

MPYS Antibody

Catalog # ASC10946

Product Information

Application	WB, IF, ICC, E
Primary Accession	Q86WV6
Other Accession	NP_938023 , 38093659
Reactivity	Human, Mouse
Host	Rabbit
Clonality	Polyclonal
Isotype	IgG
Calculated MW	42193
Concentration (mg/ml)	1 mg/mL
Conjugate	Unconjugated
Application Notes	MPYS antibody can be used for detection of MPYS by Western blot at 1 - 2 µg/mL. Antibody can also be used for immunocytochemistry starting at 5 µg/mL. For immunofluorescence start at 20 µg/mL.

Additional Information

Gene ID	340061
Other Names	Stimulator of interferon genes protein, hSTING, Endoplasmic reticulum interferon stimulator, ERIS, Mediator of IRF3 activation, hMITA, Transmembrane protein 173, TMEM173, ERIS, MITA, STING
Target/Specificity	TMEM173;
Reconstitution & Storage	MPYS antibody can be stored at 4°C for three months and -20°C, stable for up to one year. As with all antibodies care should be taken to avoid repeated freeze thaw cycles. Antibodies should not be exposed to prolonged high temperatures.
Precautions	MPYS Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	STING1 (HGNC:27962)
Function	Facilitator of innate immune signaling that acts as a sensor of cytosolic DNA from bacteria and viruses and promotes the production of type I interferon (IFN-alpha and IFN-beta) (PubMed: 18724357 , PubMed: 18818105 , PubMed: 19433799 , PubMed: 19776740 , PubMed: 23027953 , PubMed: 23747010 , PubMed: 23910378 , PubMed: 27801882 , PubMed: 29973723 , PubMed: 30842659 , PubMed: 35045565 , PubMed: 35388221 , PubMed: 36808561 , PubMed: 37832545 , PubMed: 25704810 , PubMed: 39255680). Innate immune response is triggered

in response to non-CpG double-stranded DNA from viruses and bacteria delivered to the cytoplasm (PubMed:[26300263](#)). Acts by binding cyclic dinucleotides: recognizes and binds cyclic di-GMP (c- di-GMP), a second messenger produced by bacteria, cyclic UMP-AMP (2',3'-cUAMP), and cyclic GMP-AMP (cGAMP), a messenger produced by CGAS in response to DNA virus in the cytosol (PubMed:[21947006](#), PubMed:[23258412](#), PubMed:[23707065](#), PubMed:[23722158](#), PubMed:[23747010](#), PubMed:[23910378](#), PubMed:[26229117](#), PubMed:[30842659](#), PubMed:[35388221](#), PubMed:[37379839](#)). Upon binding to c-di-GMP, cUAMP or cGAMP, STING1 oligomerizes, translocates from the endoplasmic reticulum and is phosphorylated by TBK1 on the pLxIS motif, leading to recruitment and subsequent activation of the transcription factor IRF3 to induce expression of type I interferon and exert a potent anti-viral state (PubMed:[22394562](#), PubMed:[25636800](#), PubMed:[29973723](#), PubMed:[30842653](#), PubMed:[35045565](#), PubMed:[35388221](#)). Exhibits 2',3' phosphodiester linkage-specific ligand recognition: can bind both 2'-3' linked cGAMP (2'-3'-cGAMP) and 3'-3' linked cGAMP but is preferentially activated by 2'-3' linked cGAMP (PubMed:[23747010](#), PubMed:[23910378](#), PubMed:[26300263](#)). The preference for 2'-3'-cGAMP, compared to other linkage isomers is probably due to the ligand itself, whichs adopts an organized free- ligand conformation that resembles the STING1-bound conformation and pays low energy costs in changing into the active conformation (PubMed:[26150511](#)). In addition to promote the production of type I interferons, plays a direct role in autophagy (PubMed:[30568238](#), PubMed:[30842662](#)). Following cGAMP-binding, STING1 buds from the endoplasmic reticulum into COPII vesicles, which then form the endoplasmic reticulum-Golgi intermediate compartment (ERGIC) (PubMed:[30842662](#)). The ERGIC serves as the membrane source for WIPI2 recruitment and LC3 lipidation, leading to formation of autophagosomes that target cytosolic DNA or DNA viruses for degradation by the lysosome (PubMed:[30842662](#)). Promotes autophagy by acting as a proton channel that directs proton efflux from the Golgi to facilitate MAP1LC3B/LC3B lipidation (PubMed:[37535724](#)). The autophagy- and interferon-inducing activities can be uncoupled and autophagy induction is independent of TBK1 phosphorylation (PubMed:[30568238](#), PubMed:[30842662](#)). Autophagy is also triggered upon infection by bacteria: following c-di-GMP-binding, which is produced by live Gram- positive bacteria, promotes reticulophagy (By similarity). May be involved in translocon function, the translocon possibly being able to influence the induction of type I interferons (PubMed:[18724357](#)). May be involved in transduction of apoptotic signals via its association with the major histocompatibility complex class II (MHC-II) (By similarity). Involved in intercellular immune signaling. Cross-activated by 2',3'- cGAMP previously generated in virus-infected cells, triggers type I interferon signaling in macrophages and uninfected neighboring cells to propagate and amplify the antiviral immune response.

