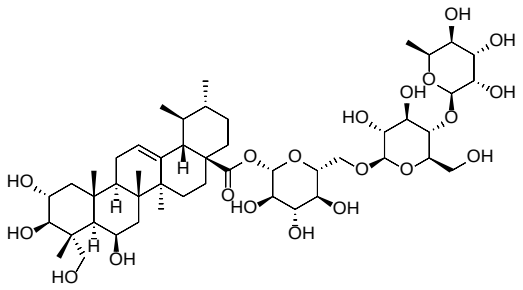
Product data sheet

MedKoo Cat#: 575050 Name: Madecassoside CAS: 34540-22-2 Chemical Formula: $C_{48}H_{78}O_{20}$ Exact Mass: 974.5086 Molecular Weight: 975.132	
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:
Madecassoside is a triterpenoid compound that has anti-inflammatory, wound healing, and anti-oxidant activities. It has been reported to suppress LPS-induced TNF-alpha production via inhibition of ERK, p38, and NF-kappaB activity.

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
DMF	25.0	25.64
DMSO	70.0	71.79
Ethanol	52.5	53.84
PBS (pH 7.2)	10.0	10.26
Water	66.67	68.37

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	1.03 mL	5.13 mL	10.26 mL
5 mM	0.21 mL	1.03 mL	2.05 mL
10 mM	0.10 mL	0.51 mL	1.03 mL
50 mM	0.02 mL	0.10 mL	0.21 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. Watanabe S, Hibiya S, Katsukura N, Kitagawa S, Sato A, Okamoto R, Watanabe M, Tsuchiya K. Importance of Telomere Shortening in the Pathogenesis of Ulcerative Colitis: A New Treatment From the Aspect of Telomeres in Intestinal Epithelial Cells. J Crohns Colitis. 2022 Jan 28;16(1):109-121. doi: 10.1093/ecco-jcc/jjab115. PMID: 34180971.
2. Bian D, Liu M, Li Y, Xia Y, Gong Z, Dai Y. Madecassoside, a triterpenoid saponin isolated from Centella asiatica herbs, protects endothelial cells against oxidative stress. J Biochem Mol Toxicol. 2012 Oct;26(10):399-406. doi: 10.1002/jbt.21434. Epub 2012 Jul 24. PMID: 22829481.

In vivo study

1. Xia Y, Xia YF, Lv Q, Yue MF, Qiao SM, Yang Y, Wei ZF, Dai Y. Madecassoside ameliorates bleomycin-induced pulmonary fibrosis in mice through promoting the generation of hepatocyte growth factor via PPAR-γ in colon. Br J Pharmacol. 2016 Apr;173(7):1219-35. doi: 10.1111/bph.13421. Epub 2016 Feb 25. PMID: 26750154; PMCID: PMC5341335.

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2. Sun B, Hayashi M, Kudo M, Wu L, Qin L, Gao M, Liu T. Madecassoside Inhibits Body Weight Gain via Modulating SIRT1-AMPK Signaling Pathway and Activating Genes Related to Thermogenesis. Front Endocrinol (Lausanne). 2021 Mar 9;12:627950. doi: 10.3389/fendo.2021.627950. PMID: 33767670; PMCID: PMC7985537.

7. Bioactivity

Biological target:

Madecassoside is a pentacyclic triterpene isolated from Centella asitica (L.), as an anti-inflammatory, anti-oxidative activities and anti-aging agent.

In vitro activity

This study aimed to investigate the effect of madecassoside against oxidative stress-induced injury of endothelial cells. Hydrogen peroxide (H(2)O(2), 500 μmol/L) was employed as an inducer of oxidative stress in human umbilical vein endothelial cells (HUVECs). As a result, madecassoside (10, 30, 100 μmol/L) could reverse morphological changes, elevate cell viability, increase glutathione levels, and decrease lactate dehydrogenase and malondialdehyde levels caused by H(2)O(2) in a concentration-dependent manner. These data suggested that madecassoside could protect HUVECs from oxidative injury, which was probably achieved by inhibiting cell apoptosis via protection of mitochondria membranes and downregulation of the activation of caspase-3 and p38 MAPK.

Reference: J Biochem Mol Toxicol. 2012 Oct;26(10):399-406. https://pubmed.ncbi.nlm.nih.gov/22829481/

In vivo activity

A PF model was established in mice by intratracheal instillation of bleomycin. Administration of madecassoside, p.o., but not its main metabolite madecassic acid, exhibited a direct anti-PF effect in mice. Madecassoside increased the expression of hepatocyte growth factor (HGF) in colon tissues, and HGF receptor antagonists attenuated its anti-PF effect. Madecassoside facilitated the secretion of HGF from colonic epithelial cells by activating the PPAR-γ pathway, as shown by an up-regulation of PPAR-γ mRNA expression, nuclear translocation and DNA-binding activity both in vitro and in vivo.

Reference: Br J Pharmacol. 2016 Apr;173(7):1219-35. doi https://pubmed.ncbi.nlm.nih.gov/26750154/

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.