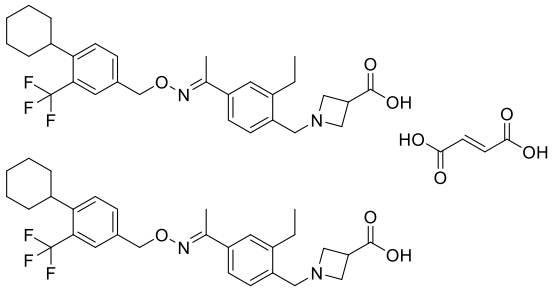
Product data sheet

MedKoo Cat#: 330237 Name: Siponimod fumarate CAS#: 1234627-85-0 (fumarate) Chemical Formula: $C_{62}H_{74}F_6N_4O_{10}$ Molecular Weight: 1149.28	
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:

Siponimod, also known as BAF-312, is a a potent and orally selective S1P Receptor Modulator with EC50 value of 0.39nM for S1P1 receptors and 0.98nM for S1P5 receptors, respectively. Development of sphingosine-1-phosphate receptor 1 (S1P1) modulators to dampen inflammation and its sequelae is becoming increasingly promising for treating medical conditions characterized by significant immunopathology.

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
To be determined	To be determined	To be determined

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	1.94 mL	9.68 mL	19.36 mL
5 mM	0.39 mL	1.94 mL	3.87 mL
10 mM	0.19 mL	0.97 mL	1.94 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. Sartawi Z, Ryan KB, Waeber C. Bone regenerative potential of the selective sphingosine 1-phosphate receptor modulator siponimod: In vitro characterisation using osteoblast and endothelial cells. Eur J Pharmacol. 2020 Sep 5;882:173262. doi: 10.1016/j.ejphar.2020.173262. Epub 2020 Jun 10. PMID: 32534075.
2. Lewis ND, Haxhinasto SA, Anderson SM, Stefanopoulos DE, Fogal SE, Adusumalli P, Desai SN, Patnaude LA, Lukas SM, Ryan KR, Slavin AJ, Brown ML, Modis LK. Circulating monocytes are reduced by sphingosine-1-phosphate receptor modulators independently of S1P3. J Immunol. 2013 Apr 1;190(7):3533-40. doi: 10.4049/jimmunol.1201810. Epub 2013 Feb 22. PMID: 23436932.

In vivo study

1. Basavarajappa D, Gupta V, Chitranshi N, Viswanathan D, Gupta V, Vander Wall R, Palanivel V, Mirzaei M, You Y, Klistorner A, Graham SL. Anti-inflammatory Effects of Siponimod in a Mouse Model of Excitotoxicity-Induced Retinal Injury. Mol Neurobiol. 2023 Dec;60(12):7222-7237. doi: 10.1007/s12035-023-03535-0. Epub 2023 Aug 5. PMID: 37542647; PMCID: PMC10657799.
2. Pognan F, Mahl JA, Papoutsi M, Ledieu D, Raccuglia M, Theil D, Voytek SB, Devine PJ, Kubek-Luck K, Claudio N, Cordier A, Heier A, Kolly C, Hartmann A, Chibout SD, Bouchard P, Trendelenburg C. Induction of hemangiosarcoma in mice after chronic

treatment with S1P-modulator siponimod and its lack of relevance to rat and human. Arch Toxicol. 2018 May;92(5):1877-1891. doi: 10.1007/s00204-018-2189-9. Epub 2018 Mar 19. PMID: 29556671; PMCID: PMC5962627.

7. Bioactivity

Biological target:

Siponimod is a next-generation S1P receptor agonist, selective for S1P1 and S1P5 receptors with EC50 of 0.39 nM and 0.98 nM, exhibits >1000-fold selectivity over S1P2, S1P3 and S1P4 receptors.

In vitro activity

Siponimod may be a potential agent for the stimulation of localised differentiation of osteoblasts in critical bone defects. In hFOB osteoblasts and HUVEC endothelial cells, siponimod showed no effect on the viability and proliferation of osteoblasts and endothelial cells, but increased osteoblast differentiation. Furthermore, siponimod significantly increased endothelial cell motility in scratch and transwell migration assays.

Reference: Eur J Pharmacol. 2020 Sep 5;882:173262. https://pubmed.ncbi.nlm.nih.gov/32534075/

In vivo activity

Siponimod has demonstrated promising biological activity in addressing glaucoma-related neurodegeneration. Siponimod showcased protective effects in mice against acute NMDA excitotoxicity, preserving inner retinal structure and function. Mechanistically, siponimod treatment countered glial activation and inhibited pro-inflammatory pathways, including NF-kB, TNFα, IL1-β, and IL-6. Notably, siponimod attenuated NMDA-induced activation of the NLRP3 inflammasome and upregulation of neurotoxic iNOS.

Reference: Mol Neurobiol. 2023 Dec;60(12):7222-7237. https://pubmed.ncbi.nlm.nih.gov/37542647/

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.