SANTA CRUZ BIOTECHNOLOGY, INC.

GTPBP9 (F-10): sc-393231

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The Power to Question

BACKGROUND

GTP-binding protein 9 (GTPBP9), also known as Obg-like ATPase 1 (OLA1), is a 396 amino acid protein that belongs to the Obg-related GTPase family under the translation factors (TRAFAC) class. Originally thought to only have GTPase activity, Obg-related GTPase family members have been shown to also have ATPase activity. In *Homo sapians*, GTPBP9 exhibits a preference for binding ATP over GTP, with GTP binding occuring only at high nucleotide concentration. One cause for ATP affinity and GTP discrimination is thought to be a substitution of glutamine for a hydrophobic amino acid in Obg-related family members; this is the same substitution that inactivates Ras-like GTPases. GTPBP9 contains a C-terminal TGS domain that binds to ligands and an N-terminal G domain which binds nucleotides. GTPBP9 is expressed as three isoforms produced by alternative splicing.

REFERENCES

1. Vetter, I.R. and Wittinghofer, A. 2001. The guanine nucleotide-binding switch in three dimensions. Science 294: 1299-1304.
2. Leipe, D.D., et al. 2002. Classification and evolution of P-loop GTPases and related ATPases. J. Mol. Biol. 317: 41-72.
3. Caldon, C.E. and March, P.E. 2003. Function of the universally conserved bacterial GTPases. Curr. Opin. Microbiol. 6: 135-139.
4. Teplyakov, A., et al. 2003. Crystal structure of the YchF protein reveals binding sites for GTP and nucleic acid. J. Bacteriol. 185: 4031-4037.
5. Brown, E.D. 2005. Conserved P-loop GTPases of unknown function in bacteria: an emerging and vital ensemble in bacterial physiology. Biochem. Cell Biol. 83: 738-746.
6. Koller-Eichhorn, R., et al. 2007. Human OLA1 defines an ATPase subfamily in the Obg family of GTP-binding proteins. J. Biol. Chem. 282: 19928-19937.
7. Online Mendelian Inheritance in Man, OMIM™. 2007. Johns Hopkins University, Baltimore, MD. MIM Number: 611175. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/

CHROMOSOMAL LOCATION

Genetic locus: OLA1 (human) mapping to 2q31.1; Ola1 (mouse) mapping to 2 C3.

SOURCE

GTPBP9 (F-10) is a mouse monoclonal antibody raised against amino acids 181-393 mapping near the C-terminus of GTPBP9 of human origin.

PRODUCT

Each vial contains 200 µg IgG_{2a} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

STORAGE

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

APPLICATIONS

GTPBP9 (F-10) is recommended for detection of GTPBP9 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).

GTPBP9 (F-10) is also recommended for detection of GTPBP9 in additional species, including equine, canine, bovine and porcine.

Suitable for use as control antibody for GTPBP9 siRNA (h): sc-94782, GTPBP9 siRNA (m): sc-145833, GTPBP9 shRNA Plasmid (h): sc-94782-SH, GTPBP9 shRNA Plasmid (m): sc-145833-SH, GTPBP9 shRNA (h) Lentiviral Particles: sc-94782-V and GTPBP9 shRNA (m) Lentiviral Particles: sc-145833-V.

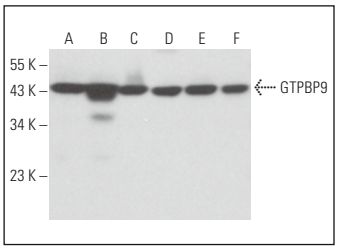
Molecular Weight of GTPBP9: 45 kDa.

Positive Controls: Hep G2 cell lysate: sc-2227, A-375 cell lysate: sc-3811 or F9 cell lysate: sc-2245.

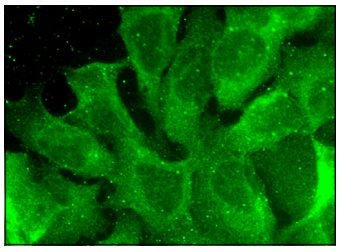
RECOMMENDED SUPPORT REAGENTS

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



GTPBP9 (F-10): sc-393231. Western blot analysis of GTPBP9 expression in Hep G2 (**A**), RD (**B**), A-375 (**C**), F9 (**D**) and KNRK (**E**) whole cell lysates and rat brain tissue extract (**F**).



GTPBP9 (F-10): sc-393231. Immunofluorescence staining of formalin-fixed Hep G2 cells showing cytoplasmic and nuclear localization.

SELECT PRODUCT CITATIONS

1. Chiou, S.H., et al. 2018. Hmga2 is dispensable for pancreatic cancer development, metastasis, and therapy resistance. Sci. Rep. 8: 14008.

RESEARCH USE

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