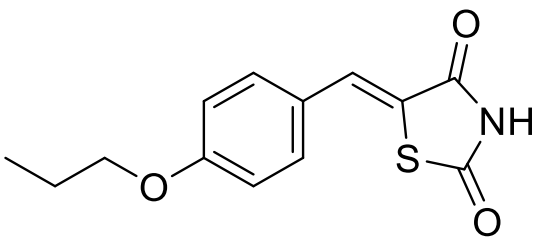
Product data sheet

MedKoo Cat#: 562422 Name: SMI-16a CAS#: 587852-28-6 Chemical Formula: $C_{13}H_{13}NO_3S$ Exact Mass: 263.0616 Molecular Weight: 263.31	
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:
SMI-16a, also known as Pim1/2 Inhibitor IV, is a potent, cell-permeable, ATP-competitive inhibitor of Pim-1/2 kinases (IC50 = 150 nM and 20 nM against Pim-1 and Pim-2, respectively).

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	76.50	290.53
Ethanol	3.0	11.39

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	3.80 mL	18.99 mL	37.98 mL
5 mM	0.76 mL	3.80 mL	7.60 mL
10 mM	0.38 mL	1.90 mL	3.80 mL
50 mM	0.08 mL	0.38 mL	0.76 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. Miki H, Nakamura S, Oda A, Tenshin H, Teramachi J, Hiasa M, Bat-Erdene A, Maeda Y, Oura M, Takahashi M, Iwasa M, Harada T, Fujii S, Kurahashi K, Yoshida S, Kagawa K, Endo I, Aihara K, Ikuo M, Itoh K, Hayashi K, Nakamura M, Abe M. Effective impairment of myeloma cells and their progenitors by hyperthermia. Oncotarget. 2017 Dec 7;9(12):10307-10316. doi: 10.18632/oncotarget.23121. PMID: 29535808; PMCID: PMC5828190.

In vivo study

1. Fujii S, Nakamura S, Oda A, Miki H, Tenshin H, Teramachi J, Hiasa M, Bat-Erdene A, Maeda Y, Oura M, Takahashi M, Iwasa M, Endo I, Yoshida S, Aihara KI, Kurahashi K, Harada T, Kagawa K, Nakao M, Sano S, Abe M. Unique anti-myeloma activity by thiazolidine-2,4-dione compounds with Pim inhibiting activity. Br J Haematol. 2018 Jan;180(2):246-258. doi: 10.1111/bjh.15033. PMID: 29327347.
2. Hiasa M, Teramachi J, Oda A, Amachi R, Harada T, Nakamura S, Miki H, Fujii S, Kagawa K, Watanabe K, Endo I, Kuroda Y, Yoneda T, Tsuji D, Nakao M, Tanaka E, Hamada K, Sano S, Itoh K, Matsumoto T, Abe M. Pim-2 kinase is an important target of treatment for tumor progression and bone loss in myeloma. Leukemia. 2015 Jan;29(1):207-17. doi: 10.1038/leu.2014.147. Epub 2014 May 2. PMID: 24787487.

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7. Bioactivity

Biological target:

SMI-16a is a Pim kinase inhibitor with IC50s of 0.15, 0.02 and 48 μM for Pim1, Pim2 and PC3 cells, respectively.

In vitro activity

Heating multiple myeloma (MM) cells to 43°C induced cell death and increased endoplasmic reticulum stress. The treatment reduced levels of survival factors Pim-2, IRF4, c-Myc, and Mcl-1. Combining with bortezomib or SMI-16a enhanced cell death. Heat treatment eradicated drug-resistant cell fractions and reduced clonogenic capacity in vitro and tumorigenicity in mice. Hyperthermia shows promise in targeting drug-resistant MM cells and improving susceptibility to chemotherapy.

Reference: Oncotarget. 2017 Dec 7;9(12):10307-10316. https://pubmed.ncbi.nlm.nih.gov/29535808/

In vivo activity

Pim-2 inhibition is a potential strategy for MM-related bone loss and tumor progression. Inhibiting Pim-2 with SMI-16a restores bone formation suppressed by MM factors in animal models. SMI-16a enhances anabolic signaling and reduces TGF-β signaling.

Reference: Leukemia. 2015 Jan;29(1):207-17. doi: 10.1038/leu.2014.147. https://pubmed.ncbi.nlm.nih.gov/24787487/

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.