Cellular Location

Endoplasmic reticulum membrane; Multi-pass membrane protein {ECO:0000255, ECO:0000269 | PubMed:[30842659](#), ECO:0000269 | PubMed:[32690950](#)}. Cytoplasm, perinuclear region. Endoplasmic reticulum-Golgi intermediate compartment membrane; Multi-pass membrane protein {ECO:0000255, ECO:0000269 | PubMed:[32690950](#)}. Golgi apparatus membrane; Multi-pass membrane protein. Cytoplasmic vesicle, autophagosome membrane; Multi-pass membrane protein. Mitochondrion outer membrane; Multi-pass membrane protein. Cell membrane {ECO:0000250 | UniProtKB:Q3TBT3}; Multi-pass membrane protein. Note=In response to double-stranded DNA stimulation, translocates from the endoplasmic reticulum through the endoplasmic reticulum-Golgi intermediate compartment and Golgi to post-Golgi vesicles, where the kinase TBK1 is recruited (PubMed:[19433799](#), PubMed:[29694889](#), PubMed:[30842653](#), PubMed:[30842659](#)). Upon cGAMP-binding, translocates to the endoplasmic reticulum-Golgi intermediate

compartment (ERGIC) in a process that is dependent on COPII vesicles; STING1-containing ERGIC serves as a membrane source for LC3 lipidation, which is a key step in autophagosome biogenesis (PubMed:30842662, PubMed:37832545). Localizes in the lysosome membrane in a TMEM203-dependent manner (By similarity). {ECO:0000250 | UniProtKB:Q3TBT3, ECO:0000269 | PubMed:19433799, ECO:0000269 | PubMed:29694889, ECO:0000269 | PubMed:30842653, ECO:0000269 | PubMed:30842659, ECO:0000269 | PubMed:30842662, ECO:0000269 | PubMed:32690950, ECO:0000269 | PubMed:37832545}

Tissue Location

Ubiquitously expressed (PubMed:18724357, PubMed:18818105). Expressed in skin endothelial cells, alveolar type 2 pneumocytes, bronchial epithelium and alveolar macrophages (PubMed:25029335).

Background

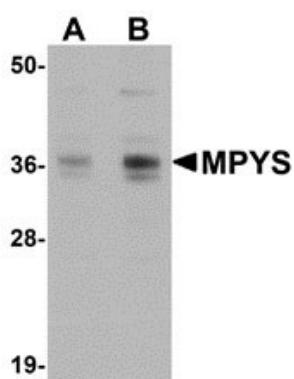
MPYS Antibody: MPYS is a recently identified plasma membrane tetraspanner that is associated with major histocompatibility complex class II (MHC-II) and mediates its transduction of apoptotic signals. It has also been found to be associated with VISA, a mitochondrial protein that acts as an adaptor in virus-triggered signaling. MPYS also interacts with IRF3 and recruits the kinase TBK1 to the VISA-associated complex, acting as a critical mediator of virus-triggered IRF3 activation and interferon (IFN) expression. It is thought that the binding of nucleic acid to the innate immune protein RIG-I causes complex formation between RIG-I, VISA, and MPYS. This complex then recruits TBK1 to phosphorylate IRF3 which then directly activates IFN transcription. At least three isoforms of MPYS are known to exist.

References

Jin L, Waterman PM, Jonscher KR, et al. MPYS, a novel membrane tetraspanner, is associated with major histocompatibility complex class II and mediates transduction of apoptotic signals. *Mol. Cell. Biol.* 2008; 28:5014-26.

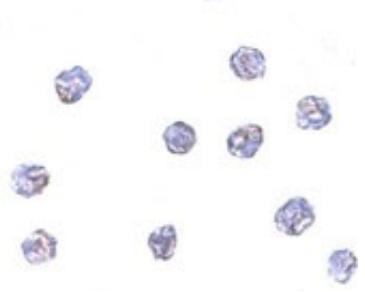
Zhong B, Yang Y, Li S, et al. The adaptor protein MITA links virus-sensing receptors to IRF3 transcription factor activation. *Immunity* 2008; 29:538-50.

Images

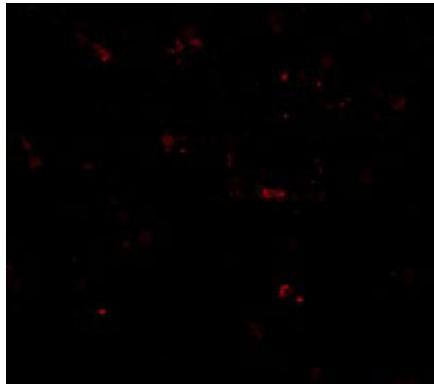


Western blot analysis of MPYS in A-20 cell lysate with MPYS antibody at (A) 1 and (B) 2 µg/mL.

Immunocytochemistry of MPYS in A-20 cells with MPYS antibody at 5 µg/mL.



Immunofluorescence of MPYS in A-20 cells with MPYS antibody at 20 ug/mL.



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