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PRODUCT INFORMATION

JAK2 JH2 Domain (V617F, W659A, W777A, F794H mutant; human, recombinant; aa 536-812)

Item No. 42274

Overview and Properties

Synonyms: Janus-associated Kinase 2, JTK10, Tyrosine-protein Kinase JAK2
Source: Active recombinant human C-terminal His-tagged JAK2 (V617F, W659A, W777A, F794H mutant) JH2 domain expressed in insect cells (Sf9)
Amino Acids: 536-812
Uniprot No.: O60674
Molecular Weight: 33 kDa
Storage: -80°C (as supplied)
Stability: ≥6 months
Purity: ≥90% estimated by SDS-PAGE
Supplied in: 40 mM Tris-HCl, pH 8.0, with 110 mM sodium chloride, 2.2 mM potassium chloride, 0.5 mM TCEP, and 20% glycerol

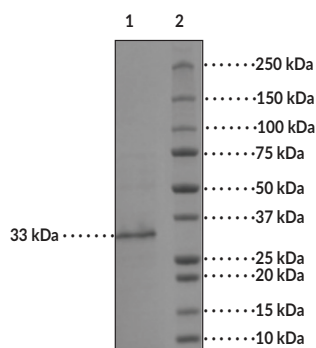
Protein

Concentration: *batch specific* mg/ml

Bioactivity: See figures for details

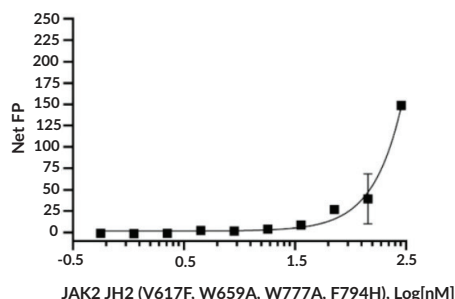
Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Images



Lane 1: JAK2 JH2 Domain
Lane 2: MW Markers

SDS-PAGE Analysis of JAK2 JH2 Domain.



JAK2 JH2 Domain Activity

WARNING
THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

SAFETY DATA
This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the complete Safety Data Sheet, which has been sent via email to your institution.

WARRANTY AND LIMITATION OF REMEDY
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PRODUCT INFORMATION



Description

JAK2 is a non-receptor tyrosine kinase that has roles in immune signaling.^{1,2} It is composed of N-terminal FERM and SH2 domains, a regulatory JH2 pseudokinase domain, and a C-terminal JH1 kinase domain. It is widely expressed and associates with class I and class II cytokine receptors at the plasma membrane.^{3,4} Activation of these cytokine receptors activates JAK2 and induces its dimerization and kinase activity, leading to JAK2 phosphorylation of STAT transcription factors and transcription of immune-related target genes. JAK2 signaling is inhibited by the suppressor of cytokine signaling (SOCS) proteins SOCS1 and SOCS3.^{5,6} Mutagenesis of the JAK2 JH2 domain to contain W659A, W777A, and F794H mutations and truncation at Asp812 increases the solubility of recombinant wild-type JAK2 and JAK2^{V617F}.⁷ Gain-of-function mutations in JAK2, such as JAK2^{V617F} in the JH2 domain, are associated with various blood disorders, including leukemias and myeloproliferative neoplasms.⁴ Cayman's JAK2 JH2 Domain (V617F, W659A, W777A, F794H mutant; human, recombinant; aa 536-812) protein can be used for binding assays and has a calculated molecular weight of 33 kDa.

References

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4. Hubbard, S.R. Mechanistic insights into regulation of JAK2 tyrosine kinase. *Front. Endocrinol. (Lausanne)* **8**, 361 (2018).
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