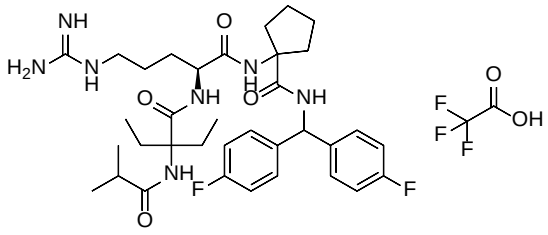
Product data sheet

MedKoo Cat#: 555880 Name: MM-102 TFA CAS: 1883545-52-5 (TFA) Chemical Formula: $C_{37}H_{50}F_5N_7O_6$ Molecular Weight: 783.842	
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:

MM-102 is a Potent WDR5/MLL interaction inhibitor. The MM-102 compound prevents the interaction between mixed lineage leukemia 1 (MLL1) and WD Trp-Asp repeat domain 5 (WDR5) and results in the inhibition of MLL1 H3K4 histone methyltransferase (HMT) activity. Down-Regulation of H3K4me3 by MM-102 Facilitates Epigenetic Reprogramming of Porcine Somatic Cell Nuclear Transfer Embryos

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	83.49	106.51

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	1.28 mL	6.38 mL	12.76 mL
5 mM	0.26 mL	1.28 mL	2.55 mL
10 mM	0.13 mL	0.64 mL	1.28 mL
50 mM	0.03 mL	0.13 mL	0.26 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. Xiong Y, Wang Y, Ma L, Zhang Y, Qu X, Huang L, Wen X, Liu H, Zhang M, Zhang Y. Mixed-lineage leukaemia 1 contributes to endometrial stromal cells progesterone responsiveness during decidualization. J Cell Mol Med. 2021 Jan;25(1):297-308. doi: 10.1111/jcmm.16030. Epub 2020 Nov 17. PMID: 33201593; PMCID: PMC7810960.

2. Karatas H, Townsend EC, Cao F, Chen Y, Bernard D, Liu L, Lei M, Dou Y, Wang S. High-affinity, small-molecule peptidomimetic inhibitors of MLL1/WDR5 protein-protein interaction. J Am Chem Soc. 2013 Jan 16;135(2):669-82. doi: 10.1021/ja306028q. Epub 2012 Dec 27. PMID: 23210835; PMCID: PMC5180416.

In vivo study

1. Zhang C, Guan Y, Zou J, Yang X, Bayliss G, Zhuang S. Histone methyltransferase MLL1 drives renal tubular cell apoptosis by p53-dependent repression of E-cadherin during cisplatin-induced acute kidney injury. Cell Death Dis. 2022 Sep 6;13(9):770. doi: 10.1038/s41419-022-05104-0. PMID: 36068197; PMCID: PMC9448773.

2. Sun F, Mo L, Lan Y, Lu Q, Wu N, Song H. WDR5 drives the development of cervical squamous cell carcinoma by inducing epithelial-mesenchymal transition and cancer-associated fibroblasts formation. Pathol Res Pract. 2022 Aug 17;238:154076. doi: 10.1016/j.prp.2022.154076. Epub ahead of print. PMID: 36055087.

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7. Bioactivity

Biological target:

MM-102 TFA (HMTase Inhibitor IX TFA) is a potent WDR5/MLL interaction inhibitor.

In vitro activity

Evaluation of one such peptidomimetic, MM-102, in bone marrow cells transduced with MLL1-AF9 fusion construct shows that the compound effectively decreases the expression of HoxA9 and Meis-1, two critical MLL1 target genes in MLL1 fusion protein mediated leukemogenesis. MM-102 also specifically inhibits cell growth and induces apoptosis in leukemia cells harboring MLL1 fusion proteins.

Reference: J Am Chem Soc. 2013 Jan 16;135(2):669-82. https://pubmed.ncbi.nlm.nih.gov/23210835/

In vivo activity

This study demonstrates that MLL1, WDR5, and trimethylated H3K4 (H3K4me3) were upregulated in renal tubular cells of cisplatin-induced AKI in mice, along with increased phosphorylation of p53 and decreased expression of E-cadherin. Administration of MM102, a selective MLL1/WDR5 complex inhibitor, improved renal function and attenuated tubular injury and apoptosis, while repressing MLL1, WDR5, and H3K4me3, dephosphorylating p53 and preserving E-cadherin.

Reference: Cell Death Dis. 2022 Sep 6;13(9):770. https://pubmed.ncbi.nlm.nih.gov/36068197/

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.