

## MCOLN1 Protein, Human (Cell-Free, His)

<b>Cat. No.:</b>	HY-P702374
<b>Synonyms:</b>	Mucolipin-1; MG-2; Mucolipidin; Transient receptor potential channel mucolipin 1; TRPML1
<b>Species:</b>	Human
<b>Source:</b>	E. coli Cell-free
<b>Accession:</b>	Q9GZU1 (M1-N580)
<b>Gene ID:</b>	57192
<b>Molecular Weight:</b>	66.5 kDa

### PROPERTIES

<b>AA Sequence</b>	<pre> MTAPAGPRGS    ETERLLTPNP    GYGTQAGPSP    APPTPPEEED LRRRLKYFFM    SPCDKFRAKG    RKPCKLMLQV    VKILVVTVQL ILFGLSNQLA    VTFREENTIA    FRHLFLLGYS    DGADDTFAAY TREQLYQAIF    HAVDQYLALP    DVSLGRYAYV    RGGGDPWTNG SGLALCQRY Y    HRGHVDPAND    TFDIDPMVVT    DCIQVDPPER PPPPPSDDL T    LLESSSSYKN    LTLKFHKLVN    VTIHFRLKTI NLQSLINNEI    PDCYTFSVLI    TFDNKAHSGR    IPISLETQAH IQECKHPSVF    QHGDNSFRL L    FDVVVIL TCS    LSFLLCARSL LRGFLLQNEF    VGFMRWRQRGR    VISLWERLEF    VNGWYILLVT SDVLTISGTI    MKIGIEAKNL    ASYDVCSILL    GTSTLLVWVG VIRYLTFFHN    YNILIATLRV    ALPSVMRFCC    CVAVIYLGYC FCGWIVLGPY    HVKFRSLSMV    SECLFSLING    DDMFVTFAAM QAQQGRSSLV    WLFSQLYLYS    FISLFYIMVL    SLFIALITGA YDTIKHPGGA    GAESEELQAY    IAQCQDSPTS    GKFRRGSGSA CSLLCCCGRD    PSEEHSLLVN </pre>
<b>Appearance</b>	Lyophilized powder.
<b>Formulation</b>	Lyophilized from a 0.22 µm filtered solution of Tris/PBS-based buffer, 6% Trehalose, pH 8.0.
<b>Endotoxin Level</b>	<1 EU/µg, determined by LAL method.
<b>Reconstitution</b>	It is not recommended to reconstitute to a concentration less than 100 µg/mL in ddH <sub>2</sub> O. For long term storage it is recommended to add 5-50% of glycerol (final concentration). Our default final concentration of glycerol is 50%. Customers could use it as reference.
<b>Storage &amp; Stability</b>	Stored at -20°C for 2 years. After reconstitution, it is stable at 4°C for 1 week or -20°C for longer (with carrier protein). It is recommended to freeze aliquots at -20°C or -80°C for extended storage.
<b>Shipping</b>	Room temperature in continental US; may vary elsewhere.

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## 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.

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

Tel: 609-228-6898

Fax: 609-228-5909

E-mail: [tech@MedChemExpress.com](mailto:tech@MedChemExpress.com)

Address: 1 Deer Park Dr, Suite Q, Monmouth Junction, NJ 08852, USA