

Product data sheet



MedKoo Cat#: 525248 Name: PD-144418 Oxalate CAS: 1794760-28-3 (oxalate) Chemical Formula: C ₂₀ H ₂₄ N ₂ O ₅ Exact Mass: 372.1685 Molecular Weight: 372.421	
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:

PD-144418 Oxalate is a novel selective sigma ligand.

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	18.62	50.0

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	5.37 mL	26.85 mL	53.70 mL
5 mM	1.07 mL	5.37 mL	10.74 mL
10 mM	0.54 mL	2.69 mL	5.37 mL
50 mM	0.11 mL	0.54 mL	1.07 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

- Lever JR, Miller DK, Ferguson-Cantrell EA, Green CL, Watkinson LD, Carmack TL, Lever SZ. Relationship between cerebral sigma-1 receptor occupancy and attenuation of cocaine's motor stimulatory effects in mice by PD144418. *J Pharmacol Exp Ther*. 2014 Oct;351(1):153-63. doi: 10.1124/jpet.114.216671. Epub 2014 Aug 6. PMID: 25100754; PMCID: PMC4165029.
- Akunne HC, Whetzel SZ, Wiley JN, Corbin AE, Ninteman FW, Teclé H, Pei Y, Pugsley TA, Heffner TG. The pharmacology of the novel and selective sigma ligand, PD 144418. *Neuropharmacology*. 1997 Jan;36(1):51-62. doi: 10.1016/s0028-3908(96)00161-x. PMID: 9144641.

In vivo study

- Tapia MA, Lee JR, Bathe EL, Rivera LL, Mason KL, Cessac ME, Bodeen JL, Miller DK, Will MJ. Sigma-1 receptor antagonist, PD144418, selectively reduces female motivation for food during negative energy balance. *Behav Brain Res*. 2019 Nov 5;373:112087. doi: 10.1016/j.bbr.2019.112087. Epub 2019 Jul 17. PMID: 31325519.
- Tapia MA, Lever JR, Lever SZ, Will MJ, Park ES, Miller DK. Sigma-1 receptor ligand PD144418 and sigma-2 receptor ligand YUN-252 attenuate the stimulant effects of methamphetamine in mice. *Psychopharmacology (Berl)*. 2019 Nov;236(11):3147-3158. doi: 10.1007/s00213-019-05268-2. Epub 2019 May 28. PMID: 31139878.

7. Bioactivity

Biological target:

PD 144418 oxalate is a highly affinity, potent and selective sigma 1 (σ_1) receptor ligand.

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In vitro activity

PD 144418 exhibited an affinity for sigma 1 of 0.08 nM (K_i) versus a K₁ of 1377 nM for sigma 2 site. Additional receptor binding studies indicated that PD 144418 lacked affinity for dopaminergic, adrenergic, muscarinic and a variety of other receptors. In vitro studies indicated that PD 144418 reversed the N-methyl-D-aspartate (NMDA)-induced increase in cyclic GMP (cGMP) in rat cerebellar slices without affecting the basal levels, suggesting that sigma 1 sites may be important in the regulation of glutamine-induced actions.

Reference: Neuropharmacology. 1997 Jan;36(1):51-62. <https://pubmed.ncbi.nlm.nih.gov/9144641/>

In vivo activity

The present study examined the effects of PD144418 on motivational aspects of feeding in male and female rats using an operant task under sated or food deprived conditions. Results indicated that when animals are sated, at the highest dose (10 µmol/kg), under a progressive ratio (PR) reinforcement schedule, PD144418 significantly attenuated the breakpoint and the number of active lever responses for sucrose pellets in both males and females.

Reference: Behav Brain Res. 2019 Nov 5;373:112087. <https://pubmed.ncbi.nlm.nih.gov/31325519/>

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.