

**Rab3A^{GST-His}**

Ras-associated, small GTP-binding protein
mouse, recombinant, *E. coli*

Cat. No.	Amount
PR-115	50 µg

For general laboratory use.

Shipping: shipped on dry ice

Storage Conditions: store at -80 °C

Additional Storage Conditions: avoid freeze/thaw cycles

Shelf Life: 12 months

Molecular Weight: 54 kDa

Accession number: NM_009001

Purity: > 90 % (SDS-PAGE)

Form: liquid (Supplied in 50 mM Tris-HCl pH 8.0, 100 mM NaCl, 10 mM MgCl₂ and 2 mM beta-mercaptoethanol)

Description:

N-terminal tagged Rab3A is a small GTPase that belongs to the Ras superfamily. Rab proteins play an important role in various aspects of membrane traffic, including cargo selection, vesicle budding, vesicle motility, tethering, docking, and fusion. Rab3A, a member of the Rab small G protein family, is involved in the process of Ca²⁺-dependent neurotransmitter release. Rab3A activity is regulated by a GDP/GTP exchange protein (Rab3 GEP), a Rab GDP dissociation inhibitor (Rab GDI), and a GTPaseactivating protein (Rab3 GAP). The Rab3A recycling is coupled with synaptic vesicle trafficking as follows: (i) GDP-Rab3A forms an inactive complex with Rab GDI and stays in the cytosol of nerve terminals. (ii) GDP-Rab3A released from Rab GDI is converted to GTP-Rab3A by Rab3 GEP. (iii) GTP-Rab3A binds effector molecules, Rabphilin-3 and Rim, localized at synaptic vesicles and the active zone, respectively. These complexes facilitate translocation and docking of the synaptic vesicles to the active zone. The GST-Tag facilitates the protein's application in typical GST pull-down assays.

Activity:

100 pmol of protein can bind > 80 pmol of GDP.

Selected References:

Stenmark *et al.* (2001) The Rab GTPase family. *Genome Biol.* 2:30071.

Yamaguchi *et al.* (2002) A GDP/GTP exchange protein for the Rab3 small G protein family up-regulates a postdocking step of synaptic exocytosis in central synapses. *Proc. Natl. Acad. Sci. USA.* 99:14536.