SANTA CRUZ BIOTECHNOLOGY, INC.

# C3G (G-4): sc-17840


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.

## CHROMOSOMAL LOCATION

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

## SOURCE

C3G (G-4) is a mouse monoclonal antibody raised against amino acids 1-300 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.

C3G (G-4) is available conjugated to agarose (sc-17840 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-17840 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-17840 PE), fluorescein (sc-17840 FITC), Alexa Fluor® 488 (sc-17840 AF488), Alexa Fluor® 546 (sc-17840 AF546), Alexa Fluor® 594 (sc-17840 AF594) or Alexa Fluor® 647 (sc-17840 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-17840 AF680) or Alexa Fluor® 790 (sc-17840 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.



## APPLICATIONS

C3G (G-4) is recommended for detection of C3G of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:500), 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 1:30-1:3,000).

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.

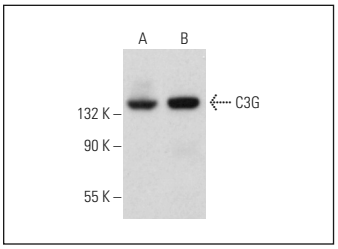
Molecular Weight of C3G: 121 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200, Daudi cell lysate: sc-2415 or NAMALWA cell lysate: sc-2234.

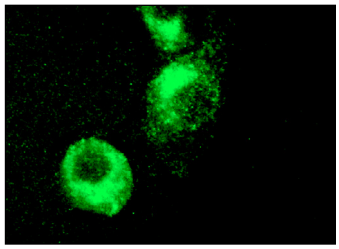
## STORAGE

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

## DATA




C3G (G-4): sc-17840. Western blot analysis of C3G expression in Daudi (**A**) and NAMALWA (**B**) whole cell lysates.



C3G (G-4): sc-17840. Immunofluorescence staining of methanol-fixed KNRK cells showing cytoplasmic localization.

## SELECT PRODUCT CITATIONS

1. Jain, N., et al. 2005. Role of p73 in regulating human caspase-1 gene transcription induced by interferon-γ and cisplatin. J. Biol. Chem. 280: 36664-36673.
2. Deevi, R.K., et al. 2010. Vasodilator-stimulated phosphoprotein regulates inside-out signaling of β2 Integrins in neutrophils. J. Immunol. 184: 6575-6584.
3. Pezeshkpour, G.H., et al. 2013. CRK SH3N domain diminishes cell invasiveness of non-small cell lung cancer. Genes Cancer 4: 315-324.
4. Guvakova, M.A., et al. 2014. The small GTPase Rap1 promotes cell movement rather than stabilizes adhesion in epithelial cells responding to Insulin-like growth factor I. Biochem. J. 463: 257-270.
5. Eppler, F.J., et al. 2017. Dynamin2 controls Rap1 activation and integrin clustering in human T lymphocyte adhesion. PLoS ONE 12: e0172443.
6. Begum, Z., et al. 2018. Development and characterization of a novel monoclonal antibody that recognizes an epitope in the central protein interaction domain of RapGEF1 (C3G). Mol. Biol. Rep. 45: 1809-1819.
7. Nayak, S.C., et al. 2020. C3G localizes to mother centriole dependent on cenexin, and regulates centrosome duplication and primary cilia length. J. Cell Sci. 133: jcs243113.
8. Sriram, D., et al. 2021. Complex formation and reciprocal regulation between GSK3β and C3G. Biochim. Biophys. Acta Mol. Cell Res. 1868: 118964.
9. Ishii, K., et al. 2022. Reelin regulates the migration of late-born hippocampal CA1 neurons via cofilin phosphorylation. Mol. Cell. Neurosci. 124: 103794.
10. Xue, Q., et al. 2023. Lack of Paxillin phosphorylation promotes single-cell migration *in vivo*. J. Cell Biol. 222: e202206078.

## RESEARCH USE

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