

# Rag B (2B8): sc-293349

## BACKGROUND

The Ras-related superfamily of guanine nucleotide binding proteins includes the R-Ras, Rap, Ral/Rec and Rho/Rab subfamilies, all of which are thought to play an important role in either endocytosis or in biosynthetic protein transport. The process of transporting newly synthesized proteins from the endoplasmic reticulum (ER) to various stacks of the Golgi complex and to secretory vesicles involves the movement of carrier vesicles and requires Rab protein function. Rag B (Ras-related GTP-binding protein B), also known as RRAGB, is a 374 amino acid cytoplasmic protein that belongs to the GTR/RAG GTP-binding protein family. Existing as a short and long form due to alternative splicing events, Rag B's short isoform binds GTP. Rag B has guanine nucleotide-binding activity and is required for amino acid-induced mTORC1 relocalization. Rag B is also involved in the activation of RHEB, a GTPase, and the subsequent activation of the TOR signaling cascade.

## REFERENCES

- Huber, L.A., Ullrich, O., Takai, Y., Lütcke, A., Dupree, P., Olkkonen, V., Virta, H., de Hoop, M.J., Alexandrov, K. and Peter, M. 1994. Mapping of Ras-related GTP-binding proteins by GTP overlay following two-dimensional gel electrophoresis. *Proc. Natl. Acad. Sci. USA* 91: 7874-7878.
- Schürmann, A., Brauers, A., Massmann, S., Becker, W. and Joost, H.G. 1995. Cloning of a novel family of mammalian GTP-binding proteins (RagA, RagBs, RagB1) with remote similarity to the Ras-related GTPases. *J. Biol. Chem.* 270: 28982-28988.
- Hirose, E., Nakashima, N., Sekiguchi, T. and Nishimoto, T. 1998. RagA is a functional homologue of *S. cerevisiae* Gtr1p involved in the Ran/Gsp1-GTPase pathway. *J. Cell Sci.* 111: 11-21.
- Sekiguchi, T., Hirose, E., Nakashima, N., Ii, M. and Nishimoto, T. 2001. Novel G proteins, Rag C and Rag D, interact with GTP-binding proteins, Rag A and Rag B. *J. Biol. Chem.* 276: 7246-7257.
- Sancak, Y., Peterson, T.R., Shaul, Y.D., Lindquist, R.A., Thoreen, C.C., Bar-Peled, L. and Sabatini, D.M. 2008. The Rag GTPases bind raptor and mediate amino acid signaling to mTORC1. *Science* 320: 1496-1501.
- Sancak, Y., Bar-Peled, L., Zoncu, R., Markhard, A.L., Nada, S. and Sabatini, D.M. 2010. Regulator-Rag complex targets mTORC1 to the lysosomal surface and is necessary for its activation by amino acids. *Cell* 141: 290-303.

## CHROMOSOMAL LOCATION

Genetic locus: RRAGB (human) mapping to Xp11.21; Rragb (mouse) mapping to X F3.

## SOURCE

Rag B (2B8) is a mouse monoclonal antibody raised against amino acids 1-346 of Rag B of human origin.

## PRODUCT

Each vial contains 100 µg IgG<sub>2a</sub> kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

## APPLICATIONS

Rag B (2B8) is recommended for detection of Rag B of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)] and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for Rag B siRNA (h): sc-91086, Rag B siRNA (m): sc-152684, Rag B shRNA Plasmid (h): sc-91086-SH, Rag B shRNA Plasmid (m): sc-152684-SH, Rag B shRNA (h) Lentiviral Particles: sc-91086-V and Rag B shRNA (m) Lentiviral Particles: sc-152684-V.

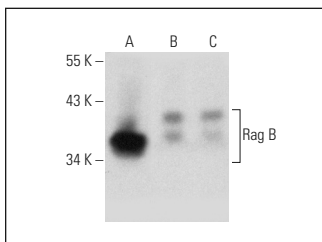
Molecular Weight of Rag B isoforms 1/2: 43/40 kDa.

Positive Controls: U-87 MG cell lysate: sc-2411, mouse testis extract: sc-2405 or rat brain extract: sc-2392.

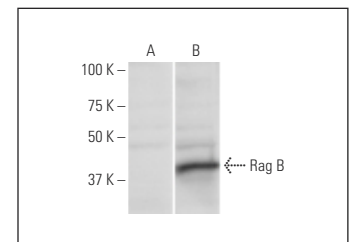
## RECOMMENDED SUPPORT REAGENTS

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).

## DATA



Rag B (2B8): sc-293349. Western blot analysis of Rag B expression in U-87 MG whole cell lysate (A) and mouse testis (B) and rat brain (C) tissue extracts.



Rag B (2B8): sc-293349. Western blot analysis of Rag B expression in non-transfected (A) and Rag B transfected (B) 293T 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](http://www.scbt.com) for detailed protocols and support products.