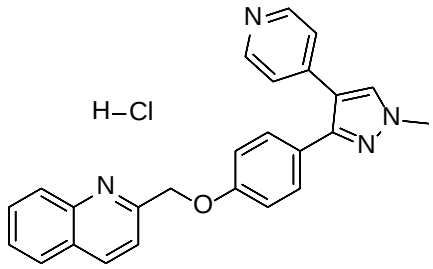
Product data sheet

MedKoo Cat#: 462479 Name: Mardepodect HCl CAS: 2070014-78-5 (HCl) Chemical Formula: $C_{25}H_{21}ClN_4O$ Exact Mass: 428.1404 Molecular Weight: 428.92	
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:

Mardepodect, also known as PF-2545920, is a phosphodiesterase inhibitor selective for the PDE10A subtype, which is potentially useful for the treatment of schizophrenia. Phosphodiesterase 10A (PDE10A) is highly expressed in striatal medium spiny neurons of both the direct and indirect output pathways. PDE10A inhibitors have shown behavioral effects in rodent models that predict antipsychotic efficacy. PF-2545920 is active in a range of antipsychotic models, antagonizing apomorphine-induced climbing in mice, inhibiting conditioned avoidance responding in both rats and mice, and blocking N-methyl-D-aspartate antagonist-induced deficits in prepulse inhibition of acoustic startle response in rats, while improving baseline sensory gating in mice.

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	25.0	58.29

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	2.33 mL	11.66 mL	23.31 mL
5 mM	0.47 mL	2.33 mL	4.66 mL
10 mM	0.23 mL	1.17 mL	2.33 mL
50 mM	0.05 mL	0.23 mL	0.47 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. Kim DY, Park JS, Leem YH, Park JE, Kim HS. The Potent PDE10A Inhibitor MP-10 (PF-2545920) Suppresses Microglial Activation in LPS-Induced Neuroinflammation and MPTP-Induced Parkinson's Disease Mouse Models. J Neuroimmune Pharmacol. 2021 Jun;16(2):470-482. doi: 10.1007/s11481-020-09943-6. Epub 2020 Jul 15. PMID: 32671618.
2. Hankir MK, Kranz M, Gnad T, Weiner J, Wagner S, Deuther-Conrad W, Bronisch F, Steinhoff K, Luthardt J, Klöting N, Hesse S, Seibyl JP, Sabri O, Heiker JT, Blüher M, Pfeifer A, Brust P, Fenske WK. A novel thermoregulatory role for PDE10A in mouse and human adipocytes. EMBO Mol Med. 2016 Jul 1;8(7):796-812. doi: 10.15252/emmm.201506085. PMID: 27247380; PMCID: PMC4931292.

In vivo study

1. Chen J, Zook D, Crickard L, Tabatabaei A. Effect of phosphodiesterase (1B, 2A, 9A and 10A) inhibitors on central nervous system cyclic nucleotide levels in rats and mice. Neurochem Int. 2019 Oct;129:104471. doi: 10.1016/j.neuint.2019.104471. Epub 2019 May 20. PMID: 31121256.

2. Wilson JM, Ogden AM, Loomis S, Gilmour G, Baucum AJ 2nd, Belecky-Adams TL, Merchant KM. Phosphodiesterase 10A inhibitor, MP-10 (PF-2545920), produces greater induction of c-Fos in dopamine D2 neurons than in D1 neurons in the neostriatum. Neuropharmacology. 2015 Dec;99:379-86. doi: 10.1016/j.neuropharm.2015.08.008. Epub 2015 Aug 7. PMID: 26256420.

7. Bioactivity

Biological target:

Mardepodect hydrochloride (PF-2545920 hydrochloride) is a potent, orally active and selective PDE10A inhibitor with an IC_{50} of 0.37 nM, with >1000-fold selectivity over other PDEs.

In vitro activity

Subsequent western blot and reverse transcription polymerase chain reaction analyses showed that MP-10 reduced the mRNA and protein levels of inducible nitric oxide synthase, cyclooxygenase-2, proinflammatory cytokines, and matrix metalloproteinase-3, -8, and - 9 in LPS-stimulated BV2 cells. Further mechanistic studies revealed that MP-10 exerts anti-inflammatory effects by inhibiting the phosphorylation of c-Jun N-terminal kinase and Akt, reducing the activity of nuclear factor-kappa B/activator protein-1, and upregulating the nuclear factor erythroid 2-related factor 2/antioxidant response element and protein kinase A/cAMP response element-binding protein signaling pathways.

Reference: J Neuroimmune Pharmacol. 2021 Jun;16(2):470-482. https://pubmed.ncbi.nlm.nih.gov/32671618/

In vivo activity

MP-10 (1, 3, 10 or 30 mg/kg, PO) dose-dependently increased c-Fos immunopositive nuclei in all regions of neostriatum. In the Drd1a-tdTomato mice, MP-10 (3 or 10 mg/kg, IP) increased c-Fos immunoreactivity in both types of neurons, the induction was greater in the D1-negative neurons.

Reference: Neuropharmacology. 2015 Dec;99:379-86. https://pubmed.ncbi.nlm.nih.gov/26256420/

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.