Datasheet for ABIN7553246

# C6orf150 Protein (AA 1-522) (His tag)

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## Overview

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| Quantity: | 1 mg |
| Target: | C6orf150 |
| Protein Characteristics: | AA 1-522 |
| Origin: | Human |
| Source: | HEK-293 Cells |
| Protein Type: | Recombinant |
| Purification tag / Conjugate: | This C6orf150 protein is labelled with His tag. |

## Product Details

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| Purpose: | Custom-made recombinant CGAS Protein expressed in mammalian cells. |
| Sequence: | MQPWHGKAMQ RASEAGATAP KASARNARGA PMDPTESPAA PEAALPKAGK FGPARKSGSR QKKSAPDTQE RPPVRATGAR AKKAPQRAQD TQPSDATSAP GAEGLEPPAA REPALSRAGS CRQRGARCST KPRPPPGPWD VPSPGLPVSA PILVRRDAAP GASKLRAVLE KLKLSRDDIS TAAGMVKGVV DHLLLRLKCD SAFRGVGLLN TGSYYEHVKI SAPNEFDVMF KLEVPRIQLE EYSNTRAYYF VKFKRNPKEN PLSQFLEGEI LSASKMLSKF RKIIKEEIND IKDTDVIMKR KRGGSPAVTL LISEKISVDI TLALESKSSW PASTQEGLRI QNWLSAKVRK QLRLKPFYLV PKHAKEGNGF QEETWRLSFS HIEKEILNNH GKSKTCCENK EEKCCRKDCL KLMKYLLEQL KERFKDKKHL DKFSSYHVKT AFFHVCTQNP QDSQWDRKDL GLCFDNCVTY FLQCLRTEKL ENYFIPEFNL FSSNLIDKRS KEFLTKQIEY ERNNEFPVFD EF **Sequence without tag. The proposed Purification-Tag is based on experiences with the expression system, a different complexity of the protein could make another tag necessary. In case you have a special request, please contact us.** |

## Product Details

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| Specificity: | If you are looking for a specific domain and are interested in a partial protein or a different isoform, please contact us regarding an individual offer. |
| Characteristics: | Key Benefits:<br>• Made to order protein - from design to production - by highly experienced protein experts.<br>• Protein expressed in mammalian cells and purified in one-step affinity chromatography<br>• The optimized expression system ensures reliability for intracellular, secreted and transmembrane proteins.<br>• State-of-the-art algorithm used for plasmid design (Gene synthesis).<br><br>This protein is a made-to-order protein and will be made for the first time for your order. Our experts in the lab try to ensure that you receive soluble protein.<br><br>If you are not interested in a full length protein, please contact us for individual protein fragments.<br><br>The big advantage of ordering our made-to-order proteins in comparison to ordering custom made proteins from other companies is that there is no financial obligation in case the protein cannot be expressed or purified. |
| Purity: | > 90 % as determined by Bis-Tris PAGE, anti-tag ELISA, Western Blot and analytical SEC (HPLC) |
| Grade: | custom-made |

## Target Details

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| Target: | C6orf150 |
| Alternative Name: | CGAS (C6orf150 Products) |
| Background: | Cyclic GMP-AMP synthase (cGAMP synthase) (cGAS) (h-cGAS) (EC 2.7.7.86) (2'3'-cGAMP synthase) (Mab-21 domain-containing protein 1),FUNCTION: Nucleotidyltransferase that catalyzes the formation of cyclic GMP-AMP (2',3'-cGAMP) from ATP and GTP and plays a key role in innate immunity (PubMed:23258413, PubMed:24077100, PubMed:25131990, PubMed:23707061, PubMed:23722159, PubMed:29976794, PubMed:30799039, PubMed:21478870, PubMed:23707065, PubMed:24116191, PubMed:24462292, PubMed:32814054, PubMed:33273464, PubMed:26300263, PubMed:33542149, PubMed:31142647, PubMed:37217469, PubMed:37802025). 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] (PubMed:28214358, PubMed:28363908). Acts as a key DNA sensor: directly binds double-stranded DNA (dsDNA), |

inducing the formation of liquid-like droplets in which CGAS is activated, leading to synthesis of 2',3'-cGAMP, a second messenger that binds to and activates STING1, thereby triggering type-I interferon production (PubMed:28314590, PubMed:28363908, PubMed:29976794, PubMed:33230297, PubMed:32817552, PubMed:33606975, PubMed:35438208, PubMed:35460603, PubMed:35322803, PubMed:35503863). Preferentially recognizes and binds curved long dsDNAs of a minimal length of 40 bp (PubMed:30007416). Acts as a key foreign DNA sensor, the presence of double-stranded DNA (dsDNA) in the cytoplasm being a danger signal that triggers the immune responses (PubMed:28363908). Has antiviral activity by sensing the presence of dsDNA from DNA viruses in the cytoplasm (PubMed:28363908). Also acts as an innate immune sensor of infection by retroviruses, such as HIV-2, by detecting the presence of reverse-transcribed DNA in the cytosol (PubMed:23929945, PubMed:24269171, PubMed:30270045, PubMed:32852081). In contrast, HIV-1 is poorly sensed by CGAS, due to its capsid that cloaks viral DNA from CGAS detection (PubMed:24269171, PubMed:30270045, PubMed:32852081). 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 (PubMed:26046437). Also detects the presence of DNA from bacteria, such as M.tuberculosis (PubMed:26048138). 2',3'-cGAMP can be transferred from producing cells to neighboring cells through gap junctions, leading to promote STING1 activation and convey immune response to connecting cells (PubMed:24077100). 2',3'-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 STING1-dependent manner (PubMed:26229115). Also senses the presence of neutrophil extracellular traps (NETs) that are translocated to the cytosol following phagocytosis, leading to synthesis of 2',3'-cGAMP (PubMed:33688080). In addition to foreign DNA, can also be activated by endogenous nuclear or mitochondrial DNA (PubMed:31299200, PubMed:28738408, PubMed:28759889, PubMed:33230297, PubMed:33031745). When self-DNA leaks into the cytosol during cellular stress (such as mitochondrial stress, SARS-CoV-2 infection causing severe COVID-19 disease, DNA damage, mitotic arrest or senescence), or is present in form of cytosolic micronuclei, CGAS is activated leading to a state of sterile inflammation (PubMed:31299200, PubMed:28738408, PubMed:28759889, PubMed:33230297, PubMed:33031745, PubMed:35045565). 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 STING1 and promote cellular senescence (By similarity). Also involved in the inflammatory response to genome instability and double-stranded DNA breaks: acts by localizing to micronuclei arising from genome instability (PubMed:28738408, PubMed:28759889). Micronuclei, which are frequently found in cancer cells, consist of chromatin surrounded by their own nuclear membrane: following

