

Product datasheet for **RC212386**

C6orf150 (MB21D1) (NM_138441) Human Tagged ORF Clone

Product data:

Product Type:	Expression Plasmids
Product Name:	C6orf150 (MB21D1) (NM_138441) Human Tagged ORF Clone
Tag:	Myc-DDK
Symbol:	C6orf150
Synonyms:	C6orf150; h-cGAS; MB21D1
Mammalian Cell Selection:	Neomycin
Vector:	pCMV6-Entry (PS100001)
E. coli Selection:	Kanamycin (25 ug/mL)



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ORF Nucleotide Sequence:

>RC212386 ORF sequence
 Red=Cloning site Blue=ORF Green=Tags(s)

TTTTGTAATACGACTCACTATAGGGCGGCCGGGAATTCGTCGACTGGATCCGGTACCGAGGAGATCTGCC
 GCC**GCGATCGCC**

ATGCAGCCTTGGCACGGAAGGCCATGCAGAGAGCTTCGAGGCCGAGCCACTGCCCCCAAGGCTCCG
 CACGGAATGCCAGGGGCGCCCGATGGATCCCAACGAGTCTCCGGCTGCCCCGAGGCCGCGCCTGCCTAA
 GGCGGAAAGTTCGGCCCGCCAGGAAGTCGGGATCCCGCAGAAAAAGAGCGCCCGGACACCCAGGAG
 AGGCCGCCCTCCGCGCAACTGGGGCCCGCCAAAAAGGCCCTCAGCGCGCCAGGACACGCAGCCGT
 CTGACGCCACCAGCGCCCTGGGCGAGGGGCTGGAGCCTCCTGCGGCTCGGGAGCCGGCTCTTTCCAG
 GGCTGGTCTTGGCCGAGAGGGGCGCGCTGCTCCACGAAGCCAAGACCCCGCCCGGCCCTGGGAC
 GTGCCAGCCCGGCTGCCGTCTCGGCCCATTCGTCACGAGGGATGCGGCGCTGGGCGCTCGA
 AGCTCCGGGCGGTTTTGGAGAAGTTGAAGCTCAGCCGCGATGATATCTCCAGCGCGGGGATGGTGAA
 AGGGTTGTGGACCACCTGCTGCTCAGACTGAAGTGCAGTCCGGTTCAGAGGCGTCGGCTGCTGAAC
 ACCGGGAGCTACTATGAGCACGTGAAGATTTCTGCACCTAATGAATTTGATGTCATGTTAAACTGGAAG
 TCCCCAGAATCAACTAGAAGAATATCCAACACTCGTGCAATTAATTTGTGAAATTTAAAGAATCC
 GAAAGAAATCATCTGAGTCAGTTTTAGAAAGTGAATATTATCAGCTTCTAAGATGCTGTCAAAGTTT
 AGGAAATCATTAAAGGAAGAAATTAACGACATTAAGATACAGATGTCATCATGAAGAGGAAAGAGGAG
 GGAGCCCTGCTGTAACTTCTTATTAGTGAATAATCTGTGGATATAACCCTGGCTTTGGAATCAAA
 AAGTAGCTGGCCTGCTAGCACCAAGAAGGCTGCGCATCAAACTGGCTTTAGCAAAAGTTAGGAAG
 CAACTACGACTAAAGCCATTTACCTTGTACCCAAGCATGCAAAGGAAGGAAATGGTTTCCAAGAAGAAA
 CATGGCGCTATCCTTCTCACATCGAAAAGGAAATTTGAACAATCATGGAAATCTAAAACGTGCTG
 TGAACAAGAAAGAGAATGTTGAGGAAAGATTGTTTAAACTAATGAATACCTTTTAGAACAGCTG
 AAAGAAAGTTTTAAAGACAAAAACATCTGGATAAATTCTTCTTATCATGTGAAAACCTGCTTCTTTC
 ACGTATGTACCCAGAACCCTCAAGACAGTCAGTGGGACCGCAAAGACCTGGGCTCTGCTTTGATAACTG
 CGTGACATACTTTCTCAGTGCCTCAGGACAGAAAACTTGAGAATTTTTATTCTGAATTAATCTA
 TTCTCTAGCACTAATTGACAAAAGAAGTAAAGAATTTCTGACAAAGCAATTTGAATATGAAAGAAACA
 ATGAGTTTCCAGTTTTTGTGAATTT

ACGCGTACGCGGCCGCTCGAGCAGAAACTCATCTCAGAAGAGGATCTGGCAGCAAATGATATCTGGATT
 ACAAGGATGACGACGATAAGGTTTAA

Protein Sequence:

>RC212386 protein sequence
 Red=Cloning site Green=Tags(s)

MQPWHGKAMQRASEAGATAPKASARNARGAPMDPNESPAAPEAALPKAGKFGPARKSGSRQKKSAPDTQE
 RPPVVRATGARAKKAPQRAQDTQPSDATSAPGAEGLEPPAAREPALSRAGSCRQRGARCSTKPRPPGPWD
 VPSGPLPVSAPILVRRDAAPGASKLRVLEKLLSRDDISTAAGMVKGVDHLLLRKDCSAFRGVGLLN
 TGSYYEHVKISAPNEFDVMFKLEVPRIQLEEYSNTRAYYFVKFKRNPKENHLSQFLEGEILSASKMLSKF
 RKIIEKEEINDIKDQDVMKRRGGSPAVTLLISEKISVDITLALLESKSSWPASTQEGLRIQNWLSAKVRK
 QLRLKPFYLVPHAKEGNGFQEETWRLSFSHIEKEILNNHGKSKTCCENKEEKCCRKDCLKMKYLLEQL
 KERFKDKKHLDFSSYHVKTAFHVCTQNPQDSQWDRKDLGLCFDNCVYFLQCLRTEKLENYFIPEFNL
 FSSNLIDKRSKEFLTKQIEYERNNEFPVDFEF

