

TRPML1 Protein, Human (HEK293, Strep, FLAG)

Cat. No.:	HY-P701383
Synonyms:	MCOLN1 (ML4, TRPML1); Mucoipin-1; MG-2; Mucoipidin; Transient receptor potential channel mucolipin 1 (TRPML1)
Species:	Human
Source:	HEK293
Accession:	Q9GZU1 (M1-N580)
Gene ID:	57192
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

TRPML1 Protein, a nonselective cation channel, is implicated in the regulation of membrane trafficking events and metal homeostasis. Extensively studied, it is proposed to play a crucial role in facilitating Ca(2+) release from late endosome and lysosome vesicles to the cytoplasm, thereby contributing to lysosome-dependent cellular processes such as organelle fusion, trafficking, exocytosis, and autophagy. TRPML1 is essential for efficient macrophage uptake of large particles, where lysosomal Ca(2+) release triggers lysosomal exocytosis and potentially influences phagosome-lysosome fusion. Additionally, it is involved in lactosylceramide trafficking, indicating a role in late endocytic membrane fusion/fission events. The channel's significance extends to the regulation of mTORC1 signaling and mTOR/TFEB-dependent lysosomal adaptation to environmental cues, including nutrient levels. Acting as a lysosomal active oxygen species (ROS) sensor, TRPML1 participates in ROS-induced TFEB activation and autophagy. Functioning as a Fe(2+) permeable channel in late endosomes and lysosomes, it also plays a role in zinc homeostasis, potentially interacting with TMEM163. In adaptive immunity, TRPML2 and TRPML1 may redundantly function in specialized lysosomes of B cells. Moreover, TRPML1's involvement in cellular lipase activity within the late endosomal pathway or at the cell surface suggests a role in membrane reshaping and vesiculation, particularly in the growth of tubular structures, although the direct conveyance of enzymatic activity remains unclear.

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

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