

#14703 Store at -20°C

Tofacitinib

10 mg



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Background

Tofacitinib is a cell permeable Janus kinase (JAK) inhibitor with demonstrated preference to inhibiting JAK1 and JAK3 (1). Tofacitinib inhibits JAK isoforms 1, 2, and 3 with IC₅₀ values of 6.1, 12, and 8.0 nM, respectively; the reported IC₅₀ value relative to Tyk2 is 176 nM (2). Research studies show that tofacitinib primarily blocks γ_c cytokine receptors and inhibits cytokine production, which suggests that tofacitinib blocks cytokine action during both innate and adaptive responses (1,3). The overall effect of tofacitinib is to reduce inflammatory responses through selective inhibition of JAK family members (4).

Molecular Formula

C₁₆H₂₀N₆O

Molecular Weight

312.37 g/mol

Purity

>99%

CAS

936487-63-7

Solubility

Soluble in DMSO and EtOH at 100mg/ml.

Storage

Store lyophilized or in solution at -20°C, desiccated. In lyophilized form, the chemical is stable for 24 months. Once in solution, use within 3 months to prevent loss of potency. Aliquot to avoid multiple freeze/thaw cycles.

Directions for Use:

Tofacitinib is supplied as a lyophilized powder. For a 50 mM stock, reconstitute the 10 mg of powder in 640.27 μ l DMSO. Working concentrations and length of treatment can vary depending on the desired effect, but it is typically used at 5-500 nM for 1-72 hr.

Solubility: Soluble in DMSO and ethanol at 100 mg/ml. Very poorly soluble in water.

Background References

1. Ghoreschi, K. et al. (2011) *J Immunol* 186, 4234-43.
2. Haan, C. et al. (2011) *Chem Biol* 18, 314-23.
3. Ju, W. et al. (2011) *Blood* 117, 1938-46.
4. Changelian, P.S. et al. (2003) *Science* 302, 875-8.

Cross-Reactivity Key

H: human **M:** mouse **R:** rat **Hm:** hamster **Mk:** monkey **Vir:** virus **Mi:** mink **C:** chicken **Dm:** D. melanogaster
X: Xenopus **Z:** zebrafish **B:** bovine **Dg:** dog **Pg:** pig **Sc:** S. cerevisiae **Ce:** C. elegans **Hr:** horse
GP: Guinea Pig **Rab:** rabbit **All:** all species expected

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