SANTA CRUZ BIOTECHNOLOGY, INC.

Gem (A-3): sc-514497

BACKGROUND

Gem belongs to the Rad/Gem/Kir (RGK) subfamily of Ras-related GTPases, which lack typical C-terminal amino acid motifs for isoprenylation. Rad and Gem bind calmodulin in a Ca^{2+}-dependent manner via this C-terminal extension, involving residues 278-297 in human Rad. High intracellular Gem levels, which interact with intact microtubules and microfilaments, promote profound changes in cell morphology. Ectopic Gem expression is sufficient to stimulate cell flattening and neurite extension in N1E-115 and SH-SY5Y neuroblastoma cells, suggesting a role for Gem in cytoskeletal rearrangement and/or morphological differentiation of neurons. Gem was also observed in developing trigeminal nerve ganglia in 12.5 day mouse embryos, demonstrating that Gem expression is a property of normal ganglionic development. The interaction of Gem with β-subunits regulates Ca^{2+} channel expression at the cell surface. The human Gem gene maps to chromosome 8q22.1.

REFERENCES

1. Bilan, P.J., et al. 1998. The Ras-related protein Rad associates with the cytoskeleton in a non-lipid-dependent manner. Exp. Cell Res. 242: 391-400.
2. Moyers, J.S., et al. 1998. Effects of phosphorylation on function of the Rad GTPase. Biochem. J. 333: 609-614.
3. Piddini, E., et al. 2001. The Ras-like GTPase Gem is involved in cell shape remodelling and interacts with the novel kinesin-like protein KIF9. EMBO J. 20: 4076-4087.
4. Leone, A., et al. 2001. The Gem GTP-binding protein promotes morphological differentiation in neuroblastoma. Oncogene 20: 3217-3225.
5. Beguin, P., et al. 2001. Regulation of Ca^{2+} channel expression at the cell surface by the small G-protein Kir/Gem. Nature 411: 701-706.

CHROMOSOMAL LOCATION

Genetic locus: GEM (human) mapping to 8q22.1.

SOURCE

Gem (A-3) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 20-43 near the N-terminus of Gem 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.

Gem (A-3) is available conjugated to agarose (sc-514497 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-514497 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-514497 PE), fluorescein (sc-514497 FITC), Alexa Fluor® 488 (sc-514497 AF488), Alexa Fluor® 546 (sc-514497 AF546), Alexa Fluor® 594 (sc-514497 AF594) or Alexa Fluor® 647 (sc-514497 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-514497 AF680) or Alexa Fluor® 790 (sc-514497 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

Blocking peptide available for competition studies, sc-514497 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

APPLICATIONS

Gem (A-3) is recommended for detection of Gem 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 Gem siRNA (h): sc-41719, Gem shRNA Plasmid (h): sc-41719-SH and Gem shRNA (h) Lentiviral Particles: sc-41719-V.

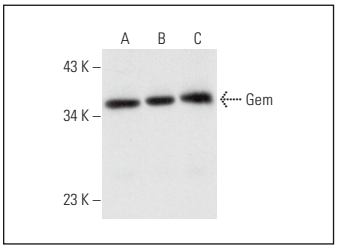
Molecular Weight of Gem: 35 kDa.

Positive Controls: A549 cell lysate: sc-2413, COLO 320DM cell lysate: sc-2226 or RT-4 whole cell lysate: sc-364257.

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



Gem (A-3): sc-514497. Western blot analysis of Gem expression in COLO 320DM (**A**), RT-4 (**B**) and A549 (**C**) whole cell lysates.

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 for detailed protocols and support products.