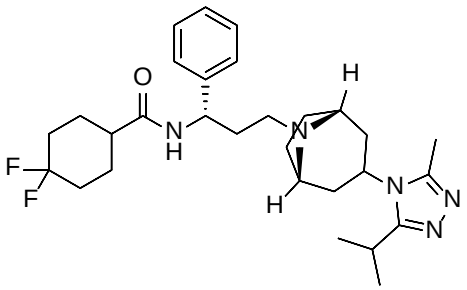
Product data sheet

MedKoo Cat#: 318173 Name: Maraviroc CAS: 376348-65-1 Chemical Formula: $C_{29}H_{41}F_2N_5O$ Exact Mass: 513.3279 Molecular Weight: 513.6778	
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:
Maraviroc is an antiviral, potent, non-competitive CKR-5 receptor antagonist that inhibits binding of HIV viral coat protein gp120. Maraviroc inhibits MIP-1β-stimulated γ-S-GTP binding to HEK-293 cell membranes, indicating its ability to inhibit chemokine-dependent stimulation of GDP-GTP exchange at the CKR-5/G protein complex. Maraviroc also inhibits the downstream event of chemokine-induced intracellular calcium redistribution.

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	5.0	9.73
DMSO	42.21	91.90
Ethanol	45.72	89.0
Ethanol:PBS (pH 7.2) (1:1)	0.5	0.97

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	1.95 mL	9.73 mL	19.47 mL
5 mM	0.39 mL	1.95 mL	3.89 mL
10 mM	0.19 mL	0.97 mL	1.95 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. Mencarelli A, Cipriani S, Francisci D, Santucci L, Baldelli F, Distrutti E, Fiorucci S. Highly specific blockade of CCR5 inhibits leukocyte trafficking and reduces mucosal inflammation in murine colitis. Sci Rep. 2016 Aug 5;6:30802. doi: 10.1038/srep30802. PMID: 27492684; PMCID: PMC4974621.
2. Dorr P, Westby M, Dobbs S, Griffin P, Irvine B, Macartney M, Mori J, Rickett G, Smith-Burchnell C, Napier C, Webster R, Armour D, Price D, Stammen B, Wood A, Perros M. Maraviroc (UK-427,857), a potent, orally bioavailable, and selective small-molecule inhibitor of chemokine receptor CCR5 with broad-spectrum anti-human immunodeficiency virus type 1 activity. Antimicrob Agents Chemother. 2005 Nov;49(11):4721-32. doi: 10.1128/AAC.49.11.4721-4732.2005. PMID: 16251317; PMCID: PMC1280117.

In vivo study

Product data sheet

1. Ishihara Y, Honda T, Ishihara N, Namba K, Taketoshi M, Tominaga Y, Tsuji M, Vogel CFA, Yamazaki T, Itoh K, Tominaga T. A CCR5 antagonist, maraviroc, alleviates neural circuit dysfunction and behavioral disorders induced by prenatal valproate exposure. J Neuroinflammation. 2022 Jul 29;19(1):195. doi: 10.1186/s12974-022-02559-y. PMID: 35906621; PMCID: PMC9335995.
2. Neff CP, Kurisu T, Ndolo T, Fox K, Akkina R. A topical microbicide gel formulation of CCR5 antagonist maraviroc prevents HIV-1 vaginal transmission in humanized RAG-hu mice. PLoS One. 2011;6(6):e20209. doi: 10.1371/journal.pone.0020209. Epub 2011 Jun 1. PMID: 21673796; PMCID: PMC3105981.

7. Bioactivity

Biological target:

Maraviroc (UK-427857) is a selective CCR5 antagonist with activity against human HIV.

In vitro activity

Maraviroc demonstrated potent antiviral activity against all CCR5-tropic HIV-1 viruses tested, including 43 primary isolates from various clades and diverse geographic origin (geometric mean 90% inhibitory concentration of 2.0 nM). Maraviroc was active against 200 clinically derived HIV-1 envelope-recombinant pseudoviruses, 100 of which were derived from viruses resistant to existing drug classes.

Reference: Antimicrob Agents Chemother. 2005 Nov;49(11):4721-32. https://pubmed.ncbi.nlm.nih.gov/16251317/

In vivo activity

Maraviroc, a clinically approved CCR5 inhibitor drug for HIV treatment, was formulated as a microbicide gel at 5 mM concentration in 2.2% hydroxyl ethyl cellulose. Female RAG-hu mice were challenged vaginally with HIV-1 an hour after intravaginal application of the maraviroc gel. These results showed that maraviroc gel treated mice were fully protected against vaginal HIV-1 challenge in contrast to placebo gel treated mice which all became infected.

Reference: PLoS One. 2011;6(6):e20209. https://pubmed.ncbi.nlm.nih.gov/21673796/