PRODUCT INFORMATION

STING R232 variant (human, recombinant)

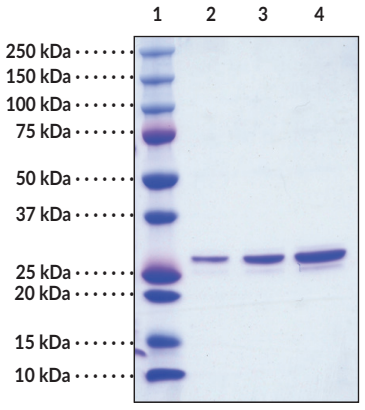
Item No. 22816

Overview and Properties

Synonyms:	Endoplasmic Reticulum Interferon Stimulator, ERIS, Mediator of IRG3 Activation, MITA, Mitochondrial Mediator of IRF3 Activation, MPYS, Stimulator of Interferon Genes, Stimulator of Interferon Response cGAMP Interactor 1, STING1, N-Terminal Methionine-Proline-Tyrpsine-Serine Plasma Membrane Tetraspanner, TMEM173, Transmembrane Protein 173
Source:	Recombinant N-terminal His-tagged STING catalytic domain purified from *E. coli*
Amino acids:	138-379 (N-terminal truncation)
Uniprot No.:	Q86WV6
Molecular Weight:	28.8 kDa
Storage:	-80°C (as supplied); avoid freeze/thaw cycles by storing protein in aliquots
Stability:	≥2 years
Purity:	***batch specific*** (≥80% estimated by SDS-PAGE)
Supplied in:	50 mM HEPES, pH 8.0, 150 mM sodium chloride, 10% glycerol
Protein Concentration:	***batch specific*** mg/ml
Activity:	Serial dilutions of canonical 3'3'-cGAMP were incubated with 5 µg recombinant human STING R232 variant in 50 mM HEPES, pH 7.5, 150 mM NaCl, 10% glycerol, and SYPRO® Orange dye at 4°C.[1] The reaction was read on a BioRad CFX96 Touch™ Real-Time PCR Detection System at 4-100°C.[2] The binding of the ligand stabilizes the protein structure, increasing the melting temperature (T_m), which is detected *via* a thermal shift assay (TSA), also known as a differential scanning fluorimetry (DSF) assay.[2]

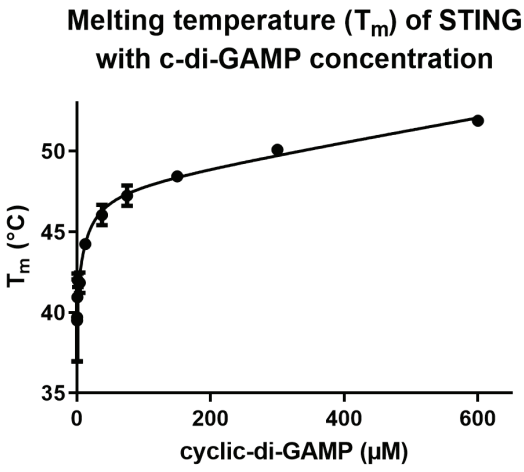
Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Images



Lane 1: MW Markers
Lane 2: STING R232 variant (1 µg)
Lane 3: STING R232 variant (2 µg)
Lane 4: STING R232 variant (4 µg)

Representative gel image shown; actual purity may vary between each batch.



Binding Activity of STING R232 variant (Item No. 22816). STING R232 variant (5 µg) was incubated with serial dilutions of 3'3'-cGAMP (Item No. 17966) and SYPRO® Orange dye. The detected increase in T_m indicates binding.

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Description

Stimulator of interferon genes (STING) is a component of the innate immune response that binds to cyclic dinucleotides, which are bacterial second messengers, leading to activation of NF-κB and transcription of immunomodulatory genes, including type I interferon (IFN).[3-6] The R232 variant is the most common variant in the human population, found at a frequency of 57.9% in the 1000 Genome Project.[7] The SNP variant H232 (Item No. 22815) is found at a 13.7% frequency. Various mutations in STING either reduce or increase its activity. Gain-of-function mutations in STING, including R284M (Item No. 23594) and V155M, lead to constitutive activation and enhancement of the type I IFN response.[7,8] The V155M mutation is associated with a systemic inflammatory condition, including pulmonary fibrosis and autoimmune factors.[8] Mutations that reduce STING activity include K224R (Item No. 23593), which reduces ubiquitination of STING thereby disrupting its localization within the cell, and the double mutation G230A, R293Q (Item No. 23592), which reduces the IFN response.[7,9] A T596A mutation present in the mouse strain Goldenticket leads to a complete loss of STING protein and lack of a type I IFN response to infection by *Listeria*.[10]

References

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7. Yi, G., Brendel, V.P., Shu, C., *et al*. Single nucleotide polymorphisms of human STING can affect innate immune response to cyclic dinucleotides. *PLoS One* **8(10):e77846** (2013).
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9. Ni, G., Konno, H. and Barber, G.N. Ubiquitination of STING at lysine 224 controls IRF3 activation. *Sci. Immunol.* **2(11):eaah7119** (2017).
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