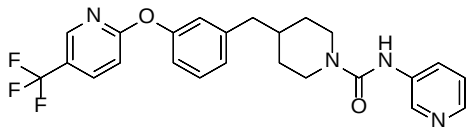
Product data sheet

MedKoo Cat#: 503210 Name: PF-3845 CAS: 1196109-52-0 Chemical Formula: $C_{24}H_{23}F_3N_4O_2$ Exact Mass: 456.1773 Molecular Weight: 456.4602	
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:

PF-3845 is a fatty acid amide hydrolase (FAAH) inhibitor, and acts in the nervous system to reverse LPS-induced tactile allodynia in mice. PF-3845 promotes neuronal survival, attenuates inflammation and improves functional recovery in mice with traumatic brain injury. Treatment with PF3845 inactivated FAAH activity and enhanced the AEA levels in the brain. It reduced neurodegeneration in the dentate gyrus, and up-regulated the expression of Bcl-2 and Hsp70/72 in both cortex and hippocampus. PF3845 also suppressed the increased production of amyloid precursor protein, prevented dendritic loss and restored the levels of synaptophysin in the ipsilateral dentate gyrus.

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	20.0	43.82
DMSO	64.16	140.57
Ethanol	44.61	97.72
Ethanol:PBS (pH 7.2) (1:3)	0.25	0.55

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	2.19 mL	10.95 mL	21.91 mL
5 mM	0.44 mL	2.19 mL	4.38 mL
10 mM	0.22 mL	1.10 mL	2.19 mL
50 mM	0.04 mL	0.22 mL	0.44 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. Wasilewski A, Krajewska U, Owczarek K, Lewandowska U, Fichna J. Fatty acid amide hydrolase (FAAH) inhibitor PF-3845 reduces viability, migration and invasiveness of human colon adenocarcinoma Colo-205 cell line: an in vitro study. Acta Biochim Pol. 2017;64(3):519-525. doi: 10.18388/abp.2017_1520. Epub 2017 Aug 30. PMID: 28850633.

2. Ahn K, Johnson DS, Mileni M, Beidler D, Long JZ, McKinney MK, Weerapana E, Sadagopan N, Liimatta M, Smith SE, Lazerwith S, Stiff C, Kamtekar S, Bhattacharya K, Zhang Y, Swaney S, Van Becelaere K, Stevens RC, Cravatt BF. Discovery and characterization of a highly selective FAAH inhibitor that reduces inflammatory pain. Chem Biol. 2009 Apr 24;16(4):411-20. doi: 10.1016/j.chembiol.2009.02.013. PMID: 19389627; PMCID: PMC2692831.

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In vivo study

1. Ihn HJ, Kim YS, Lim S, Bae JS, Jung JC, Kim YH, Park JW, Wang Z, Koh JT, Bae YC, Baek MC, Park EK. PF-3845, a Fatty Acid Amide Hydrolase Inhibitor, Directly Suppresses Osteoclastogenesis through ERK and NF-κB Pathways In Vitro and Alveolar Bone Loss In Vivo. Int J Mol Sci. 2021 Feb 15;22(4):1915. doi: 10.3390/ijms22041915. PMID: 33671948; PMCID: PMC7919013.

2. Booker L, Kinsey SG, Abdullah RA, Blankman JL, Long JZ, Ezzili C, Boger DL, Cravatt BF, Lichtman AH. The fatty acid amide hydrolase (FAAH) inhibitor PF-3845 acts in the nervous system to reverse LPS-induced tactile allodynia in mice. Br J Pharmacol. 2012 Apr;165(8):2485-96. doi: 10.1111/j.1476-5381.2011.01445.x. PMID: 21506952; PMCID: PMC3423256.

7. Bioactivity

Biological target:

PF-3845 is a potent, selective, irreversible and orally active inhibitor of fatty acid amide hydrolase (FAAH), with a Ki of 0.23 μM.

In vitro activity

This study found that of all the inhibitors used, the FAAH inhibitor PF-3845 reduced the Colo-205 cell line viability the most effectively (IC50=52.55 μM). This study also showed that the effect of decreased cell viability was enhanced when Colo-205 cells were incubated with PF-3845 and RN-1734, a TRPV4 antagonist (IC50=30.54 μM). Western blot assay revealed significantly decreased CB1 receptor expression levels, while CB2 expression was increased in response to PF-3845 when compared to control. Furthermore, PF-3845 inhibited migration and invasion of Colo-205 cell line.

Reference: Acta Biochim Pol. 2017;64(3):519-525. https://pubmed.ncbi.nlm.nih.gov/28850633/

In vivo activity

FAAH (-/-) mice or wild-type mice treated with FAAH inhibitors (URB597, OL-135 and PF-3845) displayed an anti-allodynic phenotype. Furthermore, i.p. PF-3845 increased AEA levels in the brain and spinal cord. Additionally, intraplantar PF-3845 produced a partial reduction in allodynia.

Reference: Br J Pharmacol. 2012 Apr;165(8):2485-96. https://pubmed.ncbi.nlm.nih.gov/21506952/

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.