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# ProductInformation

**Monoclonal Anti-JAK1**
**Clone JAK1-193**
Purified Mouse Immunoglobulin

Catalog Number **J3774**

## Product Description

Monoclonal Anti-JAK1 (mouse IgG1 isotype) is derived from the hybridoma JAK1-193 produced by the fusion of mouse myeloma cells (NS1) and splenocytes from BALB/c mice immunized with a synthetic peptide corresponding to amino acids 543-555 of human JAK1, conjugated to KLH. The peptide sequence is identical in mouse and rat JAK1. The isotype is determined by a double diffusion immunoassay using Mouse Monoclonal Antibody Isotyping Reagents, Catalog Number ISO-2.

Monoclonal Anti-JAK1 recognizes human JAK1 (approx. 130 kDa). The product is useful in ELISA, and immunoblotting.

Janus kinases (JAK) play a crucial role in the initial steps of cytokine signaling. This family contains four members JAK1, 2, 3 and TYK2. Janus kinase 1 (JAK1) belongs to a class of protein-tyrosine kinases ( PTKs) characterized by the presence of a typical PTK-like domain and a second phosphotransferase related domain immediately N-terminal to the PTK domain.[1-3] The second domain has all the characteristics of a protein kinase domain although it has a different structure than that of the PTK and of serine/threonine kinase family members. The PTK activity is located in the C-terminal PTK-like domain and the role of the second kinase-like domain is unknown.

A variety of cytokines activate JAKs. Binding of the cytokine causes dimerization of the receptors. For signal propagation, the cytoplasmic domains of the two-receptor subunits must be associated with JAK tyrosine kinases. The dimerization brings two JAKs into close proximity, allowing trans-phosphorylation. Activated JAKs phosphorylate additional targets, the major being STAT proteins and the receptors. STATs are latent transcription factors that reside in the cytoplasm until activated by phosphorylation of a conserved tyrosine residue near the C-terminus. This phosphorylation causes the dimerization of STATs, which can enter the nucleus by a mechanism that is dependent on importin α-5 and the Ran nuclear import pathway. Once in the nucleus, dimerized Stats bind specific regulatory sequences to activate or repress transcription of target genes. Cell lines that lack JAK1 are completely defective in their response to interferon. JAK1 knockout mice failed to nurse and died perinatally.[1-4]

## Reagent

The antibody is supplied as a solution in 0.01 M phosphate buffered saline, pH 7.4, containing 15 mM sodium aside as a preservative.

Antibody Concentration: approx. 2 mg/ml.

## Precautions and Disclaimer

Due to the sodium azide content a material safety sheet (MSDS) for this product has been sent to the attention of the safety officer of your institution. Consult the MSDS for information regarding hazardous and safe handling practices.

## Storage/Stability

For continuous use, store at 2-8 °C for up to one month. For extended storage, freeze in working aliquots. Repeated freezing and thawing, or storage in "frost-free" freezers, is not recommended. If slight turbidity occurs upon prolonged storage, clarify the solution by centrifugation before use. Working dilution samples should be discarded if not used within 12 hours.

## Product Profile

A working concentration of 2-4 µg/ml is determined by immunoblotting, using total cell extract of Raji cells.

**Note**: In order to obtain best results in different techniques and preparations we recommend determining optimal working concentration by titration test.

**References**
1. Aringer, M., et al., *Life Sciences*, **64**, 2173-2186 (1999).
2. Nagy, Z.S., et al., *Crit. Rev. Immunol.*, **24**, 87-110 (2004).
3. Ihle, J.N., *Nature*, **377**, 591-594 (1995).
4. Verma, A., et al., *Cancer Met. Rev.*, **22**, 423-434 (2003).

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