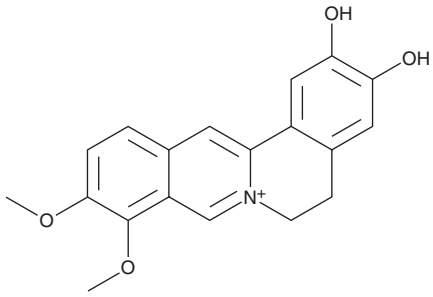
PRODUCT INFORMATION

Demethyleneberberine

Item No. 43099

CAS Registry No.:	25459-91-0
Formal Name:	5,6-dihydro-2,3-dihydroxy-9,10-dimethoxy-dibenzo[a,g]quinolizinium
Synonyms:	DMB, DM-BBR, 2-Hydroxyjatrorrhizine
MF:	$C_{19}H_{18}NO_4$
FW:	324.4
Purity:	≥98%
Supplied as:	A solid
Storage:	-20°C
Stability:	≥4 years
Item Origin:	Plant/*Thalictrum javanicum* Blume



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

Laboratory Procedures

Demethyleneberberine is supplied as a solid. A stock solution may be made by dissolving the demethyleneberberine in the solvent of choice, which should be purged with an inert gas. Demethyleneberberine is sparingly soluble (1-10 mg/ml) in DMSO and slightly soluble (0.1-1 mg/ml) in ethanol.

Description

Demethyleneberberine is an isoquinoline alkaloid that has been found in *P. chinensis* and has diverse biological activities.[1-5] It is also an active metabolite of berberine (Item No. 10006427).[1,2] Demethyleneberberine is formed from berberine by cytochrome P450 (CYP) isoforms CYP2D6, CYP1A2, and CYP3A4.[2] It reduces viability, colony formation, and migration and invasion in A549 and H1299 lung cancer cells when used at a concentration of 40 µM.[3] Demethyleneberberine (40 mg/kg per day) increases hepatic mitochondrial levels of glutathione (GSH) and glutathione peroxidase 4 (Gpx4), reduces hepatic mitochondrial levels of thiobarbituric acid reactive substances (TBARS), decreases hepatic swelling of mitochondria, and increases serum activity of alanine transaminase (Alt) in a mouse model of ethanol-induced oxidative liver damage.[4] It decreases hepatic levels of inducible nitric oxide synthase (iNos) and triglycerides in the same model at the same dose. Demethyleneberberine (10 mg/kg per day) reduces hepatic collagen levels and increases survival in a mouse model of thioacetamide-induced hepatic fibrosis.[5]

References

1. Cao, S., Zhou, Y., Xu, P., *et al.* Berberine metabolites exhibit triglyceride-lowering effects via activation of AMP-activated protein kinase in Hep G2 cells. *J. Ethnopharmacol.* **149(2)**, 576-582 (2013).
2. Li, Y., Ren, G., Wang, Y.X., *et al.* Bioactivities of berberine metabolites after transformation through CYP450 isoenzymes. *J. Transl. Med.* **9**, 62 (2011).
3. Liu, J., Huang, X., Liu, D., *et al.* Demethyleneberberine induces cell cycle arrest and cellular senescence of NSCLC cells via c-Myc/HIF-1α pathway. *Phytomedicine* **91:153678**, (2021).
4. Zhang, P., Qiang, X., Zhang, M., *et al.* Demethyleneberberine, a natural mitochondria-targeted antioxidant, inhibits mitochondrial dysfunction, oxidative stress, and steatosis in alcoholic liver disease mouse model. *J. Pharmacol. Exp. Ther.* **352(1)**, 139-147 (2015).
5. Wang, Y., Zhao, Z., Yan, Y., *et al.* Demethyleneberberine protects against hepatic fibrosis in mice by modulating NF-κB signaling. *Int. J. Mol. Sci.* **17(7)**, 1036 (2016).

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