

Product datasheet

Recombinant dog RAB7 protein ab89986

Overview

Product name	Recombinant dog RAB7 protein
Protein length	Full length protein

Description

Nature	Recombinant
Source	Escherichia coli

Amino Acid Sequence

Species	Dog
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Specifications

Our [Abpromise guarantee](#) covers the use of **ab89986** in the following tested applications.

The application notes include recommended starting dilutions; optimal dilutions/concentrations should be determined by the end user.

Biological activity	Activity: GTPγS binding: >750 mmol/mol.
Applications	SDS-PAGE
Purity	> 90 % SDS-PAGE.
Form	Liquid

Preparation and Storage

Stability and Storage	Shipped on dry ice. Upon delivery aliquot and store at -80°C. Avoid freeze / thaw cycles. Preservative: None Constituents: 5mM DTT, 40mM Sodium chloride, 25mM HEPES, 2mM Magnesium chloride, 0.01mM GDP, pH 7.2 This product is an active protein and may elicit a biological response in vivo, handle with caution.
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General Info

Function	Key regulator in endo-lysosomal trafficking. Governs early-to-late endosomal maturation,
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microtubule minus-end as well as plus-end directed endosomal migration and positioning, and endosome-lysosome transport through different protein-protein interaction cascades. Plays a central role, not only in endosomal traffic, but also in many other cellular and physiological events, such as growth-factor-mediated cell signaling, nutrient-transporter mediated nutrient uptake, neurotrophin transport in the axons of neurons and lipid metabolism. Also involved in regulation of some specialized endosomal membrane trafficking, such as maturation of melanosomes, pathogen-induced phagosomes (or vacuoles) and autophagosomes. Plays a role in the maturation and acidification of phagosomes that engulf pathogens, such as *S.aureus* and *M.tuberculosis*. Plays a role in the fusion of phagosomes with lysosomes. Plays important roles in microbial pathogen infection and survival, as well as in participating in the life cycle of viruses. Microbial pathogens possess survival strategies governed by RAB7A, sometimes by employing RAB7A function (e.g. *Salmonella*) and sometimes by excluding RAB7A function (e.g. *Mycobacterium*). In concert with RAC1, plays a role in regulating the formation of RBs (ruffled borders) in osteoclasts. Controls the endosomal trafficking and neurite outgrowth signaling of NTRK1/TRKA. Regulates the endocytic trafficking of the EGF-EGFR complex by regulating its lysosomal degradation.

Tissue specificity

Widely expressed; high expression found in skeletal muscle.

Involvement in disease

Defects in RAB7A are the cause of Charcot-Marie-Tooth disease type 2B (CMT2B) [MIM:600882]; also known as hereditary motor and sensory neuropathy II (HMSN2). CMT2B is a form of Charcot-Marie-Tooth disease, the most common inherited disorder of the peripheral nervous system. Charcot-Marie-Tooth disease is classified in two main groups on the basis of electrophysiologic properties and histopathology: primary peripheral demyelinating neuropathy or CMT1, and primary peripheral axonal neuropathy or CMT2. Neuropathies of the CMT2 group are characterized by signs of axonal regeneration in the absence of obvious myelin alterations, normal or slightly reduced nerve conduction velocities, and progressive distal muscle weakness and atrophy. CMT2B is clinically characterized by marked distal muscle weakness and a high frequency of foot ulcers, infections and amputations of the toes. CMT2B inheritance is autosomal dominant.

Sequence similarities

Belongs to the small GTPase superfamily. Rab family.

Cellular localization

Late endosome. Lysosome. Cytoplasmic vesicle > phagosome. Melanosome. Cytoplasmic vesicle > phagosome membrane. Co-localizes with OSBPL1A at the late endosome. Found in the ruffled border (a late endosomal-like compartment in the plasma membrane) of bone-resorbing osteoclasts. Recruited to phagosomes containing *S.aureus* or *Mycobacterium*.

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