

# Recombinant Human JAK2 (V617F) (JH1, JH2 Domain) Protein, GST/Avi-tagged

**Cat. No.** JAK2-31H    **Lot. No.** (See product label)

## SPECIFICATION

|                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|-------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Product Overview</b> | Recombinant human JAK2 (Janus Kinase 2) encompassing amino acids 513-1132 (end) and containing the catalytic domain (JH1) and the pseudo kinase domain (JH2). This protein contains mutation of interest V617F. The construct also contains an N-terminal GST-tag and a C-terminal Avi-Tag™. The protein was affinity purified.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Species</b>          | Human                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Source</b>           | HEK293                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>ProteinLength</b>    | 513-1132                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Description</b>      | 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 |

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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.

|                       |                                                                                                                                                                 |
|-----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Form</b>           | Aqueous buffer solution                                                                                                                                         |
| <b>Molecular Mass</b> | 99 kDa                                                                                                                                                          |
| <b>Purity</b>         | 28%                                                                                                                                                             |
| <b>Applications</b>   | Useful for the study of enzyme kinetics, screening inhibitors, and selectivity profiling.                                                                       |
| <b>Usage</b>          | Assay was performed according to the TYR Phosphorylation Assay Kit on a Neutravidin Coated plate with phosphorylated JAK2 titrated from 500 ng/rxn to 0 ng/rxn. |
| <b>Storage</b>        | At least 6 months at –80 centigrade.                                                                                                                            |
| <b>Storage Buffer</b> | 40 mM Tris-HCl, pH 8.0, 110 mM NaCl, 2.2 mM KCl, 0.04% Tween20, 20 mM GSH and 20% glycerol.                                                                     |

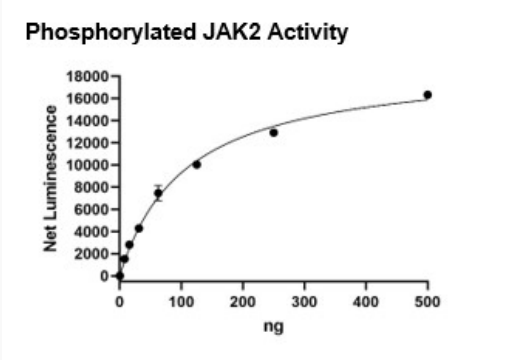
## GENE INFORMATION

|                        |                                              |
|------------------------|----------------------------------------------|
| <b>Gene Name</b>       | JAK2 Janus kinase 2 [ Homo sapiens (human) ] |
| <b>Official Symbol</b> | JAK2                                         |

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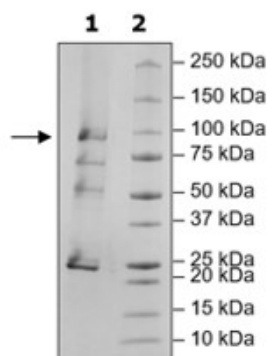
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| <b>Synonyms</b>       | JAK2; Janus kinase 2; JTK10; tyrosine-protein kinase JAK2; JAK-2; Janus kinase 2 (a protein tyrosine kinase); EC 2.7.10.2; jak; jh1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |    |                  |   |   |    |      |    |      |    |      |    |      |     |       |     |       |     |       |
|-----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|------------------|---|---|----|------|----|------|----|------|----|------|-----|-------|-----|-------|-----|-------|
| <b>Gene ID</b>        | 3717                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |    |                  |   |   |    |      |    |      |    |      |    |      |     |       |     |       |     |       |
| <b>mRNA Refseq</b>    | NM_004972                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |    |                  |   |   |    |      |    |      |    |      |    |      |     |       |     |       |     |       |
| <b>Protein Refseq</b> | NP_004963                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |    |                  |   |   |    |      |    |      |    |      |    |      |     |       |     |       |     |       |
| <b>MIM</b>            | 147796                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |    |                  |   |   |    |      |    |      |    |      |    |      |     |       |     |       |     |       |
| <b>UniProt ID</b>     | O60674                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |    |                  |   |   |    |      |    |      |    |      |    |      |     |       |     |       |     |       |
| <b>Activity</b>       | <p><b>Phosphorylated JAK2 Activity</b></p>  <table border="1"> <caption>Approximate data points from the Phosphorylated JAK2 Activity graph</caption> <thead> <tr> <th>ng</th> <th>Net Luminescence</th> </tr> </thead> <tbody> <tr><td>0</td><td>0</td></tr> <tr><td>20</td><td>1000</td></tr> <tr><td>40</td><td>2500</td></tr> <tr><td>60</td><td>4500</td></tr> <tr><td>80</td><td>7500</td></tr> <tr><td>100</td><td>10000</td></tr> <tr><td>250</td><td>13000</td></tr> <tr><td>500</td><td>16000</td></tr> </tbody> </table> | ng | Net Luminescence | 0 | 0 | 20 | 1000 | 40 | 2500 | 60 | 4500 | 80 | 7500 | 100 | 10000 | 250 | 13000 | 500 | 16000 |
| ng                    | Net Luminescence                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |    |                  |   |   |    |      |    |      |    |      |    |      |     |       |     |       |     |       |
| 0                     | 0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |    |                  |   |   |    |      |    |      |    |      |    |      |     |       |     |       |     |       |
| 20                    | 1000                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |    |                  |   |   |    |      |    |      |    |      |    |      |     |       |     |       |     |       |
| 40                    | 2500                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |    |                  |   |   |    |      |    |      |    |      |    |      |     |       |     |       |     |       |
| 60                    | 4500                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |    |                  |   |   |    |      |    |      |    |      |    |      |     |       |     |       |     |       |
| 80                    | 7500                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |    |                  |   |   |    |      |    |      |    |      |    |      |     |       |     |       |     |       |
| 100                   | 10000                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |    |                  |   |   |    |      |    |      |    |      |    |      |     |       |     |       |     |       |
| 250                   | 13000                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |    |                  |   |   |    |      |    |      |    |      |    |      |     |       |     |       |     |       |
| 500                   | 16000                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |    |                  |   |   |    |      |    |      |    |      |    |      |     |       |     |       |     |       |

## SDS-PAGE

### 4-20% SDS-Page Coomassie Staining



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