G_{\alpha z}$, a member of the G_i family of trimeric G proteins, and Rap1GAP blocks the ability of regulators of G protein signaling to stimulate GTP hydrolysis of the α subunit, and also attenuates the ability of activated $G_{\alpha z}$ to inhibit adenylyl cyclase. Rap1GAP is expressed in the brain, kidney and pancreas and may act as a signal integrator to coordinate and/or integrate G_z signaling and Rap1 signaling in cells. A novel isoform of Rapl GTPase-activating protein, designated Rap1GAPII, binds specifically to $G_{\alpha z}$. Stimulation of the G_i coupled M2 muscarinic receptor translocates Rap1GAPII from the cytosol to the membrane and decreases the amount of GTP-bound Rap1, resulting in the activation of ERK/MAPK.

REFERENCES

1. Janoueix-Lerosey, I., et al. 1994. Phosphorylation of Rap1GAP during the cell cycle. Biochem. Biophys. Res. Commun. 202: 967-975.
2. Wada, Y., et al. 1997. Mitogen-inducible SIPA1 is mapped to the conserved syntenic groups of chromosome 19 in mouse and chromosome 11q13.3 centromeric to Bcl1 in human. Genomics 39: 66-73.
3. Kurachi, H., et al. 1997. Human SPA-1 gene product selectively expressed in lymphoid tissues is a specific GTPase-activating protein for Rap1 and Rap2. Segregate expression profiles from a Rap1GAP gene product. J. Biol. Chem. 272: 28081-28088.
4. Jordan, J.D., et al. 1999. Modulation of rap activity by direct interaction of $G_{\alpha o}$ with Rap1GTPase-activating protein. J. Biol. Chem. 274: 21507-21510.
5. Meng, J., et al. 1999. Functional interaction between $G_{\alpha z}$ and Rap1GAP suggests a novel form of cellular cross-talk. J. Biol. Chem. 274: 36663-36669.
6. Mochizuki, N., et al. 1999. Activation of the ERK/MAPK pathway by an isoform of Rap1GAP associated with G_α. Nature 400: 891-894.

CHROMOSOMAL LOCATION

Genetic locus: RAP1GAP (human) mapping to 1p36.12.

SOURCE

Rap1GAP (E-11) is a mouse monoclonal antibody raised against amino acids 571-663 mapping at the C-terminus of Rap1GAP of human origin.

PRODUCT

Each vial contains 200 µg IgG_1 kappa light chain in 1.0 ml of 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.

RESEARCH USE

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

APPLICATIONS

Rap1GAP (E-11) is recommended for detection of Rap1GAP of 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) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for Rap1GAP siRNA (h): sc-36388, Rap1GAP shRNA Plasmid (h): sc-36388-SH and Rap1GAP shRNA (h) Lentiviral Particles: sc-36388-V.

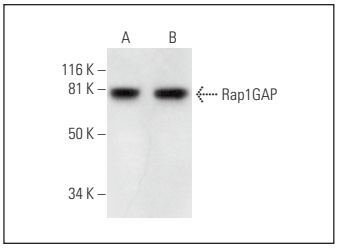
Molecular Weight of Rap1GAP: 89 kDa.

Positive Controls: SH-SY5Y cell lysate: sc-3812, Jurkat whole cell lysate: sc-2204 or K-562 whole cell lysate: sc-2203.

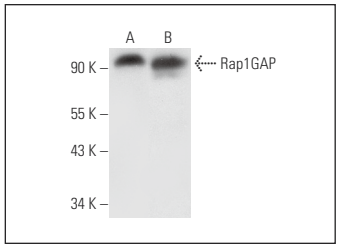
RECOMMENDED SUPPORT REAGENTS

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, UltraCruz® Blocking Reagent: sc-516214 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



Rap1GAP (E-11): sc-390826. Western blot analysis of Rap1GAP expression in SH-SY5Y (**A**) and K-562 (**B**) whole cell lysates.



Rap1GAP (E-11): sc-390826. Western blot analysis of Rap1GAP expression in Jurkat (**A**) and HeLa (**B**) whole cell lysates.

SELECT PRODUCT CITATIONS

1. Mitra, R.S., et al. 2008. Rap1GAP promotes invasion via induction of matrix metalloproteinase 9 secretion, which is associated with poor survival in low N-stage squamous cell carcinoma. Cancer Res. 68: 3959-3969.

PROTOCOLS

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