

Product datasheet for RC220503

JAK2 (NM_004972) Human Tagged ORF Clone

Product data:

Product Type:	Expression Plasmids
Product Name:	JAK2 (NM_004972) Human Tagged ORF Clone
Tag:	Myc-DDK
Symbol:	JAK2
Synonyms:	JTK10
Mammalian Cell Selection:	Neomycin
Vector:	pCMV6-Entry (PS100001)
E. coli Selection:	Kanamycin (25 ug/mL)
ORF Nucleotide Sequence:	>RC220503 representing NM_004972 Red=Cloning site Blue=ORF Green=Tags(s)

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GCC**CGATCGCC**

ATGGGAATGGCCTGCCTTACGATGACAGAAATGGAGGGAACATCCACCTCTTCTATATATCAGAATGGTG
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ATAATTTTCCAGTTTACTAAATGCTGTCCCCAAAGCCAAAAGATAAATCAAACCTTCTAGTCTTCAGAA
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ACGCGTACGCGGCCGCTCGAGCAGAACTCATCTCAGAAGAGGATCTGGCAGCAAATGATATCTGGATT
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Protein Sequence: >RC220503 representing NM_004972
 Red=Cloning site Green=Tags(s)

MGMACLTMEMEGTSTSSIIYQNGDISGNANSMKQIDPVLQVYL YHSLGKSEADYLTFPSGEYVAEEICIA
 ASKACGITPVYHNMFALMSETERIWYPPNHV FHIDESTRHNVLYRIRFYFPRWYCSGSNRAYRHGISRGA
 EAPLLDDFVMSYLF AQWRHDFVHGWI KVPVTHE TQEELGMAVLDMMRI AKENDQTPLAIYNSISYKTF L
 PKCIRAKIQDYHILTRKRIRYRFRRF IQQFSQCKATARNLKLKYLINLETLQSAFYTEKFEVKEPGSGPS
 GEEIFATIIITGGGIQWSRGKHKESETL TEQDLQLYCDFPNIIDVSIKQANQEGSNESRVVTIHKQDGK
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 IIFQFTKCCPPKPKDKSNLLVFR TNGVSDVPT SPTLQRP THMNQMV FHKIRNEDLIFNESLGGQTF TKIF
 KGVRRVGDYQGLHETEVL LKVLDKAHRNYS EFFEASMSKLSHKHLVLNYGVCVCGDENILVQEFVK
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 LRVDQIRDNMAG

TRTRPLEQKLISEEDLAANDILDYKDDDDKV

Chromatograms: https://cdn.origene.com/chromatograms/mg2866_g06.zip

Restriction Sites: SgfI-MluI

Cloning Scheme:



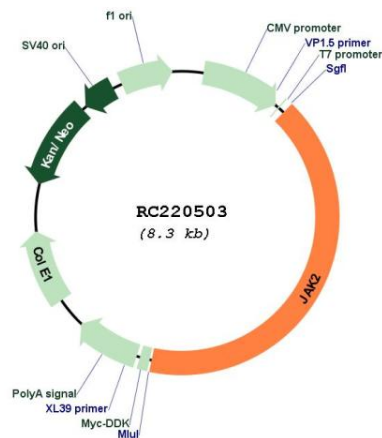
ACCN: NM_004972

ORF Size: 3396 bp

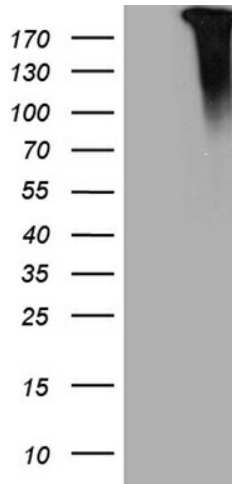
OTI Disclaimer:	Due to the inherent nature of this plasmid, standard methods to replicate additional amounts of DNA in E. coli are highly likely to result in mutations and/or rearrangements. Therefore, OriGene does not guarantee the capability to replicate this plasmid DNA. Additional amounts of DNA can be purchased from OriGene with batch-specific, full-sequence verification at a reduced cost. Please contact our customer care team at custsupport@origene.com or by calling 301.340.3188 option 3 for pricing and delivery.
	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:	<ol style="list-style-type: none"> 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_004972.4
RefSeq Size:	5097 bp
RefSeq ORF:	3399 bp
Locus ID:	3717
UniProt ID:	O60674
Cytogenetics:	9p24.1
Domains:	B41, pkinase, SH2, TyrKc, S_TKc
Protein Families:	Druggable Genome, Protein Kinase
Protein Pathways:	Adipocytokine signaling pathway, Chemokine signaling pathway, Jak-STAT signaling pathway
MW:	130.5 kDa

Gene Summary:

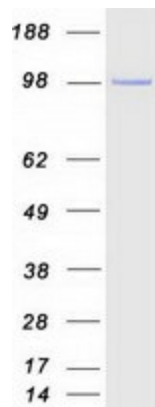
This gene encodes a non-receptor tyrosine kinase that plays a central role in cytokine and growth factor signalling. The primary isoform of this protein has an N-terminal FERM domain that is required for erythropoietin receptor association, an SH2 domain that binds STAT transcription factors, a pseudokinase domain and a C-terminal tyrosine kinase domain. Cytokine binding induces autophosphorylation and activation of this kinase. This kinase then recruits and phosphorylates signal transducer and activator of transcription (STAT) proteins. Growth factors like TGF-beta 1 also induce phosphorylation and activation of this kinase and translocation of downstream STAT proteins to the nucleus where they influence gene transcription. Mutations in this gene are associated with numerous inflammatory diseases and malignancies. This gene is a downstream target of the pleiotropic cytokine IL6 that is produced by B cells, T cells, dendritic cells and macrophages to produce an immune response or inflammation. Disregulation of the IL6/JAK2/STAT3 signalling pathway produces increased cellular proliferation and myeloproliferative neoplasms of hematopoietic stem cells. A nonsynonymous mutation in the pseudokinase domain of this gene disrupts the domains inhibitory effect and results in constitutive tyrosine phosphorylation activity and hypersensitivity to cytokine signalling. This gene and the IL6/JAK2/STAT3 signalling pathway is a therapeutic target for the treatment of excessive inflammatory responses to viral infections. Alternative splicing results in multiple transcript variants encoding distinct isoforms. [provided by RefSeq, Jul 2020]

Product images:

Circular map for RC220503



HEK293T cells were transfected with the pCMV6-ENTRY control (Cat# [PS100001], Left lane) or pCMV6-ENTRY JAK2 (Cat# RC220503, Right lane) cDNA for 48 hrs and lysed. Equivalent amounts of cell lysates (5 ug per lane) were separated by SDS-PAGE and immunoblotted with anti-JAK2 (Cat# [TA806795])(1:500).



Coomassie blue staining of purified JAK2 protein (Cat# [TP320503]). The protein was produced from HEK293T cells transfected with JAK2 cDNA clone (Cat# RC220503) using MegaTran 2.0 (Cat# [TT210002]).