

Store at
-20°C

Tofacitinib

#14703

10 mg



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rev. 11/17/17

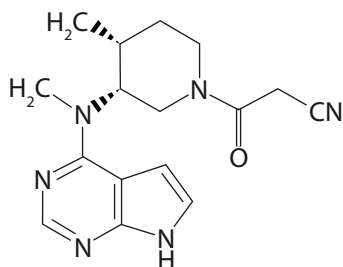
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Background: Tofacitinib is a cell permeable Janus kinase (JAK) inhibitor with demonstrated preference for inhibiting JAK1 and JAK3 (1). Tofacitinib inhibits JAK isoforms 1, 2, and 3 with IC₅₀ values of 6.1, 12, and 8.0 nM, respectively; the reported 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).

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.

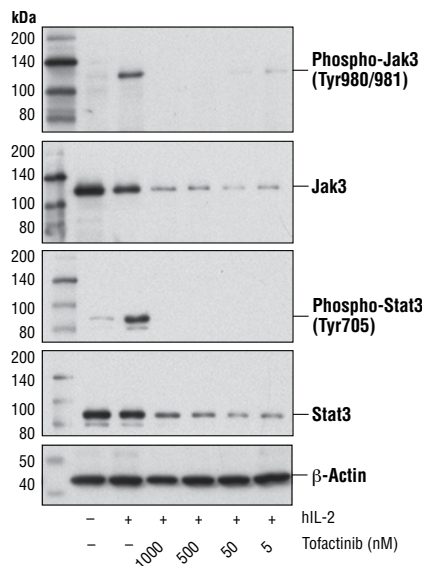
Molecular Formula: C₁₆H₂₀N₆O



Molecular Weight: 312.37 g/mol

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

Purity: >99%



Western blot analysis of extracts from NK-92 cells, serum-starved overnight and untreated (-) or treated with Human Interleukin-2 (hIL-2) #8907 (10 ng/ml, 15 min; +), either with or without Tofacitinib pretreatment (1 hr) at the indicated concentrations, using Phospho-Jak3 (Tyr980/981) (D44E3) Rabbit mAb #5031, Jak3 (D1H3) Rabbit mAb #8827, Phospho-Stat3 (Tyr705) (D3A7) XP® Rabbit mAb #9145, Stat3 (79D7) Rabbit mAb #4904, and β-Actin (D6A8) Rabbit mAb #8457.

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 of 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.

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Applications: W—Western IP—Immunoprecipitation IHC—Immunohistochemistry ChIP—Chromatin Immunoprecipitation IF—Immunofluorescence F—Flow cytometry E-P—ELISA-Peptide Species Cross-Reactivity: H—human M—mouse R—rat Hm—hamster Mk—monkey 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 All—all species expected Species enclosed in parentheses are predicted to react based on 100% homology.