

Product datasheet for **RG220503**

JAK2 (NM_004972) Human Tagged ORF Clone

Product data:

Product Type:	Expression Plasmids
Product Name:	JAK2 (NM_004972) Human Tagged ORF Clone
Tag:	TurboGFP
Symbol:	JAK2
Synonyms:	JTK10
Mammalian Cell Selection:	Neomycin
Vector:	pCMV6-AC-GFP (PS100010)
E. coli Selection:	Ampicillin (100 ug/mL)
ORF Nucleotide Sequence:	>RG220503 representing NM_004972 Red=Cloning site Blue=ORF Green=Tags(s)

TTTTGTAATACGACTCACTATAGGGCGGCCGGAATTCGTCGACTGGATCCGGTACCGAGGAGATCTGCC
GCC**CGATCGCC**

ATGGGAATGGCCTGCCTTACGATGACAGAAATGGAGGGAACATCCACCTCTTCTATATATCAGAATGGTG
ATATTTCTGGAATGCCAATTCTATGAAGCAAATAGATCCAGTTCTTCAGGTGTATCTTTACCATTCCCT
TGGGAAATCTGAGGCAGATTATCTGACCTTTCCATCTGGGGAGTATGTTGCAGAAGAAATCTGTATTGCT
GCTTCTAAAGCTTGTGGTATCACACCTGTGTATCATAATATGTTTCTTAAATGAGTGAACAGAAAGGA
TCTGGTATCCACCAACCATGTCTTCCATATAGATGAGTCAACCAGGCATAATGTACTCTACAGAATAAG
ATTTTACTTTCTCGTTGGTATTGCAAGTGGCAGCAACAGAGCCTATCGGCATGGAATATCTCGAGGTGCT
GAAGCTCCTCTTCTTGATGACTTTGTCTGCTTACCTCTTTGCTCAGTGGCGGCATGATTTTGTGCACG
GATGGATAAAAAGTACCTGTGACTCATGAAACACAGGAAGAATGTCTTGGGATGGCAGTGTAGATATGAT
GAGAATAGCCAAAGAAAACGATCAAACCCACTGGCCATCTATAACTCTATCAGCTACAAGACATTTCTTA
CCAAAATGTATTCGAGCAAAGATCCAAGACTATCATATTTTGACAAGGAAGCGAATAAGGTACAGATTTT
GCAGATTTATTCAGCAATTCAGCCAATGCAAAGCCACTGCCAGAACTTGAACTTAAGTATCTTATAAA
TCTGAAAACCTGTCAGTCTGCCTTCTACACAGAGAAATTTGAAGTAAAAGAACCTGGAAGTGGTCCCTCA
GGTGGAGAGATTTTGAACCAATATAAATAACTGGAAACGGTGGAAATTCAGTGGTCAAGAGGGAACATA
AAGAAAGTGAGACACTGACAGAACAGGATTTACAGTTATATTGCGATTTTCTAATATTATTGATGTCAG
TATTAAGCAAGCAAACCAAGAGGTTCAAATGAAAGCCGAGTTGTAACACTCCATAAGCAAGATGGTAAA
AATCTGAAAATTGAACCTAGCTCATTAAGGGAAGCTTTGTCTTTCGTGTCATTAATTGATGGATATTATA
GATTAAGTGCAGATGCACATCATTACCTCTGTAAGAAGTAGCACCTCCAGCCGTGCTTGAAAATATACA
AAGCAACTGTCATGGCCCAATTTGATGGATTTTGCCATTAGTAAACTGAAGAAAGCAGGTAATCAGACT
GGACTGTATGTAATTCGATGCAGTCTAAGGACTTTAATAAATATTTTTGACTTTTGTGTCGAGCGAG
AAAATGTCATTGAATATAAACTGTTTATTACAAAAATGAGAATGAAGAGTACAACCTCAGTGGGAC
AAAGAAGAACTCAGCAGTCTTAAAGATCTTTGAATTGTTACCAGATGGAAACTGTTGCTCAGACAAT



[View online »](#)

