

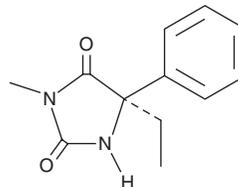
PRODUCT INFORMATION



(R)-Mephenytoin

Item No. 25891

CAS Registry No.: 71140-51-7
Formal Name: (5R)-5-ethyl-3-methyl-5-phenyl-2,4-imidazolidinedione
Synonyms: (-)-Mephenytoin,
(R)-5-ethyl-3-methyl-5-Phenylhydantoin
MF: C₁₂H₁₄N₂O₂
FW: 218.3
Purity: ≥98%
Supplied as: A crystalline 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

(R)-Mephenytoin is supplied as a crystalline solid. A stock solution may be made by dissolving the (R)-mephenytoin in the solvent of choice. (R)-Mephenytoin is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide (DMF), which should be purged with an inert gas. The solubility of (R)-mephenytoin in ethanol is approximately 15 mg/ml and approximately 25 mg/ml in DMSO and DMF.

(R)-Mephenytoin is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, (R)-mephenytoin should first be dissolved in DMSO and then diluted with the aqueous buffer of choice. (R)-Mephenytoin has a solubility of approximately 0.5 mg/ml in a 1:1 solution of DMSO:PBS (pH 7.2) using this method. We do not recommend storing the aqueous solution for more than one day.

Description

(R)-Mephenytoin is the (R) enantiomer of the anticonvulsant mephenytoin.¹ (R)-Mephenytoin can be demethylated by the cytochrome P450 (CYP) isoform CYP2C9 to form the active metabolite 5-ethyl-5-phenylhydantoin (nirvanol).^{2,3} The ratio of (S)-mephenytoin (Item No. 11913) to (R)-mephenytoin in urine following administration of the racemic mixture has been used to detect polymorphisms in drug metabolism by CYP2C19, as only (S)-mephenytoin is a substrate of CYP2C19.^{2,4,5}

References

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2. Lewis, D.F., Dickins, M., Weaver, R.J., et al. Molecular modelling of human CYP2C subfamily enzymes CYP2C9 and CYP2C19: Rationalization of substrate specificity and site-directed mutagenesis experiments in the CYP2C subfamily. *Xenobiotica* **28(3)**, 235-268 (1998).
3. Wong, P.T.H., Tan, S.F., and Lee, H.S. N-demethylation of methyl and dimethyl derivatives of phenytoin and their anticonvulsant activities in mice. *Jpn. J. Pharmacol.* **48(4)**, 473-478 (1988).
4. Ferguson, R.J., de Morais, S.M., Benhamou, S., et al. A new genetic defect in human CYP2C19: Mutation of the initiation codon is responsible for poor metabolism of S-mephenytoin. *J. Pharmacol. Exp. Ther.* **284(1)**, 356-361 (1998).
5. Guttendorf, R.J., Britto, M., Blouin, R.A., et al. Rapid screening for polymorphisms in dextromethorphan and mephenytoin metabolism. *Br. J. Clin. Pharmacol.* **29(4)**, 373-380 (1990).

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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