Small Molecules

Celastrol

Inhibits topoisomerase II

Catalog #100-0880

10 mg

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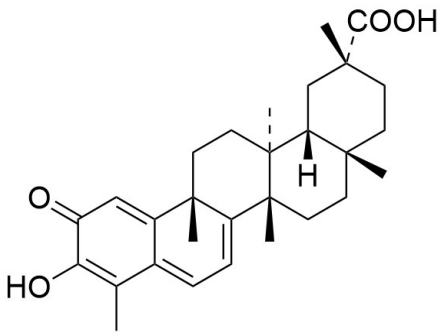
Product Description

Celastrol is a topoisomerase II inhibitor (IC_{50} = 7.41 µM) with neuroprotective and anti-inflammatory properties (Allison et al.; Lin et al.; Nagase et al.; Sethi et al.). It improves memory, learning and psychomotor activity performance when administered in rats and may have therapeutic potential for treating neurodegenerative disorders such as Alzheimer's disease (Allison et al.). In addition, celastrol suppresses TNF-α-induced NF-κB activation and increases TNF-induced apoptosis in chronic myelogenous leukemia cells (Sethi et al.).

Alternative Names: Not applicable
CAS Number: 34157-83-0
Chemical Formula: $C_{29}H_{38}O_4$
Molecular Weight: 450.6 g/mol
Purity: ≥ 98%
Chemical Name: 3-hydroxy-9β,13α-dimethyl-2-oxo-24,25,26-trinoroleana-1(10),3,5,7-tetraen-29-oic acid
Structure:



Properties

Physical Appearance: A crystalline solid

Storage: Product stable at -20°C as supplied. Protect product from prolonged exposure to light. For long-term storage, store with a desiccant. Stable as supplied for 12 months from date of receipt.

Solubility:
· DMSO ≤ 95 mM
· Absolute ethanol ≤ 65 mM

For example, to prepare a 10 mM stock solution in DMSO, resuspend 10 mg in 2.22 mL of DMSO.

Prepare stock solution fresh before use. Information regarding stability of small molecules in solution has rarely been reported, however, as a general guide we recommend storage in DMSO at -20°C. Aliquot into working volumes to avoid repeated freeze-thaw cycles. The effect of storage of stock solution on compound performance should be tested for each application.

Compound has low solubility in aqueous media. For use as a cell culture supplement, stock solution should be diluted into culture medium immediately before use. Avoid final DMSO concentration above 0.1% due to potential cell toxicity.

Published Applications

IMMUNOLOGY
· Induces apoptosis in human leukemia cells (Nagase et al.).
DISEASE MODELING
· Activates mitophagy and inhibits dopaminergic neuronal apoptosis in mice (Lin et al.).

References

Allison AC et al. (2001) Celastrol, a potent antioxidant and anti-inflammatory drug, as a possible treatment for Alzheimer's disease. Prog Neuropsychopharmacol Biol Psychiatry 25(7): 1341–57.

Lin M-W et al. (2019) Celastrol inhibits dopaminergic neuronal death of Parkinson's disease through activating mitophagy. Antioxidants (Basel, Switzerland) 9(1): 37.

Nagase M et al. (2003) Apoptosis induction in HL-60 cells and inhibition of topoisomerase II by triterpene celastrol. Biosci Biotechnol Biochem 67(9): 1883–7.

Sethi G et al. (2007) Celastrol, a novel triterpene, potentiates TNF-induced apoptosis and suppresses invasion of tumor cells by inhibiting NF-kappaB-regulated gene products and TAK1-mediated NF-kappaB activation. Blood 109(7): 2727–35.

Related Small Molecules

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This product is hazardous. Please refer to the Safety Data Sheet (SDS).