SANTA CRUZ BIOTECHNOLOGY, INC.

Gem (m): 293T Lysate: sc-125377

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

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. Leone, A., et al. 2001. The Gem GTP-binding protein promotes morphological differentiation in neuroblastoma. Oncogene 20: 3217-3225.
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.
5. 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.
6. Online Mendelian Inheritance in Man, OMIM™. 2001. Johns Hopkins University, Baltimore, MD. MIM Number: 602595. World Wide Web URL: http://www.ncbi.nlm. nih.gov/omim/
7. Comijn, J., et al. 2001. The two-handed E box binding zinc-finger protein SIP1 downregulates E-cadherin and induces invasion. Mol. Cell 7: 1267-1278.

CHROMOSOMAL LOCATION

Genetic locus: Gem (mouse) mapping to 4 A1.

PRODUCT

Gem (m): 293T Lysate represents a lysate of mouse Gem transfected 293T cells and is provided as 100 µg protein in 200 µl SDS-PAGE buffer.

APPLICATIONS

Gem (m): 293T Lysate is suitable as a Western Blotting positive control for mouse reactive Gem antibodies. Recommended use: 10-20 µl per lane.

Control 293T Lysate: sc-117752 is available as a Western Blotting negative control lysate derived from non-transfected 293T cells.

RESEARCH USE

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

STORAGE

Store at -20° C. Repeated freezing and thawing should be minimized. Sample vial should be boiled once prior to use. Non-hazardous. No MSDS required.

PROTOCOLS

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