breakdown of the micronuclear envelope, a process associated with chromothripsis, CGAS binds self-DNA exposed to the cytosol, leading to 2',3'-cGAMP synthesis and subsequent activation of STING1 and type-I interferon production (PubMed:28738408, PubMed:28759889). Activated in response to prolonged mitotic arrest, promoting mitotic cell death (PubMed:31299200). In a healthy cell, CGAS is however kept inactive even in cellular events that directly expose it to self-DNA, such as mitosis, when cGAS associates with chromatin directly after nuclear envelope breakdown or remains in the form of postmitotic persistent nuclear cGAS pools bound to chromatin (PubMed:31299200, PubMed:33542149). Nuclear CGAS is inactivated by chromatin via direct interaction with nucleosomes, which block CGAS from DNA binding and thus prevent CGAS-induced autoimmunity (PubMed:31299200, PubMed:33542149, PubMed:33051594, PubMed:32911482, PubMed:32912999). Also acts as a suppressor of DNA repair in response to DNA damage: inhibits homologous recombination repair by interacting with PARP1, the CGAS-PARP1 interaction leading to impede the formation of the PARP1-TIMELESS complex (PubMed:30356214, PubMed:31544964). In addition to DNA, also sense translation stress: in response to translation stress, translocates to the cytosol and associates with collided ribosomes, promoting its activation and triggering type-I interferon production (PubMed:34111399). In contrast to other mammals, human CGAS displays species-specific mechanisms of DNA recognition and produces less 2',3'-cGAMP, allowing a more fine-tuned response to pathogens (PubMed:30007416). {ECO:0000250|UniProtKB:Q8C6L5, ECO:0000269|PubMed:21478870, ECO:0000269|PubMed:23258413, ECO:0000269|PubMed:23707061, ECO:0000269|PubMed:23707065, ECO:0000269|PubMed:23722159, ECO:0000269|PubMed:23929945, ECO:0000269|PubMed:24077100, ECO:0000269|PubMed:24116191, ECO:0000269|PubMed:24269171, ECO:0000269|PubMed:24462292, ECO:0000269|PubMed:25131990, ECO:0000269|PubMed:26046437, ECO:0000269|PubMed:26048138, ECO:0000269|PubMed:26229115, ECO:0000269|PubMed:26300263, ECO:0000269|PubMed:28214358, ECO:0000269|PubMed:28314590, ECO:0000269|PubMed:28363908, ECO:0000269|PubMed:28738408, ECO:0000269|PubMed:28759889, ECO:0000269|PubMed:29976794, ECO:0000269|PubMed:30007416, ECO:0000269|PubMed:30270045, ECO:0000269|PubMed:30356214, ECO:0000269|PubMed:30799039, ECO:0000269|PubMed:31142647, ECO:0000269|PubMed:31299200, ECO:0000269|PubMed:31544964, ECO:0000269|PubMed:32814054, ECO:0000269|PubMed:32817552, ECO:0000269|PubMed:32852081, ECO:0000269|PubMed:32911482, ECO:0000269|PubMed:32912999, ECO:0000269|PubMed:33031745,

 

## Target Details

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| | ECO:0000269\|PubMed:33051594, ECO:0000269\|PubMed:33230297, ECO:0000269\|PubMed:33273464, ECO:0000269\|PubMed:33542149, ECO:0000269\|PubMed:33606975, ECO:0000269\|PubMed:33688080, ECO:0000269\|PubMed:34111399, ECO:0000269\|PubMed:35045565, ECO:0000269\|PubMed:35322803, ECO:0000269\|PubMed:35438208, ECO:0000269\|PubMed:35460603, ECO:0000269\|PubMed:35503863, ECO:0000269\|PubMed:37217469, ECO:0000269\|PubMed:37802025}. |
| Molecular Weight: | 58.8 kDa |
| UniProt: | Q8N884 |
| Pathways: | Activation of Innate immune Response |

## Application Details

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| Application Notes: | We expect the protein to work for functional studies. As the protein has not been tested for functional studies yet we cannot offer a guarantee though. |
| Restrictions: | For Research Use only |

## Handling

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| Format: | Liquid |
| Buffer: | The buffer composition is at the discretion of the manufacturer. |
| Handling Advice: | Avoid repeated freeze-thaw cycles. |
| Storage: | -80 °C |
| Storage Comment: | Store at -80°C. |
| Expiry Date: | 12 months |