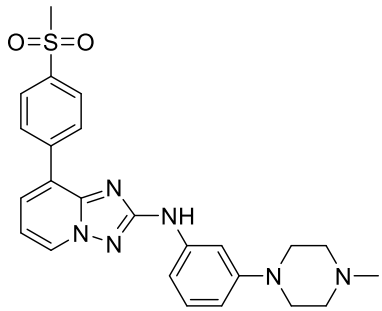
Product data sheet

MedKoo Cat#: 406123 Name: CEP33779 CAS#: 1257704-57-6 Chemical Formula: $C_{24}H_{26}N_6O_2S$ Exact Mass: 462.18379 Molecular Weight: 462.57	
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:
CEP-33779 is a highly selective, orally active, small-molecule inhibitor of JAK2. CEP-33779 induced regression of established colorectal tumors, reduced angiogenesis, and reduced proliferation of tumor cells. Tumor regression correlated with inhibition of STAT3 and NF-κB (RelA/p65) activation in a CEP-33779 dose-dependent manner. The ability of CEP-33779 to suppress growth of colorectal tumors by inhibiting the IL-6/JAK2/STAT3 signaling suggests a potential therapeutic utility of JAK2 inhibitors in multiple tumors types, particularly those with a strong inflammatory component.

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	36	77.83

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	2.16 mL	10.81 mL	21.62 mL
5 mM	0.43 mL	2.16 mL	4.32 mL
10 mM	0.22 mL	1.08 mL	2.16 mL
50 mM	0.04 mL	0.22 mL	0.43 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

1. Tang SJ, Chen LK, Wang F, Zhang YK, Huang ZC, To KK, Wang XK, Talele TT, Chen ZS, Chen WQ, Fu LW. CEP-33779 antagonizes ATP-binding cassette subfamily B member 1 mediated multidrug resistance by inhibiting its transport function. Biochem Pharmacol. 2014 Sep 15;91(2):144-56. doi: 10.1016/j.bcp.2014.07.008. Epub 2014 Jul 21. PMID: 25058526.

In vivo study

1. Tang SJ, Chen LK, Wang F, Zhang YK, Huang ZC, To KK, Wang XK, Talele TT, Chen ZS, Chen WQ, Fu LW. CEP-33779 antagonizes ATP-binding cassette subfamily B member 1 mediated multidrug resistance by inhibiting its transport function. Biochem Pharmacol. 2014 Sep 15;91(2):144-56. doi: 10.1016/j.bcp.2014.07.008. Epub 2014 Jul 21. PMID: 25058526.

2. Seavey MM, Lu LD, Stump KL, Wallace NH, Hockeimer W, O'Kane TM, Ruggeri BA, Dobrzanski P. Therapeutic efficacy of CEP-33779, a novel selective JAK2 inhibitor, in a mouse model of colitis-induced colorectal cancer. Mol Cancer Ther. 2012 Apr;11(4):984-93. doi: 10.1158/1535-7163.MCT-11-0951. Epub 2012 Feb 14. PMID: 22334590.

7. Bioactivity

Product data sheet

Biological target:

CEP33779 is a selective JAK2 inhibitor with IC50 of 1.8 nM, >40- and >800-fold versus JAK1 and TYK2.

In vitro activity

CEP-33779, at nontoxic concentrations, significantly sensitized ABCB1 overexpressing MDR cells to its anticancer substrates. CEP-33779 significantly increased intracellular accumulation and decreased the efflux of doxorubicin by inhibiting the ABCB1 transport function. Furthermore, CEP-33779 did not alter the expression of ABCB1 both at protein and mRNA levels but did stimulate the activity of ABCB1 ATPase. CEP-33779 was predicted to bind within the large hydrophobic cavity of homology modeled ABCB1. In addition, the down-regulation of JAK2 by shRNA altered neither the expression of ABCB1 nor the cytotoxic effect of chemotherapeutic agents in ABCB1-overexpressing cells.

Reference: Biochem Pharmacol. 2014 Sep 15;91(2):144-56. https://linkinghub.elsevier.com/retrieve/pii/S0006-2952(14)00414-6

In vivo activity

Using a mouse model of colitis-induced colorectal cancer, it's shown that a novel, orally active, selective JAK2 inhibitor, CEP-33779, induced regression of established colorectal tumors, reduced angiogenesis, and reduced proliferation of tumor cells. Histopathologic analysis confirmed reduced incidence of histologic-grade neoplasia by CEP-33779. Tumor regression correlated with inhibition of STAT3 and NF-κB (RelA/p65) activation in a CEP-33779 dose-dependent manner. In addition, the expression of proinflammatory, tumor-promoting cytokines interleukin (IL)-6 and IL-1β was strongly reduced upon JAK2 inhibition. The ability of CEP-33779 to suppress growth of colorectal tumors by inhibiting the IL-6/JAK2/STAT3 signaling suggests a potential therapeutic utility of JAK2 inhibitors in multiple tumors types, particularly those with a strong inflammatory component.

Reference: Mol Cancer Ther. 2012 Apr;11(4):984-93. http://mct.aacrjournals.org/cgi/pmidlookup?view=long&pmid=22334590

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.