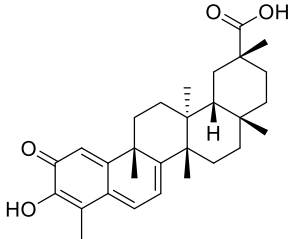


Product data sheet



MedKoo Cat#: 200694 Name: Celastrol CAS#: 34157-83-0 (castrol) Chemical Formula: C ₂₉ H ₃₈ O ₄ Exact Mass: 450.27701 Molecular Weight: 450.61		
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:

Celastrol, also known as tripterine, is a remedial ingredient isolated from the root extracts of *Tripterygium Wilfordi* (Thunder of God vine) and *Celastrus Regellii*. In in vitro and in vivo animal experiments, celastrol exhibits antioxidant, anti-inflammatory, anticancer, and insecticidal activities. Celastrol has attracted great interest recently, especially for its potential anti-inflammatory and anti-cancer activities. The anti-inflammatory effects of this triterpene have been demonstrated in animal models of different inflammatory diseases, including arthritis, Alzheimer's disease, asthma, and systemic lupus erythematosus.

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	33.45	74.23
DMF	20.0	44.38
DMF:PBS (pH 7.2) (1:10)	1.0	2.22
Ethanol	21.9	48.60

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	2.22 mL	11.10 mL	22.19 mL
5 mM	0.44 mL	2.22 mL	4.44 mL
10 mM	0.22 mL	1.11 mL	2.22 mL
50 mM	0.04 mL	0.22 mL	0.44 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

- Martín-Ramírez R, González-Fernández R, Rotoli D, Hernández J, Martín-Vasallo P, Palumbo A, Ávila J. Celastrol Prevents Oxidative Stress Effects on FSHR, PAPP, and CYP19A1 Gene Expression in Cultured Human Granulosa-Lutein Cells. *Int J Mol Sci.* 2021 Mar 30;22(7):3596. doi: 10.3390/ijms22073596. PMID: 33808393; PMCID: PMC8037896.
- Si H, Wang H, Xiao H, Fang Y, Wu Z. Anti-Tumor Effect of Celastrol on Hepatocellular Carcinoma by the circ_SLIT3/miR-223-3p/CXCR4 Axis. *Cancer Manag Res.* 2021 Feb 5;13:1099-1111. doi: 10.2147/CMAR.S278023. PMID: 33574707; PMCID: PMC7872924.

In vivo study

Product data sheet



1. Zhang CJ, Zhu N, Wang YX, Liu LP, Zhao TJ, Wu HT, Liao DF, Qin L. Celastrol Attenuates Lipid Accumulation and Stemness of Clear Cell Renal Cell Carcinoma via CAV-1/LOX-1 Pathway. *Front Pharmacol.* 2021 Apr 16;12:658092. doi: 10.3389/fphar.2021.658092. PMID: 33935779; PMCID: PMC8085775.
2. Su Z, Zong P, Chen J, Yang S, Shen Y, Lu Y, Yang C, Kong X, Sheng Y, Sun W. Celastrol attenuates arterial and valvular calcification via inhibiting BMP2/Smad1/5 signalling. *J Cell Mol Med.* 2020 Nov;24(21):12476-12490. doi: 10.1111/jcmm.15779. Epub 2020 Sep 20. PMID: 32954678; PMCID: PMC7686965.

7. Bioactivity

Biological target:

Tripterin (Celastrol) is a proteasome inhibitor which inhibits the chymotrypsin-like activity of a purified 20S proteasome with IC₅₀ of 2.5 μ M.

In vitro activity

The OS detection assay showed decreased ROS and RNS levels in celastrol-treated cells compared to control cultures after 24 and 48 h, suggesting an antioxidant role of celastrol under experimental conditions. Interestingly, the effect of celastrol on the expression of reporter genes suggests that celastrol may play an independent antioxidant regulatory role in hGL cells. In experimental conditions, in celastrol-treated hGL cells, the expression levels of ALDH3A2, FSHR, PAPP, and CYP19A1 genes significantly decreased compared to control, an effect that seems to be independent of the antioxidant effect of celastrol. To this study's knowledge, this is the first evidence for a role of celastrol in the regulation of OS and gene expression in hGL cells.

Reference: *Int J Mol Sci.* 2021 Apr; 22(7): 3596. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8037896/>

In vivo activity

The tumor xenograft model fed with HFD (high fat diet) showed that the cancer was poorly differentiated and invaded into the mucous membrane, accompanied by degeneration and necrosis of crypt cells and an amount of infiltrative inflammation (Figure 2B). Celastrol significantly relieved these symptoms, only showing moderate edema in lamina propria interstitial or mild inflammatory cell infiltration (Figure 2B), and similar results were observed in atorvastatin group (Figure 2B). The lipid accumulation was increased in the high-fat diet-fed animal model and celastrol significantly reduced lipid deposition in tumor tissues (Figures 2C,D). Biochemical analysis showed that celastrol increased HDL level, while reduced plasma levels of TC, TG, LDL and VLDL in nude mice fed HFD (Figures 2E-I). In addition, the tumor resected from the HFD group expressed higher levels of CAV-1, LOX-1, CD133, Bmi-1, SOX-2, p-GSK-3 β (S9)/GSK-3 β and β -catenin than the tumor from the control group, while celastrol down-regulated the levels of these proteins (Figure 2J). The protein levels of these molecules were also confirmed by IHC (Supplementary Figures S1B-I). These results indicated that celastrol inhibited tumor growth of ccRCC in mice fed with high-fat diet through reducing lipid deposition and stemness proteins expression.

Reference: *Front Pharmacol.* 2021; 12: 658092. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8085775/>

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.