ATAATTTTCCAGTTTACTAAATGCTGTCCCCAAAGCCAAAAGATAAATCAAACCTTCTAGTCTTCAGAA
 CGAATGGTGTTCCTGATGTACCAACCTCACCAACATTACAGAGGCCTACTCATATGAACCAAATGGTGT
 TCACAAAATCAGAAATGAAGATTTGATATTTAATGAAAGCCTTGCCCAAGGCACCTTTTACAAAGATTTTT
 AAAGGCGTACGAAGAGAAGTAGGAGACTACGGTCAACTGCATGAAACAGAAGTCTTTTTAAAAGTTCTGG
 AATAAGCACACAGAACTATTAGAGTCTTTCTTTGAAAGCAGCAAGTATGATGAGCAAGCTTTCTCACAA
 GCATTTGGTTTTAAATATGGAGTATGTGTCTGTGGAGACGAGAATATTCTGGTTCAGGAGTTTGTAAAA
 TTTGGTCACTAGATACATATCTGAAAAAGAATAAAAAATTTGATAAATATATTATGAAACTTTGAAGTTG
 CTAACACAGTTGGCATGGGCCATGCATTTTCTAGAAGAAAACACCCTTATTCATGGGAATGTATGTGCCAA
 AAATATTCTGCTTATCAGAGAAGAAGACAGGAAGACAGGAAATCCTCCTTTCATCAAACCTTAGTGATCCT
 GGCATTAGTATTACAGTTTTGCCAAAGGACATTCTCAGGAGAGAATACCATGGGTACCACCTGAATGCA
 TTGAAAATCCTAAAAATTTAAATTTGGCAACAGACAAAATGGAGTTTTGGTACCACCTTTGTGGAAAATCTG
 CAGTGGAGGAGATAAACCTCTAAGTGTCTGGATTCTCAAAGAAAGCTACAATTTTATGAAGATAGGCAT
 CAGCTTCTGCACCAAAGTGGGCAGAATTAGCAAACCTTATAAATAATTGTATGGATTATGAACCAGATT
 TCAGGCCCTCTTTAGAGCCATCATACGAGATCTTAACAGTTTGTACTCCAGATTATGAACATTAAC
 AGAAAATGACATGTTACCAAATATGAGGATAGGTGCCCTAGGGTTTTCTGGTGCCTTTGAAGACCGGGAT
 CCTACACAGTTTGAAGAGAGACATTTGAAATTTCTACAGCAACTTGGCAAGGGTAATTTTGGGAGTGTGG
 AGATGTGCCGGTATGACCCTCTACAGGACAACACTGGGGAGGTGGTTCGCTGTAAAAAAGCTTCAGCATAG
 TACTGAAGAGCACCTAAGAGACTTTGAAAGGAAATTTGAAATCCTGAAATCCCTACAGCATGACAACATT
 GTAAAGTACAAGGGAGTGTGCTACAGTGTGGTCCGGCCTAATCTAAAAATTAATTGGAATATTTACCAT
 ATGGAAGTTTACGAGACTATCTTCAAAAACATAAAGAACGGATAGATCACATAAACTTCTGCAGTACAC
 ATCTCAGATATGCAAGGGTATGGAGTATCTTGGTACAAAAGGTATATCCACAGGGATCTGGCAACGAGA
 AATATATTGGTGGAGAACGAGAACAGAGTTAAAATTTGGAGTTTTGGGTTAACCAAAGCTTGGCCACAAG
 ACAAGAATACTATAAAGTAAAAGAACCTGGTAAAAGTCCCATAATTCTGGTATGCTCCAGAATCACTGAC
 AGAGAGCAAGTTTTCTGTGGCCTCAGATGTTGGAGCTTTGGAGTGGTTCTGTATGAACTTTTACATAC
 ATTTGAGAAGAGTAAAAGTCCACCAGCGGAATTTATGCGTATGATTGGCAATGACAAAACAAGGACAGATGA
 TCGTGTCCATTTGATAGAACTTTGAAGAATAATGGAAGATTACCAAGACCAGATGGATGCCAGATGA
 GATCTATATGATCATGACAGAATGCTGGAACAATAATGTAATCAACGCCCTCTTTAGGGATCTAGCT
 CTTGAGTGGATCAAATAAGGGATAACATGGCTGGA

ACGCGTACGCGGCCGCTCGAG – GFP Tag – GTTTAA

Protein Sequence:

>RG220503 representing NM_004972
 Red=Cloning site Green=Tags(s)

