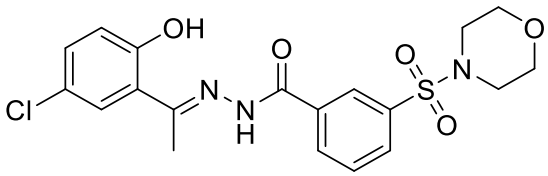
Product data sheet

MedKoo Cat#: 406610 Name: SP-2509 CAS#: 1423715-09-6 Chemical Formula: $C_{19}H_{20}ClN_3O_5S$ Exact Mass: 437.08122 Molecular Weight: 437.9	
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:

SP-2509 is a novel histone demethylase LSD1 inhibitor, which showed high actitivity on human AML cells. Treatment with the novel LSD1 antagonist SP2509 attenuated the binding of LSD1 with the corepressor CoREST, increased the permissive H3K4Me3 mark on the target gene promoters, and increased the levels of p21, p27 and CCAAT/enhancer binding protein α in cultured AML cells. In addition, SP2509 treatment or LSD1 shRNA inhibited the colony growth of AML cells.

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	33	75.36

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	2.28 mL	11.42 mL	22.84 mL
5 mM	0.46 mL	2.28 mL	4.57 mL
10 mM	0.23 mL	1.14 mL	2.28 mL
50 mM	0.05 mL	0.23 mL	0.46 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. Harancher MR, Packard JE, Cowan SP, DeLuca NA, Dembowski JA. Antiviral Properties of the LSD1 Inhibitor SP-2509. J Virol. 2020 Sep 15;94(19):e00974-20. doi: 10.1128/JVI.00974-20. PMID: 32699090; PMCID: PMC7495396.
2. Wang J, Yu Q, Qiu Z, Dai T, Wang S, Yang X, Evers BM, Wu Y. The combined effect of epigenetic inhibitors for LSD1 and BRD4 alters prostate cancer growth and invasion. Aging (Albany NY). 2020 Jan 5;12(1):397-415. doi: 10.18632/aging.102630. Epub 2020 Jan 5. PMID: 31901895; PMCID: PMC6977660.

In vivo study

1. Khanal T, Choi K, Leung YK, Wang J, Kim D, Janakiram V, Cho SG, Puga A, Ho SM, Kim K. Loss of NR2E3 represses AHR by LSD1 reprogramming, is associated with poor prognosis in liver cancer. Sci Rep. 2017 Sep 6;7(1):10662. doi: 10.1038/s41598-017-11106-2. PMID: 28878246; PMCID: PMC5587550.
2. Fiskus W, Sharma S, Shah B, Portier BP, Devaraj SG, Liu K, Iyer SP, Bearss D, Bhalla KN. Highly effective combination of LSD1 (KDM1A) antagonist and pan-histone deacetylase inhibitor against human AML cells. Leukemia. 2014 Nov;28(11):2155-64. doi: 10.1038/leu.2014.119. Epub 2014 Apr 4. Erratum in: Leukemia. 2017 Jul;31(7):1658. PMID: 24699304; PMCID: PMC4739780.

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7. Bioactivity

Biological target:

SP2509 is a potent and selective antagonist of lysine specific demethylase 1 (LSD1) with an IC50 of 13 nM.

In vitro activity

SP-2509 may have therapeutic potential in the treatment of herpes. Treatment of herpes simplex virus 1 (HSV-1)-infected cells with SP-2509 blocked viral DNA replication, gene expression after the onset of DNA replication, and virus production. However, SP-2509 did not inhibit HSV-1 IE gene expression or transcription factor and RNA polymerase II (Pol II) association with viral DNA prior to the onset of replication.

Reference: J Virol. 2020 Sep 15;94(19):e00974-20. https://pubmed.ncbi.nlm.nih.gov/32699090/

In vivo activity

The combination of SP-2509 and panobinostat is a promising therapy warranting further testing against acute myeloid leukemia (AML). Treatment with SP-2509 alone significantly improved the survival of immune-depleted mice following tail-vein infusion and engraftment of cultured or primary human AML cells. However, co-treatment with SP-2509 and panobinostat significantly improved the survival of the mice engrafted with the human AML cells, without exhibiting any toxicity.

Reference: Leukemia. 2014 Nov;28(11):2155-64. https://pubmed.ncbi.nlm.nih.gov/24699304/

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.