

# Gem (G-1): sc-166891

## 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  $\beta$ -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. 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; Gem (mouse) mapping to 4 A1.

## SOURCE

Gem (G-1) is a mouse monoclonal antibody raised against amino acids 1-85 mapping at the N-terminus of Gem of human origin.

## PRODUCT

Each vial contains 200  $\mu$ g IgG<sub>2a</sub> kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Gem (G-1) is available conjugated to agarose (sc-166891 AC), 500  $\mu$ g/0.25 ml agarose in 1 ml, for IP; to HRP (sc-166891 HRP), 200  $\mu$ g/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-166891 PE), fluorescein (sc-166891 FITC), Alexa Fluor<sup>®</sup> 488 (sc-166891 AF488), Alexa Fluor<sup>®</sup> 546 (sc-166891 AF546), Alexa Fluor<sup>®</sup> 594 (sc-166891 AF594) or Alexa Fluor<sup>®</sup> 647 (sc-166891 AF647), 200  $\mu$ g/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor<sup>®</sup> 680 (sc-166891 AF680) or Alexa Fluor<sup>®</sup> 790 (sc-166891 AF790), 200  $\mu$ g/ml, for Near-Infrared (NIR) WB, IF and FCM.

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## RESEARCH USE

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

## APPLICATIONS

Gem (G-1) is recommended for detection of Gem of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2  $\mu$ g per 100-500  $\mu$ g 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 siRNA (m): sc-41720, Gem shRNA Plasmid (h): sc-41719-SH, Gem shRNA Plasmid (m): sc-41720-SH, Gem shRNA (h) Lentiviral Particles: sc-41719-V and Gem shRNA (m) Lentiviral Particles: sc-41720-V.

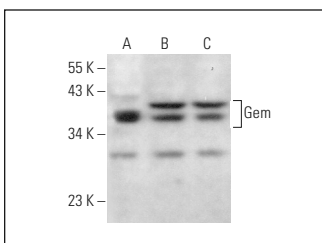
Molecular Weight of Gem: 35 kDa.

Positive Controls: NIH/3T3 whole cell lysate: sc-2210, A549 cell lysate: sc-2413 or U-251-MG whole cell lysate: sc-364176.

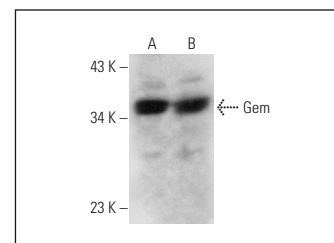
## RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgG $\kappa$  BP-HRP: sc-516102 or m-IgG $\kappa$  BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker<sup>™</sup> Molecular Weight Standards: sc-2035, UltraCruz<sup>®</sup> 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-IgG $\kappa$  BP-FITC: sc-516140 or m-IgG $\kappa$  BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz<sup>®</sup> Mounting Medium: sc-24941 or UltraCruz<sup>®</sup> Hard-set Mounting Medium: sc-359850.

## DATA



Gem (G-1): sc-166891. Western blot analysis of Gem expression in A549 (A), NIH/3T3 (B) and 3T3-L1 (C) whole cell lysates.



Gem (G-1): sc-166891. Western blot analysis of Gem expression in U-251-MG (A) and A549 (B) whole cell lysates.

## SELECT PRODUCT CITATIONS

1. Arainga, M., et al. 2012. Identification of bovine leukemia virus tax function associated with host cell transcription, signaling, stress response and immune response pathway by microarray-based gene expression analysis. *BMC Genomics* 13: 121.

## STORAGE

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