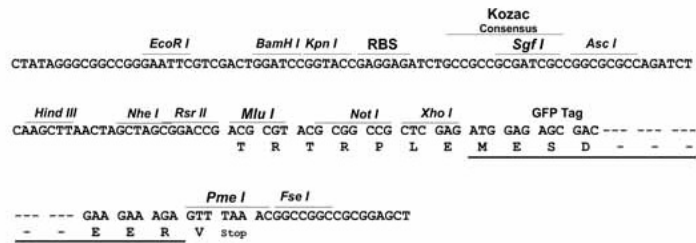
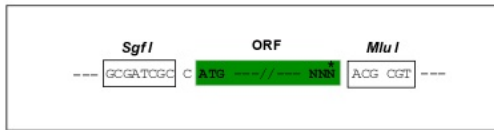
MGMACLTMEGETSTSSIIYQNGDISGNANSMKQIDPVLQVYLYHSLGKSEADYLTFFPSGEYVAEEICIA
 ASKACGITPVYHNMFLMSETERIWIYPPNHVFIHIDESTRHNVLYRIRFYFPRWYCSGNSRAYRHGISRGA
 EAPLLDDFVMSYLFQWRHDFVHGWIQVPVTHEQEECLGMVLDMMRIAKENDQPLAIYNSISYKTF
 PKCIRAKIQDYHILTRKRIRYRFRRIQQFSQCKATARNLKLKYLINLETLQSAFYTEKFEVKEPGSGPS
 GEEIFATIIITGNGGIQWSRGKHKESETLQDLQLYCDFPNIIDVSIKQANQEGSNESRVVTIHKQDQK
 NLEIELSSLREALSFVSLIDGYRILTADAHYLCKEVAPPVLENIQSNCHGPI SMDFAISKLKKAGNQT
 GLYVLRCSPKDFNKYFLTFAVERENVIEYKHCLITKNENEEYNLSGTTKKNFSSLDLLNLCYQMETVRS
 DNIIFQFTKCCPPKPKDKSNLLVFRNNGVSDVPTSPQLQRPHTMNMVFMHKNEDLIFNESLGGQFTKIF
 KGVRRVGDYQGLHETEVLKVLDAHRNYSSEFFEAASMSKLSHKHLVLNYGVCVCGDENILVQEFVK
 FGSLDYLKKNKNCINILWKLEVAQLAWAMHFLLEENTLIHGNVCAKNILLIREEDRKTGNPPFIKLSDP
 GISITVLPKDILQERIPWVPEECIENPKNLNLATDKWSFGTTLWEICSGGDKPLSALDSQRKLQFYEDRH
 QLPAPKWAELANLINNMDYEPDFRPSFRAIIRDLNSLFTPDYELLTENDMLPNMIRIGALGFSGAFEDRD
 PTQFEERHLKFLQQLGKNGFSGVEMCRYDPLQDNTGEVAVVKLQHSSTEEHLRDFEREIEILKSLQHDNI
 VKYKGVCSYAGRRNLKLIMEYLPYGLRDYLVQKHKERIDHIKLLQYTSQICKGMEYLGTRKYIHRDLATR
 NILVENENRVKIGDFGLTKVLPQDKEYYKKEPGESEPIFWYAPESLTSKFSVASDVSFVGVVLYELFTY
 IEKSKSPPAEFMRMIGNDKQGMIVFHLIELLKNNGRLPRPDGCPDEIYIMTECWNNNNVQRPSFRDLA
 LRVDQIRDNMAG

TRTRPLE – GFP Tag – V

Restriction Sites: SgfI-MluI

Cloning Scheme:

Cloning sites used for ORF Shuttling:



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:

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.

RefSeq: [NM_004972.2](#), [NP_004963.1](#)

RefSeq Size: 5097 bp

RefSeq ORF: 3399 bp

Locus ID: 3717

UniProt ID: [O60674](#)

Cytogenetics: 9p24.1

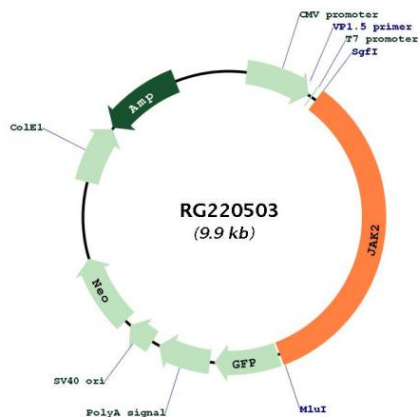
Domains: B41, pkinase, SH2, TyrKc, S_TKc

Protein Families: Druggable Genome, Protein Kinase

Protein Pathways: Adipocytokine signaling pathway, Chemokine signaling pathway, Jak-STAT signaling pathway

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 pathways 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 RG220503