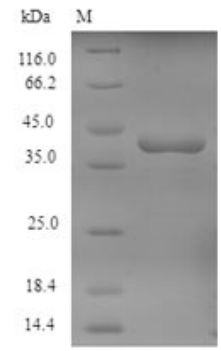
Recombinant Human Tyrosine-protein kinase JAK1 (Jak1), partial

Product Code	CSB-EP011930HU
Relevance	Tyrosine kinase of the non-receptor type, involved in the IFN-alpha/beta/gamma signal pathway. Kinase partner for the interleukin (IL)-2 receptor. ATP + a [protein]-L-tyrosine = ADP + a [protein]-L-tyrosine phosphate.
Abbreviation	Recombinant Human JAK1 protein, partial
Storage	The shelf life is related to many factors, storage state, buffer ingredients, storage temperature and the stability of the protein itself. Generally, the shelf life of liquid form is 6 months at -20°C/-80°C. The shelf life of lyophilized form is 12 months at -20°C/-80°C.
Uniprot No.	P23458
Alias	Janus kinase 1 Short name: JAK-1
Product Type	Recombinant Protein
Immunogen Species	Homo sapiens (Human)
Purity	Greater than 90% as determined by SDS-PAGE.
Sequence	EQNPDIVSEKKPATEVDPTHFEKRFLKRIRDLGEGHFGKVELCRYDPEGDNTG EQVAVKSLKPESGGNHIADLKKEIEILRNLYHENIVKYKGICTEDGGNGIKLIMEF LPSGSLKEYLPKNKNKINLKQQLKYAVQICKGMDYLGSRQYVHRDLAARNVLV ESEHQVKIGDFGLTKAIETDKEYYTVKDDRDSPVFWYAPECLMQSKFYIASDV WSFGVTLHELLTYCDSDSSPMALFLKMIGPTHGQMTVTRLVNTLKEGKRLPCP PNCPDEVYQLMRKCWEFQPSNRTSFQNLIEGFEALLK
Research Area	Cancer
Source	E.coli
Target Names	JAK1
Expression Region	850-1154aa
Notes	Repeated freezing and thawing is not recommended. Store working aliquots at 4°C for up to one week.
Tag Info	N-terminal 6xHis-tagged
Mol. Weight	38.9kDa
Protein Length	Partial
Image	



(Tris-Glycine gel) Discontinuous SDS-PAGE (reduced) with 5% enrichment gel and 15% separation gel.

Description

The recombinant human Tyrosine-protein kinase JAK1 protein production starts with the co-cloning of the target gene (850-1154aa of JAK1) with the N-terminal 6xHis-tag gene into a vector that would be inserted into E.coli cells, followed by upstream bioprocessing, and subsequently the downstream process to purify and formulate into end products. The recombinant human JAK1 protein is collected and purified from the cell lysate through affinity chromatography. Its purity is greater than 90% as assessed by SDS-PAGE.

JAK1 is known to phosphorylate STAT proteins in response to various stimuli, leading to their nuclear translocation and subsequent gene expression regulation [4][5]. It is essential for activating STAT proteins in mammary glands and is particularly involved in epithelial compartment remodeling during post-lactational involution [1].

JAK1 has been implicated in cancer progression and promotes cellular processes such as cell proliferation, cell movement, and gene expression modulation [2][3]. Studies have shown that JAK1 interacts with various molecules such as miR-134-5p, STAT proteins, and interferon-inducible genes, to regulate cancer progression and immune responses [2][3][6]. Furthermore, JAK1 is linked to immune evasion in renal cell carcinoma, where it is stabilized by EHBP1L1 to promote IFN-γ/JAK1/STAT1 signaling and downstream PD-L1 expression [7].

References:

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[2] B. Wehde, P. Rädler, H. Shrestha, S. Johnson, A. Triplett, & K. Wagner, Janus kinase 1 plays a critical role in mammary cancer progression, Cell Reports, vol. 25, no. 8, p. 2192-2207.e5, 2018. https://doi.org/10.1016/j.celrep.2018.10.063
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[4] W. Xiao, S. Ramanujam, D. Lindner, R. Kudaravalli, R. Freund, & D. Kalvakolanu, The polyoma virus t antigen interferes with interferon-inducible gene?expression, Proceedings of the National Academy of Sciences, vol. 95,

no. 3, p. 1085-1090, 1998. https://doi.org/10.1073/pnas.95.3.1085
[5] Y. Pan, G. Shu, L. Fu, K. Huang, X. Zhou, C. Guiet al., Ehbp1l1 drives immune evasion in renal cell carcinoma through binding and stabilizing jak1, Advanced Science, vol. 10, no. 11, 2023. https://doi.org/10.1002/advs.202206792
[6] X. Huang, Y. Chen, X. Zhang, L. Feimeng, & H. Ye, Extract of stellera chamaejasme l. inhibits the progression of hepatocellular carcinoma by regulating mir-134-5p and jak1/stat3 pathway, Cancer Biotherapy & Radiopharmaceuticals, vol. 35, no. 8, p. 586-595, 2020. https://doi.org/10.1089/cbr.2019.3229
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Reconstitution	We recommend that this vial be briefly centrifuged prior to opening to bring the contents to the bottom. Please reconstitute protein in deionized sterile water to a concentration of 0.1-1.0 mg/mL.We recommend to add 5-50% of glycerol (final concentration) and aliquot for long-term storage at -20°C/-80°C. Our default final concentration of glycerol is 50%. Customers could use it as reference.
Shelf Life	The shelf life is related to many factors, storage state, buffer ingredients, storage temperature and the stability of the protein itself. Generally, the shelf life of liquid form is 6 months at -20°C/-80°C. The shelf life of lyophilized form is 12 months at -20°C/-80°C.