

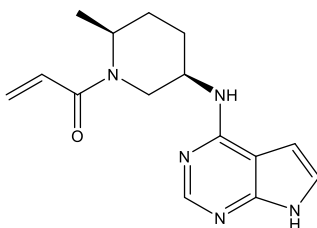
**Catalog # 10-4377**

**Ritlecitinib**

CAS# 1792180-81-4

1-[(2S,5R)-2-Methyl-5-(7H-pyrrolo[2,3-d]pyrimidin-4-ylamino)piperidin-1-yl]prop-2-en-1-one; PF-06651600

Lot # FBS4054



Ritlecitinib is potent ( $IC_{50} = 33$  nM) covalent JAK3 inhibitor with exquisite selectivity over other members in its kinase class (JAK1, JAK2, TYK2).<sup>1,2</sup> It also displays excellent kinome selectivity against 305 kinases tested. Ritlecitinib inhibits Th1 and Th17 cell differentiation and function and ameliorates symptoms in rat arthritis and mouse autoimmune encephalomyelitis models.<sup>2</sup> It selectively targets  $\gamma$ c cytokine pathways while preserving JAK1-dependent anti-inflammatory signaling. Ritlecitinib also displays activity against some TEC family kinases (BTK, BMX, ITK, RLK, TEC) leading to inhibition of the cytolytic function of CD8+ T cells and NK cells.<sup>3</sup> Low dose Ritlecitinib significantly improved T-cell responses and decreased tumor load in louse cancer models.<sup>4</sup> It significantly prolonged allograft survival in a mouse cardiac transplantation model.

- 1) Thorarensen *et al.* (2017), *Design of a Janus Kinase 3 (JAK3) Specific Inhibitor 1-((2S,5R)-5-((7H-pyrrolo[2,3-d]pyrimidin-4-ylamino)-2-methylpiperidin-1-yl)prop-2-en-1-one (PF-0665160) Allowing for the Interrogation of JAK3 Signaling in Humans*; *J. Med. Chem.*, **60** 1971
- 2) Telliez *et al.* (2016), *Discovery of a JAK3-Selective Inhibitor: Functional Differentiation of JAK3-Selective Inhibition over pan-JAK or JAK1-Selective Inhibition*; *ACS Chem. Biol.*, **11** 3442
- 3) Xu, *et al.* (2019), *PF-06651600, a Dual JAK3/TEC Family Kinase Inhibitor*; *ACS Chem. Biol.*, **14** 1235
- 4) Dammeijer *et al.* (2022), *Low-Dose JAK3 Inhibition Improves Antitumor T-Cell Immunity and Immunotherapy Efficacy*; *Mol. Cancer Ther.*, **13** 1213715
- 5) Liu *et al.* (2025), *Novel janus kinase 3 inhibitor ritlecitinib suppresses T and B cell responses to prevent acute cardiac allograft rejection in mice*; *Clin. Immunol.*, **273** 110445

**PHYSICAL DATA**

Molecular Weight:	285.35
Molecular Formula:	C <sub>15</sub> H <sub>19</sub> N <sub>5</sub> O
Purity:	>98% by HPLC
	NMR: (Conforms)
Solubility:	DMSO (>100 mg/ml)
Physical Description:	White solid
Storage and Stability:	Store as supplied desiccated at -20°C for up to 2 years from the date of purchase. Solutions in DMSO may be stored at -20°C for up to 3 months.

**Materials provided by Focus Biomolecules are for laboratory research use only and are not intended for human or veterinary applications.**