Product Data Sheet

Product Name: Dimethyl DL-Glutamate (hydrochloride)
Cat. No.: GC15286

Chemical Properties

Cas. No.	13515-99-6		
Chemical Name	1,5-dimethyl ester glutamic acid, monohydrochloride		
SMILES	COC(C(N)CCC(OC)=O)=O.Cl		
Formula	$C_7H_{13}NO_4$ • HCl	M.Wt	211.6
Solubility	≤5mg/ml in ethanol;10mg/ml in DMSO;15mg/ml in dimethyl formamide	Storage	Store at -20°C
General tips	For obtaining a higher solubility , please warm the tube at 37 ℃ and shake it in the ultrasonic bath for a while.Stock solution can be stored below -20℃ for several months.		
Shipping Condition	Evaluation sample solution : ship with blue ice All other available size: ship with RT , or blue ice upon request.		
Structure			

Background

Dimethyl DL-glutamate is a cell-permeable form of glutamate.

Extracellular glutamic acid is an excitatory neurotransmitter, while intracellular glutamic acid is an amino acid that serves various metabolic roles.

In vitro: Dimethyl DL-glutamate at 3.0-10.0 mM could enhance insulin release evoked by 6.0-8.3 mM D-glucose, 1.0-10.0 mM L-leucine, or 5.0-10.0 mM 2-amino-bicyclo(2,2,1)heptane-2-carboxylic acid, resulting in a shift to the left of the sigmoidal relationship between insulin output and D-glucose concentration. Moreover, dimethyl DL-glutamate unmasked the insulinotropic potential of glibenclamide in the absence of D-glucose. In islets exposed to L-leucine, the insulinotropic action of dimethyl DL-glutamate coincided with an early fall and later increase in 86Rb outflow. In addition, the overall gain in O2 uptake represented the balance between dimethyl DL-glutamate oxidation and its sparing action on the catabolism of endogenous fatty acids and exogenous D-

Tel: (909) 407-4943 Fax: (626) 353-8530 E-mail: tech@glpbio.com
Address: 10292 Central Ave. #205, Montclair, CA, USA

glucose [1].

In vivo: Dimethyl DL-glutamate was intravenously administered as a primed constant infusion to adult rats that had been injected with streptozotocin during the neonatal period. Results showed that dimethyl DL-glutamate augmented plasma insulin concentration and potentiated and/or prolonged the insulinotropic action of GLP-1 injected intravenously at min 5 of the test [2].

Clinical trial: So far, no clinical study has been conducted.

References:
[1] Sener, A. ,Conget, I.,Rasschaert, J., et al. Insulinotropic action of glutamic acid dimethyl ester. American Journal of Physiology 267(4 Pt 1), E573-E584 (1994).
[2] Cancelas, J. ,Villaneuva-Peacarrillo, M.L.,Valverde, I., et al. Potentiation and prolongation of the insulinotropic action of glucagon-like peptide 1 by methyl pyruvate or dimethyl ester of L-glutamic acid in a type 2 diabetes animal model. Endocrine 16(2), 113-116 (2001).

Tel: (909) 407-4943 Fax: (626) 353-8530 E-mail: tech@glpbio.com
Address: 10292 Central Ave. #205, Montclair, CA, USA