

Rab 5 Protein

Catalog# SPR-121 A/B/C

Size: 50/100/200µg

PO Box 30244, Suite 405,
3989 Quadra Street,
Victoria, BC V8X 5E1, Canada

This product is for *in vitro* research use only and is not intended for use in humans or animals

StressMarq

Biosciences Inc.

Orders • sales@stressmarq.com
Tel: • +1 250 294 9065
Fax: • +1 250 294 9025
Email • info@stressmarq.com
Web • www.stressmarq.com

Product	Recombinant Rab5 Protein, his tagged
Source	Human recombinant made in E. coli, Gene accession BC001267
Cited Applications	WB control
Purity	>90%
Format	20mM Tris/HCl, pH 7.5, 0.15M NaCl
Concentration	0.5µg/µL
Storage and stability	-20°C; 1 year+; shipped on cold packs or ambient

Scientific Background

Rab5 is a 24kDa member of the Rab family of small guanosine triphosphatases (GTPases), Ras superfamily. Rab GTPases are central regulators of membrane trafficking in the eukaryotic cell. Their regulatory capacity depends on their ability to cycle between the GDP -bound inactive and GTP-bound active states. This conversion is regulated by GDP/GTP exchange factors (GEPs), GDP dissociation inhibitors (GDIs) and GTPase-activating proteins (GAPs) (1, 2). Activation of a Rab protein is coupled to its association with intracellular membranes, allowing it to recruit downstream effector proteins to the cytoplasmic surface of a subcellular compartment (3). Through these proteins, Rab GTPases regulate vesicle formation, actin- and tubulin-dependent vesicle movement, and membrane fusion(1). Rab proteins contain conserved regions involved in guanine-nucleotide binding, and hypervariable COOH-terminal domains with a cysteine motif implicated in subcellular targeting. Post-translational modification of the cysteine motif with one or two geranyl groups is essential for the membrane association and correct intracellular localization of Rab proteins(3). Each

Rab shows a characteristic subcellular distribution (4).

In particular, Rab5 is ubiquitously expressed in human tissues. It localizes mainly to early endosomes, but is also present on the plasma membrane. It regulates the fusion between endocytic vesicles and early endosomes, as well as the homotypic fusion between early endosomes (5). Among the proteins recruited by the GTP-bound active Rab5 are Rabaptin-5 and EEA1 (6). Anti-Rab5 may be used as an early endosome marker.

Selected References

1. Stenmark H., and Olkkonen V.M. (2001) *Genome Biol.* 2: 3007.1-3007.7.
2. Takai Y., et al. (2001) *Physiol. Rev.* 81: 153-208.
3. Ali B.R., et al. (2004) *J. Cell Sci.* 117: 6401-6412.
4. Zerial M., and McBride H. (2001) *Nat. Rev. Mol. Cell Biol.* 2: 107-117.
5. Sonnichsen B., et al. (2000) *J. Cell Biol.* 149: 901-913
6. Woodman P.G. (2000) *Traffic.* 1: 695-701.

Certificate of Analysis

This product has been certified >90% pure using SDS-PAGE analysis.

Material Safety Data Sheet

Rab 5 Protein SPR-121

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The below information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. StressMarq shall not be held liable for any damage resulting from handling or from contact with the above product. See the Technical Specification, Packing Slip, Invoice, and Product Catalogue for additional terms and conditions of sale.

Hazardous Ingredients

The physical, chemical and toxicological properties of these components have not been fully investigated. It is recommended that all laboratory personnel follow standard laboratory safety procedures when handling this product. Safety procedures should include wearing OSHA approved safety glasses, gloves and protective clothing. Direct physical contact with this product should be avoided.

<u>Known Hazardous Components</u>	<u>CAS Number</u>	<u>Percent</u>
None		

Physical Data

This product consists of purified protein shipped on gel packs. The physical properties of this product have not been investigated thoroughly.

Fire and Explosion Hazard and Reactivity Data

NOT APPLICABLE

Toxicological Properties

May be harmful by inhalation, ingestion, or skin absorption. The toxicological properties of this product have not been investigated thoroughly. Exercise due caution.

Preventative Measures

Wear chemical safety goggles and compatible chemical-resistant gloves. Avoid inhalation, contact with eyes, skin or clothing.

Spill and Leak Procedures

Observe all federal, state and local environmental regulations.

- Wear protective equipment.
- Absorb on sand or vermiculite and place in closed containers for disposal.
- Dispose or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

First Aid Measures

- If swallowed, wash out mouth with water, provided person is conscious. Call a physician.
- In case of skin contact, flush with copious amounts of water for at least 15 minutes. Remove contaminated clothing and shoes. If a rash or other irritation develops, call a physician.
- If inhaled, remove to fresh air. If breathing becomes difficult, call a physician.
- In case of eye contact, flush with copious amounts of water for at least 15 minutes while separating the eyelids with fingers. Call a physician.

Authorized: StressMarq Biosciences Inc.
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