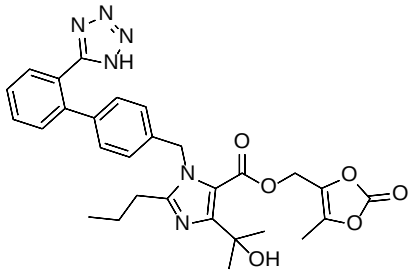
Product data sheet

MedKoo Cat#: 318384 Name: Olmesartan medoxomil CAS: 144689-63-4 Chemical Formula: $C_{29}H_{30}N_6O_6$ Exact Mass: 558.2227 Molecular Weight: 558.595	
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:
Olmesartan medoxomil is an angiotensin II receptor antagonist which has been used for the treatment of high blood pressure. An ester prodrug, it is completely and rapidly hydrolyzed to the active acid form, olmesartan.

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	89.0	159.33

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	1.79 mL	8.95 mL	17.90 mL
5 mM	0.36 mL	1.79 mL	3.58 mL
10 mM	0.18 mL	0.90 mL	1.79 mL
50 mM	0.04 mL	0.18 mL	0.36 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. Zhang H, Ma G, Yao Y, Qian H, Li W, Chen X, Jiang W, Zheng R. Olmesartan attenuates the impairment of endothelial cells induced by oxidized low density lipoprotein through downregulating expression of LOX-1. Int J Mol Sci. 2012;13(2):1512-23. doi: 10.3390/ijms13021512. Epub 2012 Feb 1. PMID: 22408405; PMCID: PMC3291974.
2. Zhang Y, Liang Q, Zhang Y, Hong L, Lei D, Zhang L. Olmesartan alleviates bleomycin-mediated vascular smooth muscle cell senescence via the miR-665/SDC1 axis. Am J Transl Res. 2020 Sep 15;12(9):5205-5220. PMID: 33042414; PMCID: PMC7540088.

In vivo study

1. Zhang H, Ma G, Yao Y, Qian H, Li W, Chen X, Jiang W, Zheng R. Olmesartan attenuates the impairment of endothelial cells induced by oxidized low density lipoprotein through downregulating expression of LOX-1. Int J Mol Sci. 2012;13(2):1512-23. doi: 10.3390/ijms13021512. Epub 2012 Feb 1. PMID: 22408405; PMCID: PMC3291974.
2. Suh SH, Choi HS, Kim CS, Kim IJ, Ma SK, Scholey JW, Kim SW, Bae EH. Olmesartan Attenuates Kidney Fibrosis in a Murine Model of Alport Syndrome by Suppressing Tubular Expression of TGFβ. Int J Mol Sci. 2019 Aug 6;20(15):3843. doi: 10.3390/ijms20153843. PMID: 31390839; PMCID: PMC6695622.

7. Bioactivity
Biological target:
Olmesartan medoxomil is a potent and selective angiotensin AT1 receptor inhibitor with IC_{50} of 66.2 μM.

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In vitro activity

To determine the roles of olmesartan in endothelial cell injuries during ox-LDL exposure, cellular vitality, nitrogen monoxide (NO) and Lactate Dehydrogenase (LDH) synthesis were. The results showed ox-LDL significantly increased the LDH synthesis and decreased cell vitality and NO synthesis in neonatal rat endothelial cells (Table 1). The addition of olmesartan to ox-LDL-stimulated endothelial cells significantly alleviated all the above harmful effects, including decreased cell vitality, increased LDH secretion, upregulated p-38 MAPK and overexpression of apoptotic genes such as Caspase-3 and Bax (Figure 1). These results indicated anti-apoptotic effects of olmesartan on endothelial cell injuries induced by ox-LDL in vitro.

Reference: Int J Mol Sci. 2012;13(2):1512-23. https://pubmed.ncbi.nlm.nih.gov/22408405/

In vivo activity

To determine the roles of olmesartan against ox-LDL insults in endothelial cells in vivo, mice were treated with ox-LDL (8.4 mg/kg/day), olmesartan (3 mg/kg/day) or both of them. Of course, the dose of ox-LDL at 8.4 mg/kg/day was insufficient to elevate the BP of mice. Three weeks later, it was found that BP was not significantly different among all groups of mice (Figure 2A). Interestingly, olmesartan significantly blunted the cellular injuries in terms of cell viability during the exposure of ox-LDL in vivo (Figure 2B–E). Moreover, treatment with olmesartan significantly decreased the gene expressions of Bax and Caspase-3 while increasing Bcl-2 levels in ox-LDL-treated mice. These results suggested olmesartan could protect endothelial cells against the injuries induced by ox-LDL in vivo.

Reference: Int J Mol Sci. 2012;13(2):1512-23. https://pubmed.ncbi.nlm.nih.gov/22408405/