

## RGS14 Protein, Human

Cat. No.:	HY-P701398
Synonyms:	RGS14; Regulator of G-protein signaling 14; RGS14
Species:	Human
Source:	E. coli
Accession:	O43566 (P2-L566)
Gene ID:	10636
Molecular Weight:	

### PROPERTIES

Appearance	Solution.
Formulation	Supplied as a 0.22 µm filtered solution of 50 mM Tris-HCl, pH7.5, 200 mM NaCl, 20% glycerol.
Endotoxin Level	<1 EU/µg, determined by LAL method.
Reconstitution	Please use rapid thawing with running water to thaw the protein.
Storage & Stability	Stored at -80°C for 1 year. It is stable at -20°C for 3 months after opening. It is recommended to freeze aliquots at -80°C for extended storage. Avoid repeated freeze-thaw cycles.
Shipping	Shipping with dry ice.

### DESCRIPTION

#### Background

The RGS14 protein plays a key role in regulating G protein-coupled receptor signaling cascades by modulating the activity of G protein alpha subunits. It inhibits signal transduction by increasing the GTPase activity of G protein alpha subunits, driving them into their inactive GDP-bound form. Additionally, RGS14 functions as a GDP-dissociation inhibitor (GDI), exhibiting GDI activity on G(i) alpha subunits GNAI1 and GNAI3, but not on GNAI2 and G(o)-alpha subunit GNAO1. It also has GAP activity on GNAI0, GNAI2, and GNAI3. Beyond its role in G protein signaling, RGS14 may act as a scaffold integrating G protein and Ras/Raf MAP kinase signaling pathways. It inhibits platelet-derived growth factor (PDGF)-stimulated ERK1/ERK2 phosphorylation, a process dependent on its interaction with HRAS and reversible by G(i) alpha subunit GNAI1. Furthermore, RGS14 serves as a positive modulator of microtubule polymerization and spindle organization through a G(i)-alpha-dependent mechanism, playing a role in cell division and being required for nerve growth factor (NGF)-mediated neurite outgrowth. Its involvement in stress resistance and potential roles in visual memory processing capacity and hippocampal-based learning and memory add to the diverse functions attributed to RGS14. Molecularly, it interacts with various G protein alpha subunits, RABGEF1, RAP2A, and associates with microtubules, forming complexes with BRAF, HRAS, MAP2K1, MAPK3, and RGS14. The interaction with RIC8A and several Ras family members further illustrates the intricate network of molecular associations in which RGS14 participates to regulate cellular processes.

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**Caution: Product has not been fully validated for medical applications. For research use only.**

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