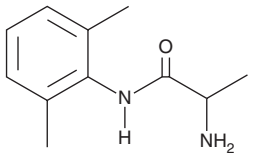
PRODUCT INFORMATION

Tocainide

Item No. 41592

CAS Registry No.: 41708-72-9
Formal Name: 2-amino-N-(2,6-dimethylphenyl)-propanamide
Synonyms: (R,S)-Tocainide, W-36095
MF: $C_{11}H_{16}N_2O$
FW: 192.3
Purity: ≥98%
Supplied as: A 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

Tocainide is supplied as a solid. A stock solution may be made by dissolving the tocainide in the solvent of choice, which should be purged with an inert gas. Tocainide is slightly soluble (0.1-1 mg/ml) in ethanol and soluble (≥10 mg/ml) in DMSO.

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 tocainide can be prepared by directly dissolving the solid in aqueous buffers. The solubility of Tocainide is sparingly soluble (1-10 mg/ml) in PBS (pH 7.2). We do not recommend storing the aqueous solution for more than one day.

Description

Tocainide is an antiarrhythmic agent and a derivative of the local anesthetic lidocaine.[1] It inhibits voltage-gated sodium channel 1.4 ($Na_v1.4$) in HEK293 cells expressing the human channel (IC_{50}s = 699 and 182 µM at 0.1 and 10 Hz, respectively).[2] Tocainide reduces the action potential duration at 50% repolarization in isolated dog Purkinje fibers in a concentration-dependent manner.[1] *In vivo*, tocainide reduces ventricular heart rate and the percent of ectopic beats in a dog model of ventricular tachycardia induced by the cardiac glycoside ouabain (Item No. 14319).[1] Tocainide (50 mg/kg) decreases mechanical hyperalgesia in the nerve-injured paw in a rat model of neuropathic pain induced by chronic constriction injury of the sciatic nerve.[2] Formulations containing tocainide have previously been used in the treatment of ventricular arrhythmias.

References

1. Moore, E.N., Spear, J.F., Horowitz, L.N., *et al.* Electrophysiologic properties of a new antiarrhythmic drug — tocainide. *Am. J. Cardiol.* **41(4)**, 703-709 (1978).
2. Ghelardini, C., J.-F., D., Muraglia, M., *et al.* Effects of a new potent analog of tocainide on hNav1.7 sodium channels and *in vivo* neuropathic pain models. *Neuroscience* **169(2)**, 863-873 (2010).

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