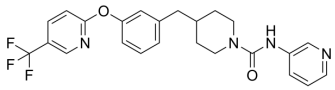
PF-3845

Cat. No.:	HY-14380
CAS No.:	1196109-52-0
Molecular Formula:	$C_{24}H_{23}F_3N_4O_2$
Molecular Weight:	456.46
Target:	FAAH; Autophagy
Pathway:	Metabolic Enzyme/Protease; Neuronal Signaling; Autophagy
Storage:	Powder -20°C 3 years 4°C 2 years In solvent -80°C 2 years -20°C 1 year



SOLVENT & SOLUBILITY

In Vitro

DMSO : ≥ 100 mg/mL (219.08 mM)

* "≥" means soluble, but saturation unknown.

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	2.1908 mL	10.9539 mL	21.9077 mL
5 mM	0.4382 mL	2.1908 mL	4.3815 mL
10 mM	0.2191 mL	1.0954 mL	2.1908 mL

Please refer to the solubility information to select the appropriate solvent.

In Vivo

1. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 2.5 mg/mL (5.48 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.5 mg/mL (5.48 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (5.48 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

PF-3845 is a potent, selective, irreversible and orally active inhibitor of fatty acid amide hydrolase (FAAH), with a K_i of 0.23 μM. PF-3845 is a covalent inhibitor that carbamylates FAAH's serine nucleophile. PF-3845 can reduce pain sensation, inflammation, and anxiety/depression without substantial effects on motility or cognition[1][3].

IC_{50} & Target

Ki: 0.23 μM (FAAH)[1]

In Vitro	PF-3845 (0.5 nM-10 μM; 40 min) inhibits human FAAH-1 (IC_{50}=18 nM) in a concentration-dependent manner, and shows negligible activity against FAAH-2 (IC_{50}>10 μM) in COS-7 cells[1]. PF-3845 (0.1-1000 μM; 48 h) significantly decreases the Colo-205 cell viability[2]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
In Vivo	PF-3845 (1-30 mg/kg; p.o.) produces cannabinoid receptor-dependent reductions in inflammatory pain in rat[1]. PF-3845 (10 mg/kg; a single i.p.) selectively inhibits FAAH in mice for up to 24 hours[1]. PF-3845 (10 mg/kg; a single i.p.) causes a dramatic and sustained elevation in Anandamide (AEA) in mice[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	Male Sprague-Dawley rats (200g- 250g) are injected CFA[1]
Dosage:	1, 3, 10, 30 mg/kg
Administration:	Oral administration
Result:	Caused a dose-dependent inhibition of mechanical allodynia with a minimum effective dose (MED) of 3 mg/kg.

CUSTOMER VALIDATION

- Cell Death Differ. 2022 Sep 14.

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REFERENCES

[1]. Wasilewski A, et, al. 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.

[2]. Ahn K, et al. Discovery and characterization of a highly selective FAAH inhibitor that reduces inflammatory pain. Chem Biol. 2009 Apr 24;16(4):411-20.

[3]. Booker L, et al. 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, 165(8), 2485-2496.

[4]. Lamont Booker, et al. 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, 165(8), 2485-2496.

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