TMEM173 Protein, Human (N-Sumo-His)

Cat. No.:	HY-P70700A
Synonyms:	Stimulator of interferon genes protein; TMEM173; Mediator of IRF3 activation; sting;
Species:	Human
Source:	E. coli
Accession:	Q86WV6 (V155-V341)
Gene ID:	340061
Molecular Weight:	Approximately 35.19 kDa

PROPERTIES

AA Sequence	V A H G L A W S Y Y I G Y L R L I L P E L Q A R I R T Y N Q H Y N N L L R G A V S Q R L Y I L L P L D C G V P D N L S M A D P N I R F L D K L P Q Q T G D H A G I K D R V Y S N S I Y E L L E N G Q R A G T C V L E Y A T P L Q T L F A M S Q Y S Q A G F S R E D R L E Q A K L F C R T L E D I L A D A P E S Q N N C R L I A Y Q E P A D D S S F S L S Q E V L R H L R Q E E K E E V
Biological Activity	Data is not available.
Appearance	Lyophilized powder.
Formulation	Lyophilized from a 0.22 μm filtered solution of 20 mM PB, 150 mM NaCl, pH 7.4.
Endotoxin Level	<1 EU/μg, determined by LAL method.
Reconsititution	It is not recommended to reconstitute to a concentration less than 100 μg/mL in ddH_2O. For long term storage it is recommended to add a carrier protein (0.1% BSA, 5% HSA, 10% FBS or 5% Trehalose).
Storage & Stability	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.
Shipping	Room temperature in continental US; may vary elsewhere.

DESCRIPTION

Background	The TMEM173 protein acts as a facilitator of innate immune signaling, functioning as a sensor for cytosolic DNA from bacteria and viruses, ultimately promoting the production of type I interferon (IFN-alpha and IFN-beta). This innate immune response is triggered in response to non-CpG double-stranded DNA from viruses and bacteria delivered to the cytoplasm. TMEM173 recognizes and binds cyclic dinucleotides, specifically cyclic di-GMP (c-di-GMP), a second messenger produced by bacteria, and cyclic GMP-AMP (cGAMP), a messenger produced by CGAS in response to DNA virus in the cytosol. Upon

binding to c-di-GMP or cGAMP, TMEM173 oligomerizes, translocates from the endoplasmic reticulum, and is phosphorylated by TBK1, leading to the recruitment and activation of the transcription factor IRF3. This induces the expression of type I interferon, establishing a potent anti-viral state. Additionally, TMEM173 plays a direct role in autophagy, with cGAMP-binding initiating ERGIC formation, which serves as the membrane source for autophagosome formation, targeting cytosolic DNA or DNA viruses for lysosomal degradation. The multifaceted activities of TMEM173 highlight its central role in orchestrating innate immune responses and autophagic processes, contributing to the cell's defense against viral and bacterial threats.

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