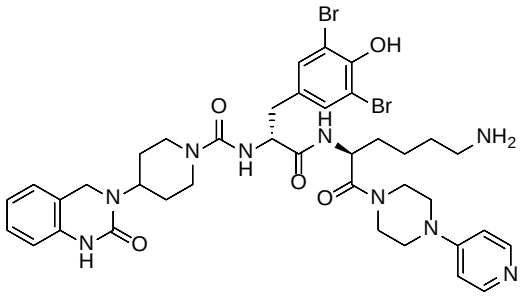
Product data sheet

MedKoo Cat#: 326787 Name: Olcegepant CAS: 204697-65-4 Chemical Formula: $C_{38}H_{47}Br_2N_9O_5$ Exact Mass: 867.2067 Molecular Weight: 869.66	
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:

Olcegepant, also known as BIBN-4096 or BIBN-4096BS is is the first potent and selective non-peptide antagonist of the calcitonin gene-related peptide 1 (CGRP1) receptor, a key modulator in neurogenic inflammatory pain. In preclinical studies, olcegepant attenuated arterial dilation induced by CGRP or electrical stimulation. In a phase II clinical trial, olcegepant reduced the severity of headache in 60% of migraine sufferers and met secondary endpoints including headache-free rate and rate of sustained response. The compound appears to be an effective anti-migraine medication that is well tolerated and does not display the vasoconstrictive effect that precludes the use of triptans and dihydroergotamine in certain patients.

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	50.0	57.49
1M HCl	50.0	57.49

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	1.15 mL	5.75 mL	11.50 mL
5 mM	0.23 mL	1.15 mL	2.30 mL
10 mM	0.12 mL	0.57 mL	1.15 mL
50 mM	0.02 mL	0.12 mL	0.23 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. Wang Y, Li Y, Wang M. Involvement of CGRP receptors in retinal spreading depression. Pharmacol Rep. 2016 Oct;68(5):935-8. doi: 10.1016/j.pharep.2016.05.001. Epub 2016 Jun 27. PMID: 27362770.
2. Doods H, Hallermayer G, Wu D, Entzeroth M, Rudolf K, Engel W, Eberlein W. Pharmacological profile of BIBN4096BS, the first selective small molecule CGRP antagonist. Br J Pharmacol. 2000 Feb;129(3):420-3. doi: 10.1038/sj.bjp.0703110. PMID: 10711339; PMCID: PMC1571877.

In vivo study

1. Kitagawa S, Tang C, Unekawa M, Kayama Y, Nakahara J, Shibata M. Sustained Effects of CGRP Blockade on Cortical Spreading Depolarization-Induced Alterations in Facial Heat Pain Threshold, Light Aversiveness, and Locomotive Activity in the Light Environment. Int J Mol Sci. 2022 Nov 9;23(22):13807. doi: 10.3390/ijms232213807. PMID: 36430285; PMCID: PMC9698572.

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2. Michot B, Bourgoin S, Viguier F, Hamon M, Kayser V. Differential effects of calcitonin gene-related peptide receptor blockade by olcegepant on mechanical allodynia induced by ligation of the infraorbital nerve vs the sciatic nerve in the rat. Pain. 2012 Sep;153(9):1939-1948. doi: 10.1016/j.pain.2012.06.009. Epub 2012 Jul 15. PMID: 22795918.

7. Bioactivity

Biological target:

Olcegepant (BIBN-4096) is a potent and selective non-peptide antagonist of the calcitonin gene-related peptide 1 (CGRP1) receptor with IC_{50} of 0.03 nM and K_i of 14.4 pM.

In vitro activity

IBN4096BS completely inhibited the specific binding of ^{125}I-CGRP to SK-N-MC cells and displayed an affinity (K_i) of 14.4±6.3 pM (n=4) for the human CGRP receptor (Figure 2A). The endogenous ligand CGRP itself and the peptidic antagonist CGRP(8-37) displayed affinities (K_i) of 31.7±1.6 pM (n=15) and 3.6±0.7 nm (n=4), respectively. Employing the same cell line it was shown that BIBN4096BS is a pure antagonist.

Reference: Br J Pharmacol. 2000 Feb;129(3):420-3. https://pubmed.ncbi.nlm.nih.gov/10711339/

In vivo activity

Like naratriptan (0.1 to 0.3mg/kg, subcutaneously), olcegepant (0.3 to 0.9mg/kg, intravenously) markedly reduced mechanical allodynia in CCI-ION rats. In contrast, in CCI-SN rats, mechanical allodynia was completely unaffected and hyperalgesia was only marginally reduced by these drugs. A supra-additive antiallodynic effect was observed in CCI-ION rats treated with olcegepant (0.3mg/kg intravenously) plus naratriptan (0.1mg/kg subcutaneously), whereas this drug combination remained inactive in CCI-SN rats. Olcegepant (0.6mg/kg, intravenously) significantly reduced the number of c-Fos immunolabeled cells in spinal nucleus of the trigeminal nerve and upregulation of ATF3 transcript (a marker of neuron injury) but not that of interleukin-6 in trigeminal ganglion of CCI-ION rats.

Reference: Pain. 2012 Sep;153(9):1939-1948. https://pubmed.ncbi.nlm.nih.gov/22795918/