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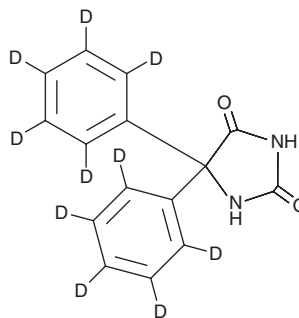
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PRODUCT INFORMATION

Phenytoin-d₁₀ Item No. 33245

| | |
|---------------------------------|--|
| CAS Registry No.: | 65854-97-9 |
| Formal Name: | 5,5-di(phenyl-d ₅)-2,4-imidazolidinedione |
| Synonym: | 5,5-Diphenylhydantoin-d ₁₀ |
| MF: | C ₁₅ H ₂ D ₁₀ N ₂ O ₂ |
| FW: | 262.3 |
| Chemical Purity: | ≥98% (Phenytoin) |
| Deuterium Incorporation: | ≥99% deuterated forms (d ₁ -d ₁₀); ≤1% d ₀ |
| Supplied as: | A solid |
| Storage: | -20°C |
| Stability: | ≥2 years |



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Laboratory Procedures

Phenytoin-d₁₀ is intended for use as an internal standard for the quantification of phenytoin (Item No. 24037) by GC- or LC-MS. The accuracy of the sample weight in this vial is between 5% over and 2% under the amount shown on the vial. If better precision is required, the deuterated standard should be quantitated against a more precisely weighed unlabeled standard by constructing a standard curve of peak intensity ratios (deuterated versus unlabeled).

Phenytoin-d₁₀ is supplied as a solid. A stock solution may be made by dissolving the phenytoin-d₁₀ in the solvent of choice, which should be purged with an inert gas. Phenytoin-d₁₀ is slightly soluble in methanol and DMSO.

Description

Phenytoin is an anticonvulsant agent and active metabolite of fosphenytoin (Item No. 23889). Phenytoin is formed from fosphenytoin by tissue phosphatases.¹ It inhibits neuronal voltage-gated sodium channels in a voltage-dependent manner.² Phenytoin reduces the neuronal firing frequency and decreases the amplitude of excitatory post-synaptic potentials (EPSPs) in electrically stimulated rat corticostriatal slices (EC₅₀s = 42.8 and 33.5 μM, respectively).³ It protects against seizures induced by maximal electroshock (MES) in mice (ED₅₀ = 10 mg/kg).⁴ Formulations containing phenytoin have been used in the treatment of tonic-clonic seizures and status epilepticus.

References

1. Boucher, B.A. Fosphenytoin: A novel phenytoin prodrug. *Pharmacotherapy* **16(5)**, 777-791 (1996).
2. Yaari, Y., Selzer, M.E., and Pincus, J.H. Phenytoin: Mechanisms of its anticonvulsant action. *Ann. Neurol.* **20(2)**, 171-184 (1986).
3. Calabresi, P., Centonze, D., Marfia, G.A., *et al.* An *in vitro* electrophysiological study on the effects of phenytoin, lamotrigine and gabapentin on striatal neurons. *Br. J. Pharmacol.* **126(3)**, 689-696 (1999).
4. Brouillette, W.J., Jestkov, V.P., Akhtar, M.S., *et al.* Bicyclic hydantoin with a bridgehead nitrogen. Comparison of anticonvulsant activities with binding to the neuronal voltage-dependent sodium channel. *J. Med. Chem.* **37(20)**, 3289-3293 (1994).

WARNING

THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

SAFETY DATA

This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the complete Safety Data Sheet, which has been sent via email to your institution.

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