Recombinant Mouse Cyclic GMP-AMP synthase /Cgas Protein

Catalog No.: RP03557LQ

Sequence Information

Species	Gene ID
Mouse	214763
Swiss Prot	**Tags**
Q8C6L5	TEV

Synonyms

Cgas, Mb21d1,Cyclic GMP-AMP synthase, cGAMP synthase, cGAS, m-cGAS

Product Information

Source	Purification
E. coli	≥ 95 % as determined by SDS-PAGE
Calculated MW	**Observed MW**
43.2 KDa	35-50 kDa

Endotoxin

< 1 EU/μg of the protein by LAL method.

Formulation

0.22 μm filtered solution of 10 mM HEPES(pH 7.5), 50 mM NaCl, 10% glycerol, 1 mM TCEP.

Reconstitution

Please use rapid thawing with running water to thaw the protein samples.For complete recovery, mix well and spin before use. Product must not be stored in diluted solutions. Aliquots below 10μL are not advisable.

Background

Nucleotidyltransferase that catalyzes the formation of cyclic GMP-AMP (cGAMP) from ATP and GTP and plays a key role in innate immunity. Catalysis involves both the formation of a 2',5' phosphodiester linkage at the GpA step and the formation of a 3',5' phosphodiester linkage at the ApG step, producing c[G(2',5')pA(3',5')p]. Acts as a key cytosolic DNA sensor, the presence of double-stranded DNA (dsDNA) in the cytoplasm being a danger signal that triggers the immune responses. Binds cytosolic DNA directly, leading to activation and synthesis of cGAMP, a second messenger that binds to and activates TMEM173/STING, thereby triggering type-I interferon production. Preferentially binds long dsDNA (around 45 bp) and forms ladder-like networks that function cooperatively to stabilize individual cGAS-dsDNA complexes. Has antiviral activity by sensing the presence of dsDNA from DNA viruses in the cytoplasm. Also acts as an innate immune sensor of infection by retroviruses by detecting the presence of reverse-transcribed DNA in the cytosol. Detection of retroviral reverse-transcribed DNA in the cytosol may be indirect and be mediated via interaction with PQBP1, which directly binds reverse-transcribed retroviral DNA. Also detects the presence of DNA from bacteria. cGAMP can be transferred from producing cells to neighboring cells through gap junctions, leading to promote TMEM173/STING activation and convey immune response to connecting cells. cGAMP can also be transferred between cells by virtue of packaging within viral particles contributing to IFN-induction in newly infected cells in a cGAS-independent but TMEM173 /STING-dependent manner. In addition to antiviral activity, also involved in the response to cellular stresses, such as senescence, DNA damage or genome instability. Acts as a regulator of cellular senescence by binding to cytosolic chromatin fragments that are present in senescent cells, leading to trigger type-I interferon production via TMEM173/STING and promote cellular senescence. Also involved in the inflammatory response to genome instability and double-stranded DNA breaks: acts by localizing to micronuclei arising from genome instability. Micronuclei, which as frequently found in cancer cells, consist of chromatin surrounded by its own nuclear membrane: following breakdown of the micronuclear envelope, a process associated with chromothripsis, CGAS binds self-DNA exposed to the cytosol, leading to cGAMP synthesis and subsequent activation of TMEM173/STING and type-I interferon production. Acts as a suppressor of DNA repair in response to DNA damage: translocates to the nucleus following dephosphorylation at Tyr-201 and inhibits homologous recombination repair by interacting with PARP1, the CGAS-PARP1 interaction leading to impede the formation of the PARP1-TIMELESS complex.

Basic Information

Description

Recombinant Mouse Cyclic GMP-AMP synthase/Cgas Protein is produced by E. coli Cells expression system. The target protein is expressed with sequence (Pro147-Leu507) of Mouse Cyclic GMP-AMP synthase/Cgas (Accession #NP_775562.2) fused with TEV tag.

Activity

Contact

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Please visit http://abclonal.com for a complete listing of recommended products.

Shipping

Lyophilized proteins are shipped at ambient temperature.
Liquid proteins are shipped at frozen temperature with dry ice.
Upon receipt, store it immediately at the temperature recommended below.

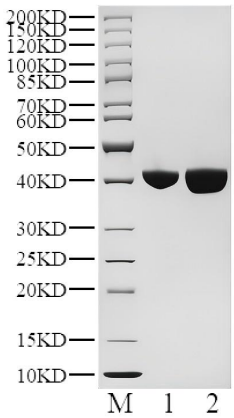
Storage

Store at -70℃

Operational Notes

For your safety and health, please wear a lab coat and disposable gloves for handling.

Validation Data



Recombinant Mouse Cyclic GMP-AMP synthase/Cgas Protein was determined by SDS-PAGE under reducing conditions with Coomassie Blue.

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