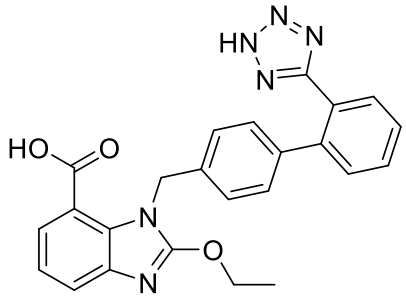
Product data sheet

MedKoo Cat#: 317364 Name: Candesartan CAS#: 139481-59-7 Chemical Formula: $C_{24}H_{20}N_6O_3$ Exact Mass: 440.15969 Molecular Weight: 440.45	
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:
Candesartan is an angiotensin II receptor antagonist used mainly for the treatment of hypertension. Candesartan is marketed as the cyclohexyl 1-hydroxyethyl carbonate (cilexetil) ester, known as candesartan cilexetil. Candesartan cilexetil is metabolised completely by esterases in the intestinal wall during absorption to the active candesartan moieity. The use of a prodrug form increases the bioavailability of candesartan. Despite this, absolute bioavailability is relatively poor at 15% (candesartan cilexetil tablets) to 40% (candesartan cilexetil solution). Its IC50 is 15 μg/kg.

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	97.0	220.23

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	2.27 mL	11.35 mL	22.70 mL
5 mM	0.45 mL	2.27 mL	4.54 mL
10 mM	0.23 mL	1.14 mL	2.27 mL
50 mM	0.05 mL	0.23 mL	0.45 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. Torika N, Asraf K, Apte RN, Fleisher-Berkovich S. Candesartan ameliorates brain inflammation associated with Alzheimer's disease. CNS Neurosci Ther. 2018 Mar;24(3):231-242. doi: 10.1111/cns.12802. Epub 2018 Jan 24. PMID: 29365370; PMCID: PMC6489976.
2. Larrayoz IM, Pang T, Benicky J, Pavel J, Sánchez-Lemus E, Saavedra JM. Candesartan reduces the innate immune response to lipopolysaccharide in human monocytes. J Hypertens. 2009 Dec;27(12):2365-76. doi: 10.1097/HJH.0b013e3283314bc7. PMID: 19730394; PMCID: PMC2928995.

In vivo study

1. Torika N, Asraf K, Apte RN, Fleisher-Berkovich S. Candesartan ameliorates brain inflammation associated with Alzheimer's disease. CNS Neurosci Ther. 2018 Mar;24(3):231-242. doi: 10.1111/cns.12802. Epub 2018 Jan 24. PMID: 29365370; PMCID: PMC6489976.
2. Wu D, Tang X, Ding L, Cui J, Wang P, Du X, Yin J, Wang W, Chen Y, Zhang T. Candesartan attenuates hypertension-associated pathophysiological alterations in the gut. Biomed Pharmacother. 2019 Aug;116:109040. doi: 10.1016/j.biopha.2019.109040. Epub 2019 Jun 3. PMID: 31170664.

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7. Bioactivity

Biological target:

Candesartan is an angiotensin II receptor antagonist with IC50 of 0.26 nM.

In vitro activity

The objective of this study was to determine whether AT1 receptor inhibition would reduce the innate inflammatory response induced by bacterial lipopolysaccharide (LPS). Monocytes were studied in vitro after incubation with LPS (50 ng/ml) with and without 1 mumol/l candesartan, an AT1 receptor blocker. Human monocytes did not express detectable AT1 receptors, and angiotensin II did not induce inflammatory factor mRNA expression or cytokine release. However, candesartan substantially reduced the LPS-induced expression of the mRNAs for the LPS recognition protein cluster of differentiation 14, the proinflammatory cytokines tumor necrosis factor alpha, interleukin-1 beta and interleukin-6 and the lectin-like oxidized low-density lipoprotein receptor. In addition, candesartan reduced the activation of the nuclear factor kappa B pathway, the tumor necrosis factor alpha and interleukin-6 secretion, and the ROS formation induced by LPS, without affecting the secretion of interleukin-10. It is hypothesized that the anti-inflammatory effects of candesartan in these cells are likely mediated by mechanisms unrelated to AT1 receptor blockade. The results demonstrate that candesartan significantly reduces the innate immune response to LPS in human circulating monocytes. The anti-inflammatory effects of candesartan may be of importance not only in hypertension but also in other inflammatory disorders.

Reference: J Hypertens. 2009 Dec;27(12):2365-76. https://pubmed.ncbi.nlm.nih.gov/19730394/

In vivo activity

To better understand the mechanisms underlying the protective effects of candesartan on the intestinal integrity, fecal SCFAs (short-chain fatty acids) were further quantified. As shown in Fig. 7A, at 12 weeks of age, the amount of acetic acid in the vehicle-treated SHRs was decreased to about 60% of that from the vehicle-treated WKY rats while other SCFA species remained unchanged. No significant changes in the amount of fecal acetic acid were observed in 12-week old candesartan-treated SHRs compared to that from the age-matched vehicle-treated SHRs. By 20 weeks of age, the amount of fecal acetic acid, propionic acid and butyric acid was found to be decreased in the vehicle-treated SHRs compared to that from the age-matched vehicle-treated WKY rats. In distinct contrast, the amount of fecal acetic acid, propionic acid and butyric acid was significantly increased in the candesartan-treated SHRs compared to that from the vehicle-treated SHRs. Meanwhile, although no changes in the amount of fecal isobutyric acid, valeric acid, and isovaleric acid were observed in the vehicle-treated SHRs, candesartan treatment increased the amount of these SCFA species (Fig. 7B). These results indicate that prolonged treatment of candesartan results in increased microbial production of SCFAs in SHRs.

Reference: Biomed Pharmacother. 2019 Aug;116:109040. https://pubmed.ncbi.nlm.nih.gov/31170664/

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.