

## **Product datasheet for KN220503BN**

## Froduct datasifeet for kin220505Bit

JAK2 Human Gene Knockout Kit (CRISPR)

# Product data:

**Product Type:** Knockout Kits (CRISPR)

**Format:** 2 gRNA vectors, 1 mBFP-Neo donor, 1 scramble control

**Donor DNA:** mBFP-Neo

Symbol: JAK2 Locus ID: 3717

**Components:** KN220503G1, JAK2 gRNA vector 1 in pCas-Guide CRISPR vector (GE100002)

KN220503G2, JAK2 gRNA vector 2 in pCas-Guide CRISPR vector (GE100002)

KN220503BND, donor DNA containing left and right homologous arms and mBFP-Neo

functional cassette.

**GE100003**, scramble sequence in pCas-Guide vector

**Disclaimer:** These products are manufactured and supplied by OriGene under license from ERS. The kit is

designed based on the best knowledge of CRISPR technology. The system has been functionally validated for knocking-in the cassette downstream the native promoter. The efficiency of the knock-out varies due to the nature of the biology and the complexity of the

experimental process.

RefSeq: NM 001322198, NM 001322199, NM 004972, NM 001322194, NM 001322195,

NM 001322196, NM 001322204

UniProt ID: O60674

Synonyms: JTK10; THCYT3

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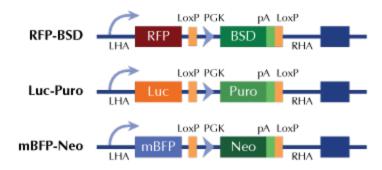


#### Summary:

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:**

#### Donor Vector Edited Chromosome



RFP, Luc, and mBFP will be under native gene promoter