SANTA CRUZ BIOTECHNOLOGY, INC.

C3G (G-9): sc-393836

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Ras p21 is the prototype of a superfamily of GTPases that is involved in the regulation of a wide variety of cellular processes. Ras signals in its GTP-bound form but is "turned off" when bound to GDP. When unregulated or constitutively turned on by mutations, Ras signaling contributes to malignant transformation. The switch between active and inactive Ras is controlled by GTPase-activating proteins (GAPs) and guanine nucleotide exchange factors (GEFs). C3G was isolated in a screen for proteins that could bind the SH3 domain of the Crk proto-oncogene product. The carboxy-terminus of the C3G protein displays significant sequence similarity to Ras-GRF/Cdc25Mm and mSos and can substitute for Cdc25 function in *S. cerevisiae*. These observations strongly suggest that C3G is a GEF for Ras and is involved in the regulation of Ras signaling through Crk. The C3G gene maps to human chromosome 9q34.13 in proximity to the gene that encodes c-Abl, a proto-oncogene that regulates Crk.

REFERENCES

1. Barbacid, M. 1987. Ras genes. Annu. Rev. Biochem. 56: 779-827.
2. Boguski, M.S. and McCormick, F. 1993. Proteins regulating Ras and its relatives. Nature 366: 643-654.
3. Tanaka, S., et al. 1994. C3G, a guanine nucleotide-releasing protein expressed ubiquitously, binds to the Src homology 3 domains of CRK and GRB2/ASH proteins. Proc. Natl. Acad. Sci. USA 91: 3443-3447.
4. Matsuda, M., et al. 1994. CRK protein binds to two guanine nucleotide-releasing proteins for the Ras family and modulates nerve growth factor-induced activation of Ras in PC12 cells. Mol. Cell. Biol. 14: 5495-5500.
5. Takai, S., et al. 1994. Mapping of the human C3G gene coding a guanine nucleotide releasing protein for Ras family to 9q34.3 by fluorescence *in situ* hybridization. Hum. Genet. 94: 549-550.
6. Ren, R., et al. 1994. Abl protein-tyrosine kinase selects the Crk adapter as a substrate using SH3-binding sites. Genes Dev. 8: 783-795.

CHROMOSOMAL LOCATION

Genetic locus: RAPGEF1 (human) mapping to 9q34.13; Rapgef1 (mouse) mapping to 2 B.

SOURCE

C3G (G-9) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 1010-1039 near the C-terminus of C3G 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.

Blocking peptide available for competition studies, sc-393836 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

STORAGE

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

APPLICATIONS

C3G (G-9) is recommended for detection of C3G 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) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for C3G siRNA (h): sc-29863, C3G siRNA (m): sc-29864, C3G shRNA Plasmid (h): sc-29863-SH, C3G shRNA Plasmid (m): sc-29864-SH, C3G shRNA (h) Lentiviral Particles: sc-29863-V and C3G shRNA (m) Lentiviral Particles: sc-29864-V.

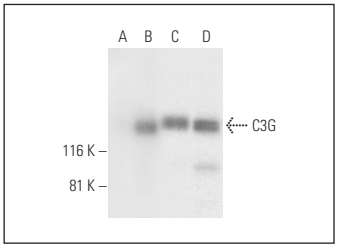
Molecular Weight of C3G: 121 kDa.

Positive Controls: C3G (h): 293T Lysate: sc-115806, K-562 whole cell lysate: sc-2203 or Jurkat whole cell lysate: sc-2204.

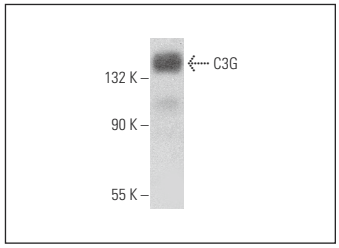
RECOMMENDED SUPPORT REAGENTS

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



C3G (G-9): sc-393836. Western blot analysis of C3G expression in non-transfected 293T: sc-117752 (**A**), human C3G transfected 293T: sc-115806 (**B**), K-562 (**C**) and Jurkat (**D**) whole cell lysates.



C3G (G-9): sc-393836. Western blot analysis of C3G expression in Ramos whole cell lysate.

SELECT PRODUCT CITATIONS

1. Carabias, A., et al. 2020. Mechanisms of autoregulation of C3G, activator of the GTPase Rap1, and its catalytic deregulation in lymphomas. Sci. Signal. 13: eabb7075.
2. Rodríguez-Blázquez, A., et al. 2023. Crk proteins activate the Rap1 guanine nucleotide exchange factor C3G by segregated adaptor-dependent and -independent mechanisms. Cell Commun. Signal. 21: 30.

RESEARCH USE

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