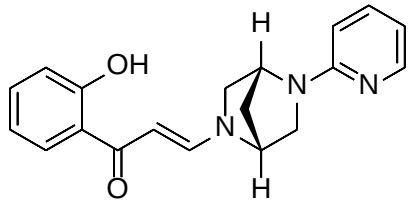
Product data sheet

MedKoo Cat#: 407284 Name: PFI-3 CAS: 1819363-80-8 Chemical Formula: $C_{19}H_{19}N_3O_2$ Exact Mass: 321.1477 Molecular Weight: 321.38	
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:
PFI-3 is a potent and selective SMARCA2/4 bromodomain inhibitor that binds avidly to the structurally-similar SMARCA4 bromodomain and PB1(bromodomain with Kd values of 89 and 48 nM, respectively. PFI-3 is a potent, cell-permeable probe capable of displacing ectopically expressed, GFP-tagged SMARCA2-bromodomain from chromatin.

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
DMF	25.0	77.79
DMSO	61.54	191.47
DMSO:PBS (pH 7.2) (1:5)	0.15	0.47
Ethanol	0.3	0.93

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	3.11 mL	15.56 mL	31.12 mL
5 mM	0.62 mL	3.11 mL	6.22 mL
10 mM	0.31 mL	1.56 mL	3.11 mL
50 mM	0.06 mL	0.31 mL	0.62 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. Gerstenberger BS, Trzupek JD, Tallant C, Fedorov O, Filippakopoulos P, Brennan PE, Fedele V, Martin S, Picaud S, Rogers C, Parikh M, Taylor A, Samas B, O'Mahony A, Berg E, Pallares G, Torrey AD, Treiber DK, Samardjiev IJ, Nasipak BT, Padilla-Benavides T, Wu Q, Imbalzano AN, Nickerson JA, Bunnage ME, Müller S, Knapp S, Owen DR. Identification of a Chemical Probe for Family VIII Bromodomains through Optimization of a Fragment Hit. J Med Chem. 2016 May 26;59(10):4800-11. doi: 10.1021/acs.jmedchem.6b00012. Epub 2016 May 3. PMID: 27115555; PMCID: PMC5034155.
2. Fedorov O, Castex J, Tallant C, Owen DR, Martin S, Aldeghi M, Monteiro O, Filippakopoulos P, Picaud S, Trzupek JD, Gerstenberger BS, Bountra C, Willmann D, Wells C, Philpott M, Rogers C, Biggin PC, Brennan PE, Bunnage ME, Schüle R, Günther T, Knapp S, Müller S. Selective targeting of the BRG/PB1 bromodomains impairs embryonic and trophoblast stem cell maintenance. Sci Adv. 2015 Nov 13;1(10):e1500723. doi: 10.1126/sciadv.1500723. PMID: 26702435; PMCID: PMC4681344.

In vivo study

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1. Li N, Liu H, Xue Y, Xu Z, Miao X, Guo Y, Li Z, Fan Z, Xu Y. Targetable Brg1-CXCL14 axis contributes to alcoholic liver injury by driving neutrophil trafficking. EMBO Mol Med. 2023 Mar 8;15(3):e16592. doi: 10.15252/emmm.202216592. Epub 2023 Feb 1. PMID: 36722664; PMCID: PMC9994483.
2. Wu T, Kong M, Xin XJ, Liu RQ, Wang HD, Song MZ, Xu WP, Yuan YB, Yang YY, Xiao PX. Epigenetic repression of THBD transcription by BRG1 contributes to deep vein thrombosis. Thromb Res. 2022 Nov;219:121-132. doi: 10.1016/j.thromres.2022.09.015. Epub 2022 Sep 19. PMID: 36162255.

7. Bioactivity

Biological target:

PFI-3 is a selective, potent and cell-permeable SMARCA2/4 bromodomain inhibitor with a Kd of 89 nM.

In vitro activity

The high specificity of PFI-3 was achieved on the basis of a novel binding mode of a salicylic acid head group that led to the replacement of water molecules typically maintained in other bromodomain inhibitor complexes. This study shows that exposure of embryonic stem cells to PFI-3 led to deprivation of stemness and deregulated lineage specification. Furthermore, differentiation of trophoblast stem cells in the presence of PFI-3 was markedly enhanced.

Reference: Sci Adv. 2015 Nov 13;1(10):e1500723. https://pubmed.ncbi.nlm.nih.gov/26702435/

In vivo activity

To test this idea, the mice were induced to develop ALD by the NIAAA procedure followed by injection with a specific Brg1 inhibitor (PFI-3) or a specific antagonist to the CXCL14 receptor (AMD3100) (Fig 6A). Administration of PFI-3 significantly alleviated alcoholic liver injury as evidenced by plasma ALT levels (Fig 6B), plasma AST levels (Fig 6C), and hepatic triglyceride levels (Fig 6D). Further evidence that Brg1 inhibition by PFI-3 administration could potentially mitigate alcoholic liver injury was provided by histological stainings that showed reduced lipid droplets, ROS production, and neutrophil infiltration in the liver (Fig 6 E).

Reference: EMBO Mol Med. 2023 Mar 8;15(3):e16592. https://pubmed.ncbi.nlm.nih.gov/36722664/

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.