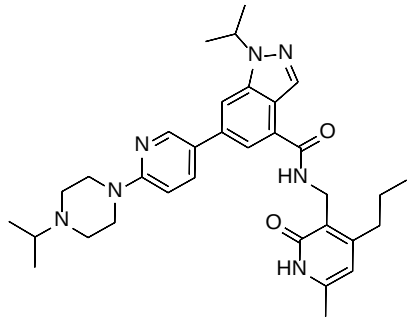
Product data sheet

MedKoo Cat#: 406266 Name: UNC-1999 CAS#: 1431612-23-5 Chemical Formula: $C_{33}H_{43}N_7O_2$ Exact Mass: 569.3478 Molecular Weight: 569.74	
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:
UNC1999, the first orally bioavailable inhibitor that has high in vitro potency for wildtype and mutant EZH2 as well as EZH1. UNC1999 was highly selective for EZH2 and EZH1 over a broad range of epigenetic and non-epigenetic targets, competitive with the cofactor SAM and non-competitive with the peptide substrate. UNC1999 was orally bioavailable in mice, making this inhibitor a valuable tool for investigating the role of EZH2 and EZH1 in chronic animal studies. UNC-1999 represents a useful tools for the biomedical community to investigate the role of EZH2 and EZH1 in health and disease.

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	70.46	123.67
Ethanol	50.05	87.85
1 M HCl	56.97	99.99
DMF	1.0	1.76

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	1.76 mL	8.78 mL	17.55 mL
5 mM	0.35 mL	1.76 mL	3.51 mL
10 mM	0.18 mL	0.88 mL	1.76 mL
50 mM	0.04 mL	0.18 mL	0.35 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. Chen Z, Du Y, Liu X, Chen H, Weng X, Guo J, Wang M, Wang X, Wang L. EZH2 inhibition suppresses bladder cancer cell growth and metastasis via the JAK2/STAT3 signaling pathway. Oncol Lett. 2019 Jul;18(1):907-915. doi: 10.3892/ol.2019.10359. Epub 2019 May 14. PMID: 31289569; PMCID: PMC6539677.

In vivo study

1. Chen Z, Du Y, Liu X, Chen H, Weng X, Guo J, Wang M, Wang X, Wang L. EZH2 inhibition suppresses bladder cancer cell growth and metastasis via the JAK2/STAT3 signaling pathway. Oncol Lett. 2019 Jul;18(1):907-915. doi: 10.3892/ol.2019.10359. Epub 2019 May 14. PMID: 31289569; PMCID: PMC6539677.

7. Bioactivity
Biological target: UNC1999 is an inhibitor of EZH2/1 with IC50s of <10 nM and 45 nM, repectively.

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In vitro activity

The MTT, apoptosis, wound-healing and cell migration assays were used to investigate the effects of the EZH2 inhibitor UNC1999 on the proliferation and migration of bladder cancer cell lines E-J and 5637 (cells in the control groups were treated with an equal volume of DMSO; Fig. 2). The MTT assay revealed that treatment with UNC1999 inhibited the proliferation of the bladder cancer cell lines in a dose- and time-dependent manner (Fig. 2A and B). UNC1999 exhibited the greatest inhibitory effect at a final concentration of 100 µM and an incubation period of 72 and 120 h. Apoptosis analysis revealed that UNC1999 induced significant apoptosis in E-J and 5637 cells (Fig. 2C-E).

Reference: Oncol Lett. 2019 Jul;18(1):907-915. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6539677/

In vivo activity

To explore the antitumor activity of UNC1999 in vivo, E-J tumor xenografts were analyzed. UNC1999 exhibited significant antitumor activity in nude mice bearing E-J tumor xenografts at a dose of 50 mg/kg ($P<0.05$; Fig. 4A). In order to examine the mechanism underlying the inhibition of tumor growth by UNC1999 in vivo, the expression levels of JAK2 and STAT3 were measured using western blotting. The expression levels of JAK2 and STAT3 were significantly decreased in the tumors treated with UNC1999 compared with the control tumors ($P<0.05$; Fig. 4B-E). These results suggested that UNC1999 inhibited tumor growth in vivo by inhibiting EZH2 and subsequent inhibition of the JAK2/STAT3 signaling pathway.

Reference: Oncol Lett. 2019 Jul;18(1):907-915. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6539677/