Recombinant Human STING/TMEM173 His-tag

Catalog Number: 11821-ST

DESCRIPTION

Source	*E. coli*-derived human STING/TMEM173 protein Leu139 - Ser379, with an N-terminal Met-His6 tag Accession # Q86WV6.1
N-terminal Sequence Analysis	Met-His
Predicted Molecular Mass	28 kDa

SPECIFICATIONS

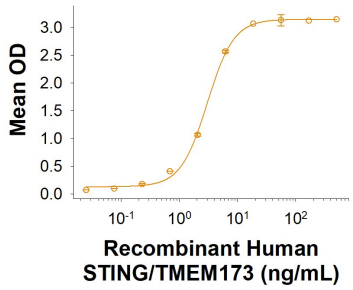
SDS-PAGE	28-35 kDa, under reducing conditions.
Activity	Measured by its binding ability in a functional ELISA. Recombinant Human STING/TMEM173 His-tag (Catalog # 11821-ST) binds Human STING/TMEM173 Antibody (Catalog # MAB7169) with an ED_{50} of <50.0 ng/mL.
Endotoxin Level	<0.10 EU per 1 µg of the protein by the LAL method.
Purity	>90%, by SDS-PAGE visualized with Silver Staining and quantitative densitometry by Coomassie® Blue Staining.
Formulation	Supplied as a 0.2 µm filtered solution in Tris, NaCl, DTT and Glycerol with Trehalose. See Certificate of Analysis for details.

PREPARATION AND STORAGE

Shipping	The product is shipped with dry ice or equivalent. Upon receipt, store it immediately at the temperature recommended below.
Stability & Storage	**Use a manual defrost freezer and avoid repeated freeze-thaw cycles.** • 6 months from date of receipt, -20 to -70 °C as supplied. • 3 months, -20 to -70 °C under sterile conditions after opening.

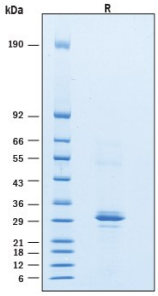
DATA

Binding Activity



Recombinant Human STING/TMEM173 His-tag Protein Binding Activity. Recombinant Human STING/TMEM173 His-tag Protein (Catalog # 11821-ST) binds Human STING/TMEM173 Antibody (Catalog # MAB7169) with an ED_{50} of <50.0 ng/mL.

SDS-Page



Recombinant Human STING/TMEM173 His-tag Protein SDS-PAGE. 2 µg/lane of Recombinant Human STING/TMEM173 His-tag Protein (Catalog # 11821-ST) was resolved with SDS-PAGE under reducing (R) condition and visualized by Coomassie® Blue staining, showing bands at 28-35 kDa.

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BACKGROUND

Stimulator of interferon genes (STING) is a critical innate immune adaptor protein that mediates cellular responses to cytosolic DNA and cyclic dinucleotide signaling, playing a central role in host defense, inflammation, and immune surveillance. STING is encoded by the TMEM173 gene and is primarily localized to the endoplasmic reticulum membrane, where it functions as a key signaling hub downstream of DNA sensors such as cyclic GMP–AMP synthase (cGAS) (1). Under basal conditions, STING remains in an inactive state; however, detection of cytosolic double-stranded DNA leads to production of cyclic GMP–AMP (cGAMP), which directly binds and activates STING (2). Human STING is a ~42 kDa transmembrane protein composed of four N-terminal transmembrane helices, a cytosolic ligand-binding domain, and a C-terminal tail required for downstream signaling (3). Upon ligand binding, STING undergoes conformational changes and translocates from the endoplasmic reticulum to the Golgi apparatus, where it recruits and activates TANK-binding kinase 1 (TBK1) and interferon regulatory factor 3 (IRF3) (2, 4). This results in robust induction of type I interferons and other inflammatory cytokines, establishing an antiviral state and promoting innate and adaptive immune responses (1, 3). In addition to its canonical role in antiviral immunity, STING has broader functions in cancer biology, autophagy, and cellular stress responses. STING signaling can promote antitumor immunity by enhancing dendritic cell activation and T cell priming, but chronic or dysregulated activation may contribute to inflammatory diseases and autoimmunity (4, 5). STING has also been implicated in noncanonical processes, including regulation of apoptosis, senescence, and metabolic pathways, highlighting its role as a multifunctional signaling regulator (3, 5). Genetic and pharmacological studies have demonstrated that altered STING activity is associated with a range of human diseases, including autoinflammatory disorders such as STING-associated vasculopathy with onset in infancy (SAVI), as well as cancer and infectious diseases (2, 6). Consequently, STING has emerged as a major therapeutic target, with agonists being developed for cancer immunotherapy and vaccine adjuvants, and antagonists for treatment of autoimmune and inflammatory conditions (6, 7). Recombinant human STING is therefore an essential research reagent for studies of innate immune signaling, protein–ligand interactions, cyclic dinucleotide recognition, inflammation biology, and therapeutic discovery targeting immune modulation and host defense pathways.

References:

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2. Chen, Q. *et al.* (2016) Nat. Immunol. **17**:1142.
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6. Liu, Y. *et al.* (2014) N. Engl. J. Med. **371**:507.
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