STING1 Protein, Mouse (Cell-Free, His)

Cat. No.:	HY-P702453
Synonyms:	Stimulator of interferon genes protein; Endoplasmic reticulum interferon stimulator; ERIS; Mediator of IRF3 activation; MMITA; Transmembrane protein 173
Species:	Mouse
Source:	E. coli Cell-free
Accession:	Q3TBT3 (M1-I378)
Gene ID:	72512
Molecular Weight:	45 kDa

PROPERTIES

AA Sequence	MPYSNLHPAI PRPRGHRSKY VALIFLVASL MILWVAKDPP NHTLKYLALH LASHELGLLL KNLCCLAEEL CHVQSRYQGS YWKAVRACLG CPIHCMAMIL LSSYFYFLQN TADIYLSWMF GLLVLYKSLS MLLGLQSLTP AEVSAVCEEK KLNVAHGLAW SYYIGYLRLI LPGLQARIRM FNQLHNNMLS GAGSRRLYIL FPLDCGVPDN LSVVDPNIRF RDMLPQQNID RAGIKNRVYS NSVYEILENG QPAGVCILEY ATPLQTLFAM SQDAKAGFSR EDRLEQAKLF CRTLEEILED VPESRNNCRL IVYQEPTDGN SFSLSQEVLR HIRQEEKEEV TMNAPMTSVA PPPSVLSQEP RLLISGMDQP LPLRTDLI
Appearance	Lyophilized powder
Formulation	Lyophilized from a 0.22 μm filtered solution of 20 mM Tris-HCl, 0.15 M NaCl, 0.05% FOS12, 6% Trehalose, pH 8.0.
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.
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	STING1, a facilitator of innate immune signaling, serves as a critical sensor for cytosolic DNA from bacteria and viruses, 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 delivered to the cytoplasm from various pathogens. STING1 acts by binding

cyclic dinucleotides, recognizing and binding cyclic di-GMP (c-di-GMP), a bacterial second messenger, and cyclic GMP-AMP (cGAMP), a messenger produced in response to DNA viruses in the cytosol. Upon binding, STING1 oligomerizes, translocates from the endoplasmic reticulum, and is phosphorylated by TBK1, leading to the recruitment and activation of the transcription factor IRF3. This induction results in the expression of type I interferon, establishing a potent anti-viral state. STING1's versatile role extends to direct participation in autophagy, where cGAMP-binding triggers its movement from the endoplasmic reticulum to COPII vesicles, forming the endoplasmic reticulum-Golgi intermediate compartment (ERGIC). The ERGIC serves as the membrane source for autophagosome formation, facilitating the degradation of cytosolic DNA or DNA viruses by the lysosome. The autophagy and interferon-inducing activities of STING1 can be uncoupled, with autophagy induction being independent of TBK1 phosphorylation. Furthermore, STING1 exhibits a preference for 2'-3'-cGAMP and may be involved in translocon function, influencing the induction of type I interferons. Additionally, its association with the major histocompatibility complex class II suggests a potential role in transducing apoptotic signals. STING1 is activated by the anticancer drug 5,6-dimethylxanthenone 4-acetic acid (DMXAA) and specifically inhibited by nitrofuran derivatives C-178 and C-176, preventing palmitoylation and subsequent activation of STING1. The multifaceted activities of STING1 highlight its pivotal role in orchestrating innate immune responses, autophagic processes, and potential contributions to apoptotic signaling and anticancer responses.

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