Product Data Sheet

Product Name: Methsuximide
Cat. No.: GC17442

Chemical Properties

Cas. No.	77-41-8		
Chemical Name	1,3-dimethyl-3-phenyl-2,5-pyrrolidinedione		
SMILES	CN(C(CC1(C)C2=CC=CC=C2)=O)C1=O		
Formula	$C_{12}H_{13}NO_2$	M.Wt	203.2
Solubility	≥ 8.35mg/mL in DMSO	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	Methsuximide		

Background

Methsuximide (or methsuximide, methosuximide, Celontin) is a succinimide anticonvulsant medication that is pharmacologically converted to its active metabolite N-desmethylmethosuximide, a channel blocker that targets low threshold calcium currents.

Methsuximide effectively suppressed the initial clonic seizures induced by Metrazol in rats and mice. Methsuximide was capable of protecting mice from tonic extensor seizures to supramaximal electroshock [2]. In children with intractable epilepsies, administration of MSM greatly reduced the seizure frequency with no serious or irreversible adverse effects [3].

Methsuximide can function as a substrate of cytochrome P450 (CYP) isoform 2C19 which in turn, inhibits CYP2C19-mediated metabolism of biguanides [4]. Cytochrome P450 2C19 (abbreviated CYP2C19) is an enzyme involved in the metabolism of xenobiotics. Polymorphism of CYP2C19is has been associated with variable ability to metabolize mephenytoin [5].

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References:
[1] Nicholls, P. J., and Orton, T.C. The physiological disposition of 14C-methsuximide in the rat. Br.J.Pharmacol. 45(1), 48-59 (1972).
[2] Chen G, Weston J K, Bratton A C. Anticonvulsant activity and toxicity of phensuximide, methsuximide and ethosuximide[J]. Epilepsia, 1963, 4(1-4): 66-76.
[3] Sigler M, Strassburg H M, Boenigk H E. Effective and safe but forgotten: methsuximide in intractable epilepsies in childhood[J]. Seizure, 2001, 10(2): 120-124.
[4] Wright J D, Helsby N A, Ward S A. The role of S-mephenytoin hydroxylase (CYP2C19) in the metabolism of the antimalarial biguanides[J]. British journal of clinical pharmacology, 1995, 39(4): 441-444.
[5] Guengerich F P. Human cytochrome P450 enzymes[M]//Cytochrome P450. Springer US, 1995: 473-535.

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