

R7BP (D-15): sc-50170

BACKGROUND

The regulators of G protein signaling (RGS proteins) bind directly to the G protein α (G_{α}) subunits in brain and other tissues to determine the strength, duration and fidelity of neurotransmitter receptor signaling. They also regulate the kinetics of the G protein signaling. Members of the R7 subfamily, part of the RGS family, bind to $G_{\beta 5}$ ($R7-G_{\beta 5}$) and shuttle between the plasma membrane and the nucleus with assistance from a shuttle protein, R7BP, in neurons. R7BP binds directly to $R7-G_{\beta 5}$, and the protein complex becomes tethered to the plasma membrane by the addition of palmitate, a lipid, onto R7BP. Removal of palmitate results in the translocation of the R7BP- $R7-G_{\beta 5}$ complex to the nucleus, presumably for nontraditional signaling functions.

REFERENCES

1. Witherow, D.S., Wang, Q., Levay, K., Cabrera, J.L., Chen, J., Willars, G.B. and Slepak, V.Z. 2000. Complexes of the G protein subunit $G_{\beta 5}$ with the regulators of G protein signaling RGS7 and RGS9. Characterization in native tissues and in transfected cells. *J. Biol. Chem.* 275: 24872-24880.
2. Zhang, J.H., Barr, V.A., Mo, Y., Rojkova, A.M., Liu, S. and Simonds, W.F. 2001. Nuclear localization of G protein β 5 and regulator of G protein signaling 7 in neurons and brain. *J. Biol. Chem.* 276: 10284-10289.
3. Drenan, R.M., Doupnik, C.A., Boyle, M.P., Muglia, L.J., Huettner, J.E., Linder, M.E. and Blumer, K.J. 2005. Palmitoylation regulates plasma membrane-nuclear shuttling of R7BP, a novel membrane anchor for the RGS7 family. *J. Cell Biol.* 169: 623-633.
4. Hepler, J.R. 2005. R7BP: a surprising new link between G proteins, RGS proteins, and nuclear signaling in the brain. *Sci. STKE* 2005: pe38.
5. Martemyanov, K.A., Yoo, P.J., Skiba, N.P. and Arshavsky, V.Y. 2005. R7BP, a novel neuronal protein interacting with RGS proteins of the R7 family. *J. Biol. Chem.* 280: 5133-5136.
6. Song, J.H., Waataja, J.J. and Martemyanov, K.A. 2006. Subcellular targeting of RGS9-2 is controlled by multiple molecular determinants on its membrane anchor, R7BP. *J. Biol. Chem.* 281: 15361-15369.
7. Drenan, R.M., Doupnik, C.A., Jayaraman, M., Buchwalter, A.L., Kaltenbronn, K.M., Huettner, J.E., Linder, M.E. and Blumer, K.J. 2006. R7BP augments the function of $RGS7^*G_{\beta 5}$ complexes by a plasma membrane-targeting mechanism. *J. Biol. Chem.* 281: 28222-28231.

CHROMOSOMAL LOCATION

Genetic locus: R7BP (human) mapping to 5q12.3; R7bp (mouse) mapping to 13 D1.

SOURCE

R7BP (D-15) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of R7BP of human origin.

STORAGE

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

PRODUCT

Each vial contains 200 μ g IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-50170 P, (100 μ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

R7BP (D-15) is recommended for detection of R7BP of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), 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).

R7BP (D-15) is also recommended for detection of R7BP in additional species, including equine, canine, bovine, porcine and avian.

Suitable for use as control antibody for R7BP siRNA (h): sc-61431, R7BP siRNA (m): sc-61432, R7BP shRNA Plasmid (h): sc-61431-SH, R7BP shRNA Plasmid (m): sc-61432-SH, R7BP shRNA (h) Lentiviral Particles: sc-61431-V and R7BP shRNA (m) Lentiviral Particles: sc-61432-V.

Molecular Weight of R7BP: 30 kDa.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

RESEARCH USE

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

PROTOCOLS

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