

# PRODUCT INFORMATION



## JAK2 (human, recombinant)

Item No. 33742

### Overview and Properties

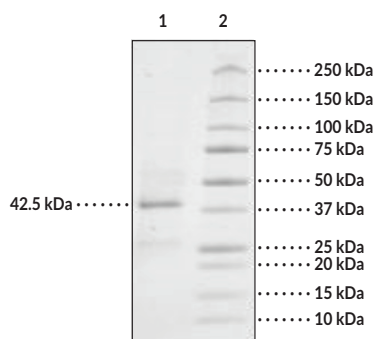
**Synonyms:** Janus-Associated Kinase 2, JTK10, Tyrosine-protein Kinase JAK2  
**Source:** Active recombinant human N-terminal His-tagged JAK2 expressed in insect cells  
**Amino Acids:** 808-1,132  
**Uniprot No.:** O60674  
**Molecular Weight:** 42.5 kDa  
**Storage:** -80°C (as supplied)  
**Stability:** ≥6 months  
**Purity:** *batch specific* (≥71% estimated by SDS-PAGE)  
**Supplied in:** Lyophilized from sterile 40 mM Tris-HCl, pH 8.0, with 110 mM sodium chloride, 2.2 mM potassium chloride, 0.04% Tween 20, 3 mM DTT, and 20% glycerol

### Protein

**Concentration:** *batch specific* mg/ml  
**Specific Activity:** *batch specific* U/mg  
**Bioactivity:** See figure for details

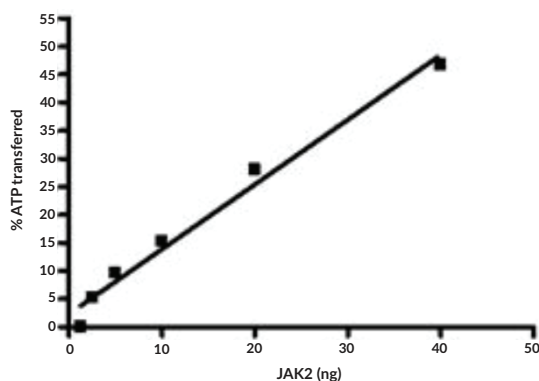
Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

### Images



Lane 1: JAK2 (2 µg)  
Lane 2: MW Markers

**SDS-PAGE Analysis of JAK2.** This protein has a calculated molecular weight of 42.5 kDa.



JAK2 incubated with 20 µM ATP and 0.2 mg/ml poly(Glu-Tyr, 4:1) substrate for 45 minutes at 30°C. Kinase activity determined by ADP detection assay.

**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

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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 pseudokinase domain, and a C-terminal kinase domain.<sup>1</sup> 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 SOCS-1 and SOCS-3.<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 (human, recombinant) protein can be used for enzyme activity assays.

## References

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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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