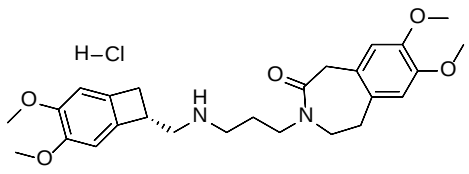
Product data sheet

MedKoo Cat#: 573993 Name: MVN 38083 CAS: 1246638-08-3 Chemical Formula: $C_{26}H_{35}ClN_2O_5$ Exact Mass: 490.2234 Molecular Weight: 491.025	
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:
MVN 38083, also known as N-desmethyl Ivabradine (hydrochloride) is an active metabolite of ivabradine. Ivabradine is metabolized by the cytochrome P450 (CYP) isoform CYP3A4. This product has no formal name at the moment. For the convenience of communication, a temporary code name was therefore proposed according to MedKoo Chemical Nomenclature (see web page: https://www.medkoo.com/page/naming).

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	25.0	50.91
DMSO	43.34	88.25
Ethanol	1.0	2.04
PBS (pH 7.2)	10.0	20.37

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	2.04 mL	10.18 mL	20.37 mL
5 mM	0.41 mL	2.04 mL	4.07 mL
10 mM	0.20 mL	1.02 mL	2.04 mL
50 mM	0.04 mL	0.20 mL	0.41 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. Ohashi N, Uta D, Ohashi M, Baba H. Analgesic effect of ivabradine against inflammatory pain mediated by hyperpolarization-activated cyclic nucleotide-gated cation channels expressed on primary afferent terminals in the spinal dorsal horn. Pain. 2022 Jul 1;163(7):1356-1369. doi: 10.1097/j.pain.0000000000002523. Epub 2021 Oct 23. PMID: 35708467.
2. Hackl B, Lukacs P, Ebner J, Pesti K, Haechl N, Földi MC, Lilliu E, Schicker K, Kubista H, Stary-Weinzinger A, Hilber K, Mike A, Todt H, Koenig X. The Bradycardic Agent Ivabradine Acts as an Atypical Inhibitor of Voltage-Gated Sodium Channels. Front Pharmacol. 2022 May 2;13:809802. doi: 10.3389/fphar.2022.809802. PMID: 35586063; PMCID: PMC9108390.

In vivo study

1. Baka T, Stanko P, Repova K, Aziriova S, Krajcirovicova K, Barta A, Zorad S, Simko F. Ivabradine curbs isoproterenol-induced kidney fibrosis. Gen Physiol Biophys. 2023 Mar;42(2):209-215. doi: 10.4149/gpb_2022057. PMID: 36896950.
2. Woodman R, Student J, Miller C, Lockette W. Ivabradine-Induced Bradycardia Is Accompanied By Reduced Stress-Related Anxiety. Am J Hypertens. 2023 Feb 22:hpad019. doi: 10.1093/ajh/hpad019. Epub ahead of print. PMID: 36812223.

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7. Bioactivity

Biological target:

N-Demethyl Ivabradine Hcl is a metabolite of Ivabradine, which is a specific inhibitor of the funny channel.

In vitro activity

In vitro whole-cell patch-clamp and in vivo extracellular recordings showed that direct application of ivabradine to the spinal cord decreases the mean miniature excitatory postsynaptic currents' frequency (13 rats; $P < 0.01$), and direct and peripheral application of ivabradine suppresses the spinal response to mechanical stimulation-evoked firing (8 rats/group, $P < 0.01$). Moreover, ivabradine reduces the amplitudes of monosynaptic excitatory postsynaptic currents evoked by Aδ-fiber and C-fiber stimulation (6 rats; $P < 0.01$) and induces a stronger inhibition of those evoked by C-fiber stimulation.

Reference: Pain. 2022 Jul 1;163(7):1356-1369. https://pubmed.ncbi.nlm.nih.gov/35708467/

In vivo activity

Twenty-eight Wistar rats were divided into non-diseased controls, rats treated with ivabradine, rats treated with isoproterenol, and rats treated with isoproterenol plus ivabradine. Ivabradine reduced HR (by 15%), partly prevented SBP decline (by 10%) and site-specifically mitigated kidney fibrosis by decreasing type I collagen volume in all three sites investigated (by 69, 58, and 67%, respectively) and the ratio of type I collagen-to-type III collagen in glomerular and vascular/perivascular sites (by 79 and 73%, respectively).

Reference: Gen Physiol Biophys. 2023 Mar;42(2):209-215. https://pubmed.ncbi.nlm.nih.gov/36896950/

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.