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ProductInformation

4-Methylumbelliferyl β-D-glucuronide hydrate

Product Number **M 9130**
Storage Temperature -0 °C

Product Description

Molecular Formula: $C_{16}H_{16}O_9$
Molecular Weight: 352.2 (anhydrous)
CAS Number: 6160-80-1
Melting Point: 97-100 °C
Specific Rotation: -105° (0.25% (w/v) in water)
Excitation Maximum: 365 nm[1]
Emission maximum: 445 nm[1]
Synonym: MUG

β-Glucuronidase (GUS) from *E. coli* has become the reporter enzyme of choice for genetic plant research. 4-Methylumbelliferyl β-D-glucuronide (MUG) is commonly used as a substrate for detecting GUS gene expression in plants.[2] Since the GUS gene encodes an enzyme not found in plants, this system can be very useful in identifying transformed plants. 4-Methylumbelliferyl β-D-glucuronide (MUG) shows little or no fluorescence. However, when treated with β-glucuronidase, the 4-methylumbelliferone product is fluorescent. The fluoresence at pH 10.3 is approximately 100 times as intense as at pH 7.0 (0.15 M glycine buffer).[1] These fluorescent properties allow MUG to be utilized as a very effective substrate for GUS.[3,4]

MUG is also used for identifying *E. coli* contamination in drinking water[5] and for rapid bacterial identification in blood cultures.[6]

Precautions and Disclaimer

For Laboratory Use Only. Not for drug, household or other uses.

Preparation Instructions

This product is soluble in water at a concentration of 0.35 mg/ml. It has also been descibed as being soluble at 0.1 mM in 0.1 M Sorensen's buffer.[6]

Storage/Stability

MUG at 100 mg/100 ml of H_2O plus 2 drops TRITON® X-100, which has been sterile filtered, is stable for 6 months when stored refrigerated.[7] Solutions of MUG may also be sterilized by autoclaving at 121 C for 15 minutes.[8]

References

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6. Sepulveda, J.L.et al., Rapid presumptive identification of gram-negative rods directly from blood cultures by simple enzymatic tests. J. Clin. Microbiol., **28**, 177-181 (1990).
7. Thompson, J.S., et al., Rapid biochemical test to identify verocytotoxin-positive strains of *Escherichia coli* serotype O157., J. Clin. Microbiol., **28**, 2165-2168 (1990).
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