TRTRPLEQKLISEEDLAANDILDYKDDDDKV

Chromatograms:

https://cdn.origene.com/chromatograms/mk6462_c06.zip

Restriction Sites:

Sgfl-Mlul

Cloning Scheme:


ACCN: NM_138441

ORF Size: 1566 bp

OTI Disclaimer: The molecular sequence of this clone aligns with the gene accession number as a point of reference only. However, individual transcript sequences of the same gene can differ through naturally occurring variations (e.g. polymorphisms), each with its own valid existence. This clone is substantially in agreement with the reference, but a complete review of all prevailing variants is recommended prior to use. [More info](#)

OTI Annotation: This clone was engineered to express the complete ORF with an expression tag. Expression varies depending on the nature of the gene.

Components: The ORF clone is ion-exchange column purified and shipped in a 2D barcoded Matrix tube containing 10ug of transfection-ready, dried plasmid DNA (reconstitute with 100 ul of water).

Reconstitution Method:

1. Centrifuge at 5,000xg for 5min.
2. Carefully open the tube and add 100ul of sterile water to dissolve the DNA.
3. Close the tube and incubate for 10 minutes at room temperature.
4. Briefly vortex the tube and then do a quick spin (less than 5000xg) to concentrate the liquid at the bottom.
5. Store the suspended plasmid at -20°C. The DNA is stable for at least one year from date of shipping when stored at -20°C.

Note: Plasmids are not sterile. For experiments where strict sterility is required, filtration with 0.22um filter is required.

RefSeq: [NM_138441.3](#)

RefSeq Size: 1802 bp

RefSeq ORF: 1569 bp

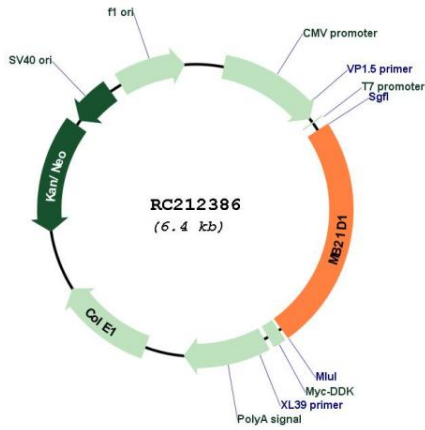
Locus ID: 115004

UniProt ID: Q8N884
Cytogenetics: 6q13
MW: 58.9 kDa

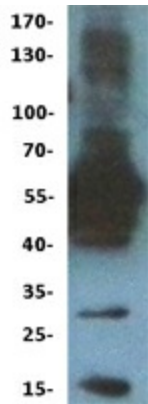
Gene Summary:

Nucleotidyltransferase that catalyzes the formation of cyclic GMP-AMP (cGAMP) from ATP and GTP and plays a key role in innate immunity (PubMed:23258413, PubMed:23707061, PubMed:23722159, PubMed:24077100, PubMed:25131990, PubMed:29976794, PubMed:30799039). 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:28363908, PubMed:28214358). 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 (PubMed:28363908). 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 (PubMed:28363908, PubMed:28314590). Preferentially recognizes and binds curved long DNAs (PubMed:30007416). In contrast to other mammals, human CGAS displays species-specific mechanisms of DNA recognition and produces less cyclic GMP-AMP (cGAMP), allowing a more fine-tuned response to pathogens (PubMed:30007416). 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-1, by detecting the presence of reverse-transcribed DNA in the cytosol (PubMed:23929945). 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). 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 (PubMed:24077100). 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 (PubMed:26229115). In addition to antiviral activity, also involved in the response to cellular stresses, such as senescence, DNA damage or genome instability (PubMed:28738408, PubMed:28759889). 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 (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 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 (PubMed:28738408, PubMed:28759889). Acts as a suppressor of DNA repair in response to DNA damage: translocates to the nucleus following dephosphorylation at Tyr-215 and inhibits homologous recombination repair by interacting with PARP1, the CGAS-PARP1 interaction leading to impede the formation of the PARP1-TIMELESS complex (PubMed:30356214).[UniProtKB/Swiss-Prot Function]

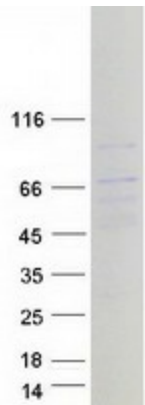
Product images:



Circular map for RC212386



Western blot validation of overexpression lysate (Cat# [LY408695]) using anti-DDK antibody (Cat# [TA50011-100]). Left: Cell lysates from untransfected HEK293T cells; Right: Cell lysates from HEK293T cells transfected with RC212386 using transfection reagent MegaTran 2.0 (Cat# [TT210002]).



Coomassie blue staining of purified CGAS protein (Cat# [TP312386]). The protein was produced from HEK293T cells transfected with CGAS cDNA clone (Cat# RC212386) using MegaTran 2.0 (Cat# [TT210002]).