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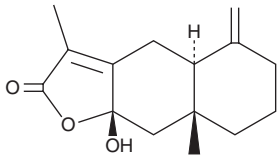
PRODUCT INFORMATION

Atractylenolide III

Item No. 24911

CAS Registry No.: 73030-71-4
Formal Name: (4aS,8aR,9aS)-4a,5,6,7,8,8a,9,9a-octahydro-9a-hydroxy-3,8a-dimethyl-5-methylene-naphtho[2,3-b]furan-2(4H)-one
Synonyms: Atractylenolide β, Codonolactone
MF: $C_{15}H_{20}O_3$
FW: 248.3
Purity: ≥98%
UV/Vis.: λ_{max}: 219 nm
Supplied as: A crystalline solid
Storage: -20°C
Stability: ≥2 years



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Laboratory Procedures

Atractylenolide III is supplied as a crystalline solid. A stock solution may be made by dissolving the atractylenolide III in the solvent of choice. Atractylenolide III is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide (DMF), which should be purged with an inert gas. The solubility of atractylenolide III in ethanol is approximately 1 mg/ml and approximately 2 mg/ml in DMSO and DMF.

Atractylenolide III is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, atractylenolide III should first be dissolved in DMSO and then diluted with the aqueous buffer of choice. Atractylenolide III has a solubility of approximately 0.09 mg/ml in a 1:10 solution of DMSO:PBS (pH 7.2) using this method. We do not recommend storing the aqueous solution for more than one day.

Description

Atractylenolide III is a sesquiterpene that has been isolated from *Atractylodes* and has diverse biological activities, including anti-inflammatory, anti-angiogenic, pro- and anti-apoptotic, and neuroprotective properties.[1-5] It inhibits the release of nitric oxide (NO), prostaglandin E_2 (PGE_2; Item No. 14010), TNF-α, and IL-6 induced by LPS from RAW264.7 macrophages when used at a concentration of 50 µM.[1] Atractylenolide III (100 µM) induces apoptosis and cell cycle arrest, as well as increases caspase-3, caspase-9, and poly(ADP-ribose) polymerase (PARP) cleavage in A549 human lung carcinoma cells.[3] However, in primary embryonic mouse cerebral cortical neurons, it inhibits glutamate-induced apoptosis and DNA fragmentation when used at a concentration of 40 µM.[4] It inhibits angiogenesis in an MDA-MB-231 human breast cancer mouse xenograft model when administered at a dose of 25 mg/kg per day.[2] Atractylenolide III (0.6 mg/kg per day) also decreases the latency to find the platform in the Morris water maze in a rat model of learning deficits induced by high-dose homocysteine.[5]

References

1. Ji, G.-Q., Chen, R.-Q., and Wang, L. *Immunopharmacol. Immunotoxicol.* **38(2)**, 98-102 (2016).
2. Wang, S., Cai, R., Ma, J., *et al. Phytomedicine* **22(11)**, 1017-1026 (2015).
3. Kang, T.-H., Bang, J.-Y., Kim, M.-H., *et al. Food Chem. Toxicol.* **49(2)**, 514-519 (2011).
4. Liu, C., Zhao, H., Ji, Z.-H., *et al. Neurochem. Res.* **39(9)**, 1753-1758 (2014).
5. Zhao, H., Ji, Z.-H., Liu, C., *et al. Neuroscience* **290**, 485-491 (2015).

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