Tofacitinib (CP-690550, Tasocitinib) Chemical Structure

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www.selleckchem.com

Tofacitinib (CP-690550, Tasocitinib) Datasheet

Biological Activity

**Description**
CP-690550 is a novel inhibitor of JAK3 with IC50 of 1 nM

**In vitro**
CP-690550 is a specific, orally inhibitor of JAK3, it is 20- to 100-fold less potent for JAK2 and JAK1 with IC50 of 20 nM and 112 nM, respectively. CP-690550 doesn’t have potent activity against 30 other kinases (all median IC50 > 3000 nM). CP-690,550 inhibits IL-2–induced proliferation with 30-fold greater potency than its effects on GM-CSF–induced proliferation. CP-690550 effectively inhibits a murine mixed lymphocyte reaction (MLR) (IC50 = 91 nM).

**Clinical Trials**
CP-690550 is now under the Phase III clinic trial for the oral study as a maintenance therapy for ulcerative colitis.

**Features**
A fragment encoding the catalytic domain of human JAK3 (785aa to 1125aa, JH1 catalytic domain) is amplified by PCR from the full length CDNA and cloned into the EcoRI site of the baculovirus transfer vector pVL1393. Recombinant baculovirus is used to infect Sf9 (Spodoptera frugiperda) cells and recombinant GSTJAK3 fusion protein is isolated on glutathione sepharose. The fusion protein is eluted with reduced glutathione and stored in protein is isolated on glutathione sepharose. The fusion protein is eluted with reduced glutathione and stored in

**Kinase Assay**
A fragment encoding the catalytic domain of human JAK3 (785aa to 1125aa, JH1 catalytic domain) is amplified by PCR from the full length CDNA and cloned into the EcoRI site of the baculovirus transfer vector pVL1393. Recombinant baculovirus is used to infect Sf9 (Spodoptera frugiperda) cells and recombinant GSTJAK3 fusion protein is isolated on glutathione sepharose. The fusion protein is eluted with reduced glutathione and stored in protein is isolated on glutathione sepharose. The fusion protein is eluted with reduced glutathione and stored in

**Cell Assay**
Human T blasts cell

**Concentrations**
0-4000 nM

**Incubation Time**
4 days

To measure IL-2-dependent proliferation, isolated lymphocytes are resuspended to a cell density of 1-2 x 10^6/mL in complete RPMI medium (RPMI 1640 containing 10% (v/v) fetal calf serum (FCS), 1% (w/v) penicillin and streptomycin). Phytohemagglutinin (PHA) is added to a final concentration of 10mg/mL, and the culture incubated for 3 days at 37 °C in a humidified 5%
Methods

- (vi) CO₂ incubator, after which 50 mL of ³H-thymidine (5mCi/mL) is added. The plates are incubated for an additional 18 hours, harvested with a 96-well harvester, and counted on a scintillation counter. HUO3 cells are maintained in culture with granulocyte-macrophage colony stimulating factor and human foreskin fibroblasts of CP-690550 is added to freshly plated cells and cultured for 4 days. ³H-thymidine is added during the last 18 hours of the culture period.

Animal Study:[1]

Animal Models DBA2 and C57/BL6 mice

Formulation CP-690550 is dissolved in polyethylene glycol 300.

Doses 0-136 ng/mL

Administration Administered via osmotic minipump infusion

References


PLEASE KEEP THE PRODUCT UNDER -20°C FOR LONG-TERM STORAGE.

NOT FOR HUMAN, VETERINARY DIAGNOSTIC OR THERAPEUTIC USE

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