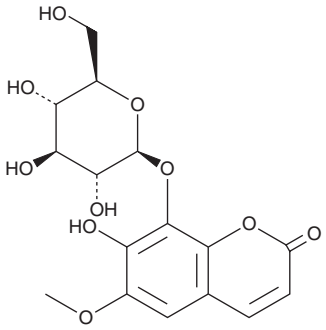
PRODUCT INFORMATION

Fraxin

Item No. 28217

CAS Registry No.:	524-30-1
Formal Name:	8-(β-D-glucopyranosyloxy)-7-hydroxy-6-methoxy-2H-1-benzopyran-2-one
Synonyms:	Fraxetol 8-glucoside, Fraxoside
MF:	$C_{16}H_{18}O_{10}$
FW:	370.3
Purity:	≥98%
UV/Vis.:	λ_{max}: 229, 344 nm
Supplied as:	A crystalline solid
Storage:	-20°C
Stability:	≥4 years



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

Laboratory Procedures

Fraxin is supplied as a crystalline solid. A stock solution may be made by dissolving the fraxin in the solvent of choice, which should be purged with an inert gas. Fraxin is soluble in organic solvents such as DMSO and dimethyl formamide. The solubility of fraxin in these solvents is approximately 50 mg/ml. Fraxin is slightly soluble in ethanol.

Further dilutions of the stock solution into aqueous buffers or isotonic saline should be made prior to performing biological experiments. Ensure that the residual amount of organic solvent is insignificant, since organic solvents may have physiological effects at low concentrations. Organic solvent-free aqueous solutions of fraxin can be prepared by directly dissolving the crystalline solid in aqueous buffers. The solubility of fraxin in PBS, pH 7.2, is approximately 2 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

Fraxin is a coumarin glycoside that has been found in *Fraxinus* and has anti-inflammatory activity.[1] It inhibits formation of 5-hydroxyeicosatetraenoic acid (5-HETE) from arachidonic acid (Item Nos. 90010 | 90010.1 | 10006607) in rat polymorphonuclear leukocytes when used at concentrations ranging from 1 to 1,000 µM *in vitro*.[2] Fraxin inhibits production of nitric oxide (NO) in LPS-stimulated RAW 264.7 cells (IC_{50} = 84.5 µM).[3] It also decreases LPS-induced TNF-α, IL-6, IL-1β, NF-κB, and NLRP3 expression in the lung in mouse models of acute lung injury and endotoxic shock when administered at doses ranging from 10 to 40 mg/kg.[4,5]

References

1. Wang, H., Xiao, B., Hao, Z., *et al.* Simultaneous determination of fraxin and its metabolite, fraxetin, in rat plasma by liquid chromatography-tandem mass spectrometry and its application in a pharmacokinetic study. *J. Chromatogr. B. Analyt. Technol. Biomed. Life Sci.* **1017-1018**, 70-74 (2016).
2. Kimura, Y., Okuda, H., Arichi, S., *et al.* Inhibition of the formation of 5-hydroxy-6,8,11,14-eicosatetraenoic acid from arachidonic acid in polymorphonuclear leukocytes by various coumarins. *Biochim. Biophys. Acta.* **834(2)**, 224-229 (1985).
3. Kwon, J.-H., Kim, S.-B., Park, K.-H., *et al.* Antioxidative and anti-inflammatory effects of phenolic compounds from the roots of Ulmus macrocarpa. *Arch. Pharm. Res.* **34(9)**, 1459-1466 (2011).
4. Li, W., Li, W., Yu, J., *et al.* Fraxin inhibits lipopolysaccharide-induced inflammatory cytokines and protects against endotoxic shock in mice. *Fundam. Clin. Pharmacol.* (2019).
5. Li, W., Li, W., Zang, L., *et al.* Fraxin ameliorates lipopolysaccharide-induced acute lung injury in mice by inhibiting the NF-κB and NLRP3 signalling pathways. *Int. Immunopharmacol.* **67**, 1-12 (2019).

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