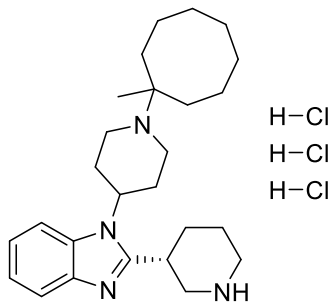
Product data sheet

MedKoo Cat#: 564077 Name: MCOPPB trihydrochloride CAS: 1108147-88-1 (HCl) Chemical Formula: $C_{26}H_{43}Cl_3N_4$ Exact Mass: 516.2553 Molecular Weight: 518.008	
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:
MCOPPB trihydrochloride is a potent and selective agonist of the NOP receptor.

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	100.0	196.05

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	1.93 mL	9.65 mL	19.30 mL
5 mM	0.39 mL	1.93 mL	3.86 mL
10 mM	0.19 mL	0.97 mL	1.93 mL
50 mM	0.04 mL	0.19 mL	0.39 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. Raffaele M, Kovacovicova K, Biagini T, Lo Re O, Frohlich J, Giallongo S, Nhan JD, Giannone AG, Cabibi D, Ivanov M, Tonchev AB, Mistrik M, Lacey M, Dzubak P, Gurska S, Hajduch M, Bartek J, Mazza T, Micale V, Curran SP, Vinciguerra M. Nociceptin/orphanin FQ opioid receptor (NOP) selective ligand MCOPPB links anxiolytic and senolytic effects. Geroscience. 2022 Feb;44(1):463-483. doi: 10.1007/s11357-021-00487-y. Epub 2021 Nov 24. PMID: 34820764; PMCID: PMC8612119.
2. Hirao A, Imai A, Sugie Y, Yamada Y, Hayashi S, Toide K. Pharmacological characterization of the newly synthesized nociceptin/orphanin FQ-receptor agonist 1-[1-(1-methylcyclooctyl)-4-piperidinyl]-2-[(3R)-3-piperidinyl]-1H-benzimidazole as an anxiolytic agent. J Pharmacol Sci. 2008 Mar;106(3):361-8. doi: 10.1254/jphs.fp0071742. Epub 2008 Mar 5. PMID: 18319566.

In vivo study

1. Raffaele M, Kovacovicova K, Biagini T, Lo Re O, Frohlich J, Giallongo S, Nhan JD, Giannone AG, Cabibi D, Ivanov M, Tonchev AB, Mistrik M, Lacey M, Dzubak P, Gurska S, Hajduch M, Bartek J, Mazza T, Micale V, Curran SP, Vinciguerra M. Nociceptin/orphanin FQ opioid receptor (NOP) selective ligand MCOPPB links anxiolytic and senolytic effects. Geroscience. 2022 Feb;44(1):463-483. doi: 10.1007/s11357-021-00487-y. Epub 2021 Nov 24. PMID: 34820764; PMCID: PMC8612119.
2. Hayashi S, Hirao A, Imai A, Nakamura H, Murata Y, Ohashi K, Nakata E. Novel non-peptide nociceptin/orphanin FQ receptor agonist, 1-[1-(1-Methylcyclooctyl)-4-piperidinyl]-2-[(3R)-3-piperidinyl]-1H-benzimidazole: design, synthesis, and structure-activity relationship of oral receptor occupancy in the brain for orally potent antianxiety drug. J Med Chem. 2009 Feb 12;52(3):610-25. doi: 10.1021/jm7012979. PMID: 19125610.

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7. Bioactivity

Biological target:

MCOPPB 3Hcl is a nociceptin receptor agonist with pKi of 10.07.

In vitro activity

MCOPPB has a high affinity for the human NOP receptor (pKi = 10.07 +/- 0.01) and selectivity for the NOP receptor over other members of the opioid receptor family: 12-, 270- and >1000-fold more selective for the NOP receptor than for the micro-, kappa-, and delta-receptor, respectively.

Reference: J Pharmacol Sci. 2008 Mar;106(3):361-8. https://pubmed.ncbi.nlm.nih.gov/18319566/

In vivo activity

MCOPPB reduced the senescence cell burden in peripheral tissues but not in the central nervous system. Mice and worms exposed to MCOPPB also exhibited locomotion and lipid storage changes. Mechanistically, MCOPPB treatment activated transcriptional networks involved in the immune responses to external stressors, implicating Toll-like receptors (TLRs).

Reference: Geroscience. 2022 Feb;44(1):463-483. https://pubmed.ncbi.nlm.nih.gov/34820764/

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.