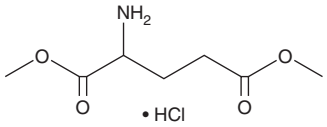
PRODUCT INFORMATION

Dimethyl DL-Glutamate (hydrochloride)

Item No. 18602

CAS Registry No.: 13515-99-6
Formal Name: 1,5-dimethyl ester glutamic acid, monohydrochloride
Synonyms: Glutamic Acid dimethyl ester, Dimethyl 2-aminopentanedioate
MF: $C_7H_{13}NO_4 \bullet HCl$
FW: 211.6
Purity: ≥95%
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

Dimethyl DL-glutamate (hydrochloride) is supplied as a crystalline solid. A stock solution may be made by dissolving the dimethyl DL-glutamate (hydrochloride) in the solvent of choice, which should be purged with an inert gas. Dimethyl DL-glutamate (hydrochloride) is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide. The solubility of dimethyl DL-glutamate (hydrochloride) in these solvents is approximately 5, 10, and 15 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 dimethyl DL-glutamate (hydrochloride) can be prepared by directly dissolving the crystalline solid in aqueous buffers. The solubility of dimethyl DL-glutamate (hydrochloride) in PBS (pH 7.2) is approximately 10 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

Dimethyl DL-glutamate is a cell-permeant glutamic acid derivative that enhances insulin release in response to glucose in isolated islets and in animal models of diabetes.[1,2] It also potentiates the insulinotropic potential of glyburide (Item No. 15009) and glucagon-like peptide 1.[1,2] Dimethyl DL-glutamate is used as a cell-permeable form of glutamate in studies of glutamate action in β-cells.[3,4] However, it can be cytotoxic to myeloid cells and act as an antagonist of glutamate-mediated neurosignaling.[5,6]

References

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4. Vetterli, L., Carobbio, S., Pournourmohammadi, S., *et al. Mol. Biol. Cell* **23(19)**, 3851-3862 (2012).
5. Thiele, D.L. and Lipsky, P.E. *Blood* **79(4)**, 964-971 (1992).
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