

# PRODUCT INFORMATION

## JAK2 JH1 and JH2 Domains (human, recombinant; aa 532-1,132)

Item No. 42272

### Overview and Properties

**Synonyms:** Janus-associated Kinase 2, JTK10, Tyrosine-protein Kinase JAK2  
**Source:** Active recombinant human N-terminal His- and GST-tagged JAK2 JH1 and JH2 domains expressed in insect cells (sf9)  
**Amino Acids:** 532-1,132  
**Uniprot No.:** O60674  
**Molecular Weight:** 98 kDa  
**Storage:** -80°C (as supplied)  
**Stability:** ≥6 months  
**Purity:** ≥80% estimated by SDS-PAGE  
**Supplied in:** 45 mM Tris-HCl, pH 8.0, with 300 mM sodium chloride, 2.4 mM potassium chloride, 0.04% polysorbate 20, 3 mM DTT, 10% glycerol, and variable imidazole

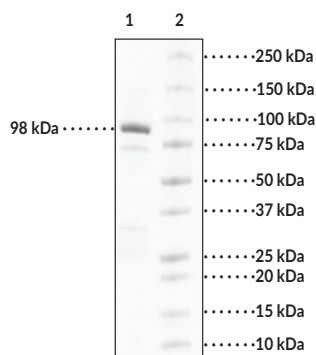
#### Protein

**Concentration:** *batch specific* mg/ml

**Bioactivity:** See figures for details

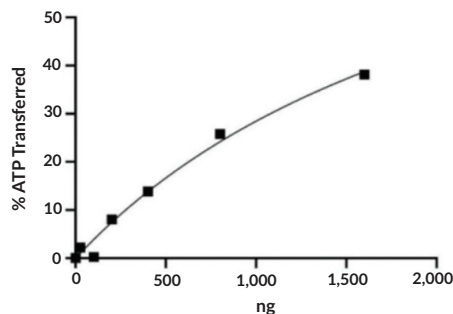
Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

### Images



Lane 1: JAK2 JH1 and JH2 Domains  
 Lane 2: MW Markers

SDS-PAGE Analysis of JAK2 JH1 and JH2 Domains.



JAK2 JH1 and JH2 Domains 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**  
 Buyer agrees to purchase the material subject to Cayman's Terms and Conditions. Complete Terms and Conditions including Warranty and Limitation of Liability information can be found on our website.

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## Description

JAK2 is a non-receptor tyrosine kinase that has roles in immune signaling.<sup>1,2</sup> 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.<sup>3,4</sup> 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.<sup>5,6</sup> Gain-of-function mutations in JAK2 are associated with various blood disorders, including leukemias and myeloproliferative neoplasms.<sup>4</sup> Cayman's JAK2 JH1 and JH2 Domains (human, recombinant; aa 532-1,132) protein can be used for enzyme activity assays and has a calculated molecular weight of 98 kDa.

## References

1. Leonard, W.J. and O'Shea, J.J. Jaks and STATs: Biological implications. *Annu. Rev. Immunol.* **16**, 293-322 (1998).
2. Haan, C., Kreis, S., Margue, C., *et al.* Jaks and cytokine receptors—an intimate relationship. *Biochem. Pharmacol.* **72(11)**, 1538-1546 (2006).
3. Parganas, E., Wang, D., Stravopodis, D., *et al.* Jak2 is essential for signaling through a variety of cytokine receptors. *Cell* **93(3)**, 385-395 (1998).
4. Hubbard, S.R. Mechanistic insights into regulation of JAK2 tyrosine kinase. *Front. Endocrinol. (Lausanne)* **8**, 361 (2018).
5. Kile, B.T. and Alexander, W.S. The suppressors of cytokine signalling (SOCS). *Cell. Mol. Life Sci.* **58(11)**, 1627-1635 (2001).
6. Yoshimura, A. and Yasukawa, H. JAK's SOCS: A mechanism of inhibition. *Immunity* **36(2)**, 157-159 (2012).

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