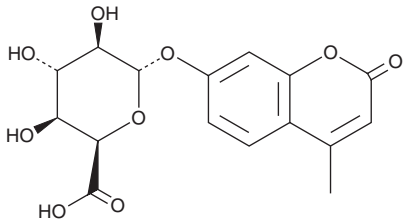
PRODUCT INFORMATION

4-Methylumbelliferyl-α-L-Iduronide (free acid)

Item No. 19543

CAS Registry No.: 66966-09-4
Formal Name: 4-methyl-2-oxo-2H-1-benzopyran-7-yl α-L-idopyranosiduronic acid
Synonyms: 4-Methylumbelliferyl-α-L-Idopyranosiduronic Acid, 4-MU-α-IdoA, MU-α-IdoA
MF: $C_{16}H_{16}O_9$
FW: 352.3
Purity: ≥90%
UV/Vis.: λ_{max}: 216, 318 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

4-Methylumbelliferyl-α-L-iduronide (free acid) is supplied as a crystalline solid. A stock solution may be made by dissolving the 4-methylumbelliferyl-α-L-iduronide (free acid) in the solvent of choice, which should be purged with an inert gas. 4-Methylumbelliferyl-α-L-iduronide (free acid) is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide. The solubility of 4-methylumbelliferyl-α-L-iduronide (free acid) in these solvents is approximately 2, 5, and 20 mg/ml, respectively.

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 4-methylumbelliferyl-α-L-iduronide (free acid) can be prepared by directly dissolving the crystalline solid in aqueous buffers. The solubility of 4-methylumbelliferyl-α-L-iduronide (free acid) in PBS (pH 7.2) is approximately 2 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

4-Methylumbelliferyl-α-L-iduronide (free acid) is a fluorogenic substrate for α-L-iduronidase, an enzyme found in cell lysosomes that is involved in the degradation of glycosaminoglycans such as dermatan sulfate and heparin sulfate. 4-Methylumbelliferyl-α-L-iduronide is cleaved by α-L-iduronidase to release the fluorescent moiety 4-methylumbelliferyl (4-MU). 4-MU fluorescence is pH-dependent with excitation maxima of 320 and 360 nm at low (1.97-6.72) and high (7.12-10.3) pH, respectively, and an emission maximum ranging from 445 to 455 nm, increasing as pH decreases.[1] This substrate is used in assays that measure the activity of α-L-iduronidase, which is commonly deficient in a type of lysosomal storage disease called mucopolysaccharidosis.[2]

References

1. Zhi, H., Wang, J., Wang, S., *et al.* Fluorescent properties of hymecromone and fluorimetric analysis of hymecromone in compound dantong capsule. *J. Spectrosc.* **2013**, 147128 (2013).
2. Baxter, M.A., Wynn, R.F., Deakin, J.A., *et al.* Retrovirally mediated correction of bone marrow-derived mesenchymal stem cells from patients with mucopolysaccharidosis type I. *Blood* **99(5)**, 1857-1859 (2002).

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