

Product data sheet



MedKoo Cat#: 120209 Name: Ruxolitinib phosphate CAS#: 1092939-17-7 (phosphate) Chemical Formula: C ₁₇ H ₂₁ N ₆ O ₄ P Exact Mass: 404.13619 Molecular Weight: 404.37		
Product supplied as:	Powder	
Purity (by HPLC):	≥ 98%	
Shipping conditions:	Ambient temperature	
Storage conditions:	Powder: -20°C 3 years; 4°C 2 years. In solvent: -80°C 3 months; -20°C 2 weeks.	

1. Product description:

Ruxolitinib, also known as INC424 and INCB18424 or INCB018424, is an orally bioavailable Janus-associated kinase (JAK) inhibitor with potential antineoplastic and immunomodulating activities. Ruxolitinib specifically binds to and inhibits protein tyrosine kinases JAK 1 and 2, which may lead to a reduction in inflammation and an inhibition of cellular proliferation. The JAK-STAT (signal transducer and activator of transcription) pathway plays a key role in the signaling of many cytokines and growth factors and is involved in cellular proliferation, growth, hematopoiesis, and the immune response; JAK kinases may be upregulated in inflammatory diseases, myeloproliferative disorders, and various malignancies.

2. CoA, QC data, SDS, and handling instruction

SDS and handling instruction, CoA with copies of QC data (NMR, HPLC and MS analytical spectra) can be downloaded from the product web page under “QC And Documents” section. Note: copies of analytical spectra may not be available if the product is being supplied by MedKoo partners. Whether the product was made by MedKoo or provided by its partners, the quality is 100% guaranteed.

3. Solubility data

Solvent	Max Conc. mg/mL	Max Conc. mM
DMSO	50.8	125.66
Ethanol	6.50	16.07

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	2.47 mL	12.36 mL	24.73 mL
5 mM	0.49 mL	2.47 mL	4.95 mL
10 mM	0.25 mL	1.24 mL	2.47 mL
50 mM	0.05 mL	0.25 mL	0.49 mL

5. Molarity Calculator, Reconstitution Calculator, Dilution Calculator

Please refer the product web page under section of “Calculator”

6. Recommended literature which reported protocols for in vitro and in vivo study

In vitro study

- Chen L, Zhu MY, Wang GX, Lu LL, Lin L, Lei L, Wu T. Ruxolitinib ameliorated coxsackievirus B3-induced acute viral myocarditis by suppressing the JAK-STAT pathway. *Int Immunopharmacol.* 2023 Aug 25;124(Pt A):110797. doi: 10.1016/j.intimp.2023.110797. Epub ahead of print. PMID: 37634445.
- Liao XY, Zhou DH, Fang JP, Qiu KY. Ruxolitinib inhibits the proliferation and induces the apoptosis of MLL-r ALL cells through inactivating JAK/STAT signaling pathway. *Transl Pediatr.* 2023 Jun 30;12(6):1088-1097. doi: 10.21037/tp-23-16. Epub 2023 Jun 14. PMID: 37427069; PMCID: PMC10326758.

In vivo study

- Ali S, Choo S, Hosking L, Smith A, Hughes T. A case of T-cell-Epstein-Barr virus-haemophagocytic lymphohistiocytosis and sustained remission following ruxolitinib therapy. *Clin Transl Immunology.* 2023 Jul 25;12(7):e1459. doi: 10.1002/cti2.1459. PMID: 37497193; PMCID: PMC10368518.
- Berenson JR, Kim C, Bujarski S, To J, Spektor TM, Martinez D, Turner C, Ghermezi M, Eades BM, Swift RA, Schwartz G, Eshaghian S, Moss RA, Lim S, Vescio R. A phase 1 study of ruxolitinib, steroids and lenalidomide for relapsed/refractory

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multiple myeloma patients. Hematol Oncol. 2022 Dec;40(5):906-913. doi: 10.1002/hon.3066. Epub 2022 Aug 14. PMID: 35946431.

7. Bioactivity

Biological target:

Ruxolitinib phosphate is a potent JAK1/2 inhibitor with IC50s of 3.3 nM/2.8 nM, respectively, showing more than 130-fold selectivity over JAK3.

In vitro activity

Ruxolitinib exhibited significant in vitro activity against Nalm-6 cells. It dose-dependently inhibited cell proliferation, induced cell cycle arrest at G0/G1 phase, and promoted apoptosis in MLL-r ALL cells. Ruxolitinib inactivated the JAK/STAT signaling pathway, contributing to its anti-proliferative and pro-apoptotic effects. Ruxolitinib is a promising therapeutic agent for MLL-r leukemia.

Reference: Transl Pediatr. 2023 Jun 30;12(6):1088-1097. <https://pubmed.ncbi.nlm.nih.gov/37427069/>

In vivo activity

Ruxolitinib was administered to a patient with Epstein-Barr virus (EBV)-associated hemophagocytic lymphohistiocytosis (HLH) characterized by EBV infection within CD8+ T cells. Ruxolitinib treatment led to the resolution of symptoms and improvement in HLH parameters, demonstrating its in vivo activity in controlling EBV-associated HLH, particularly in cases where rituximab and corticosteroids may be insufficient.

Reference: Clin Transl Immunology. 2023 Jul 25;12(7):e1459. <https://pubmed.ncbi.nlm.nih.gov/37497193/>

Note: The information listed here was extracted from literature. MedKoo has not independently retested and confirmed the accuracy of these methods. Customer should use it just for a reference only.