

## GGTase-II (RabGGTase)

### Protein geranylgeranyltransferase type II, $\alpha$ - and $\beta$ -subunit

rat, recombinant, *E. coli*

Cat. No.	Amount
PR-103	50 $\mu$ g

For *in vitro* use only  
Quality guaranteed for 12 months  
Store at -80°C

#### Avoid freeze / thaw cycles

#### Form

Liquid. Supplied in 25 mM HEPES pH 7.2, 25 mM NaCl and 5 mM DTT.

#### Purity

> 95% by SDS-PAGE

#### Description

GGTase-II (Geranylgeranyltransferase-II) catalyzes the transfer of geranylgeranyl moiety onto two C-terminal cysteines of Rab proteins. Composed of an  $\alpha$  and  $\beta$  heterodimer (50 and 38 kDa, respectively) and requires Rab escort protein for its catalytic activity.

GGTase-II was shown to exhibit higher affinity towards geranylgeranyl pyrophosphate ( $K_d = 8$  nM) than farnesyl pyrophosphate ( $K_d = 60$  nM). Like FTase and GGTase-I, RabGGT functions as a heterodimer. The  $\alpha$  subunit has 27% identity to that of CaaX prenylases but contains additional domains, while the  $\beta$  subunit shows 29% identity to that of FTase. The protein substrates of RabGGT have heterogeneous C termini that usually contain two cysteine residues (CXC), both of which are modified by geranylgeranyl groups.

Unlike the CaaX prenylases, RabGGT requires specific accessory proteins known as REPs to guide the interaction with its targets. Some farnesyltransferase inhibitors (FTIs) were identified to inhibit RabGGT activity and induce p53 independent apoptosis in *C. elegans*.

#### Selected References:

Lackner *et al.* (2005) Chemical genetics identifies Rab geranylgeranyl transferase as an apoptotic target of farnesyl transferase inhibitors. *Cancer Cell*. **7**:325.

Kalinin *et al.* (2001) Expression of mammalian geranylgeranyltransferase type-II in *Escherichia coli* and its application for *in vitro* prenylation of Rab proteins. *Protein Express. Purif.* **22**:84.

Thomä *et al.* (2000) Phosphoisoprenoid binding specificity of geranylgeranyltransferase type II. *Biochemistry-US* **39**:12043.

Casey *et al.* (1996) Protein prenyltransferases. *J. Biol. Chem.* **271**:5289.

Watanabe *et al.* (2008) Inhibitors of Protein Geranylgeranyltransferase I and Rab Geranylgeranyltransferase Identified from a Library of Allenoate-derived Compounds. *J. Biol. Chem.* **283**(15):9571-9579.

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