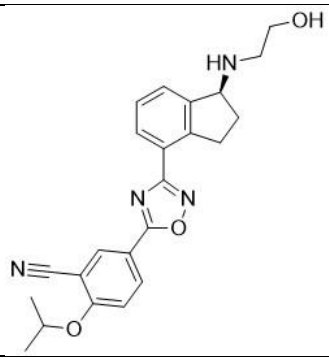
Product data sheet

MedKoo Cat#: 206177 Name: Ozanimod CAS#: 1306760-87-1 Chemical Formula: $C_{23}H_{24}N_4O_3$ Exact Mass: 404.18484 Molecular Weight: 404.46	
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:
Ozanimod, also known as RPC1063, is a selective sphingosine 1 phosphate receptor modulators and methods which may be useful in the treatment of S1P1-associated diseases.

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	20.0	49.4

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	2.47	12.36	24.72
5 mM	0.49	2.47	4.94
10 mM	0.25	1.24	2.47
50 mM	0.05	0.25	0.49

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. Taylor Meadows KR, Steinberg MW, Clemons B, Stokes ME, Opiteck GJ, Peach R, Scott FL. Ozanimod (RPC1063), a selective S1PR1 and S1PR5 modulator, reduces chronic inflammation and alleviates kidney pathology in murine systemic lupus erythematosus. PLoS One. 2018 Apr 2;13(4):e0193236. doi: 10.1371/journal.pone.0193236. PMID: 29608575; PMCID: PMC5880347.
2. Wendt TS, Li YJ, Gonzales RJ. Ozanimod, an S1PR1 ligand, attenuates hypoxia plus glucose deprivation induced autophagic flux and phenotypic switching in human brain VSM cells. Am J Physiol Cell Physiol. 2021 Mar 31. doi: 10.1152/ajpcell.00044.2021. Epub ahead of print. PMID: 33788630.

In vivo study

1. Scott FL, Clemons B, Brooks J, Brahmachary E, Powell R, Dedman H, Desale HG, Timony GA, Martinborough E, Rosen H, Roberts E, Boehm MF, Peach RJ. Ozanimod (RPC1063) is a potent sphingosine-1-phosphate receptor-1 (S1P1) and receptor-5 (S1P5) agonist with autoimmune disease-modifying activity. Br J Pharmacol. 2016 Jun;173(11):1778-92. doi: 10.1111/bph.13476. Epub 2016 Apr 28. PMID: 26990079; PMCID: PMC4867749.
2. Taylor Meadows KR, Steinberg MW, Clemons B, Stokes ME, Opiteck GJ, Peach R, Scott FL. Ozanimod (RPC1063), a selective S1PR1 and S1PR5 modulator, reduces chronic inflammation and alleviates kidney pathology in murine systemic lupus erythematosus. PLoS One. 2018 Apr 2;13(4):e0193236. doi: 10.1371/journal.pone.0193236. PMID: 29608575; PMCID: PMC5880347.

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7. Bioactivity

Biological target:

Ozanimod (RPC-1063) is a potent and selective S1P1 and S1P5 receptor agonist with EC50s of 410 pM and 11 nM in [35S]-GTPγS binding, respectively.

In vitro activity

It was hypothesized that ozanimod, a selective S1PR type 1 ligand, will attenuate VSM synthetic phenotypic expression and autophagic flux in primary human brain VSM cells following acute hypoxia plus glucose deprivation (HGD; in vitro ischemic-like injury) exposure. Cells were treated with ozanimod and exposed to normoxia or HGD. Crystal violet staining, standard immunoblotting, and immunocytochemical labeling techniques assessed cellular morphology, vacuolization, phenotype, and autophagic state. It was observed that HGD temporally decreased VSM cell viability and concomitantly increased vacuolization, both of which ozanimod reversed. HGD induced a simultaneous elevation and reduction in levels of pro- and anti-autophagic proteins respectfully, and ozanimod attenuated this response. Protein levels of VSM phenotypic biomarkers, smoothelin and SM22, were decreased following HGD. Furthermore, it was observed that an HGD-induced epithelioid and synthetic morphological appearance accompanied by disorganized cytoskeletal filaments which was rescued by ozanimod. Thus, it is concluded that ozanimod, a selective S1PR1 ligand, protects against acute HGD-induced phenotypic switching and promotes cell survival, in part, by attenuating HGD-induced autophagic flux thus improving vascular patency in response to acute ischemia-like injury.

Am J Physiol Cell Physiol. 2021 Mar 31. https://pubmed.ncbi.nlm.nih.gov/33788630/

In vivo activity

The purpose of this study was to assess RPC1063 for its therapeutic utility in autoimmune diseases. The oral pharmacokinetic (PK) parameters and pharmacodynamic effects were established in rodents, and its activity in three models of autoimmune disease (experimental autoimmune encephalitis, 2,4,6 - trinitrobenzenesulfonic acid colitis and CD4+CD45RBhi T cell adoptive transfer colitis) was assessed. RPC1063 demonstrated potent agonist activity of S1P1 receptors. The EC50 values were subnanomolar for S1P1 receptors whether measuring inhibition of cAMP generation (160 ± 60 pM) or [35S] - GTP γ S binding (410 ± 160 pM; Figure 2A and Table 1). RPC1063 also demonstrated agonist activity at the S1P5 receptor [11 ± 4.3 nM and 83% Emax (percentage of maximum stimulation)]. This represents a 27 - fold selectivity for S1P1 over S1P5 receptors. RPC1063 was specific for S1P1 and S1P5 receptors, induced S1P1 receptor internalization and induced a reversible reduction in circulating B and CCR7+ T lymphocytes in vivo. RPC1063 showed high oral bioavailability and volume of distribution, and a circulatory half - life that supports once daily dosing. Oral RPC1063 reduced inflammation and disease parameters in all three autoimmune disease models.

Br J Pharmacol. 2016 Jun; 173(11): 1778–1792. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4867749/