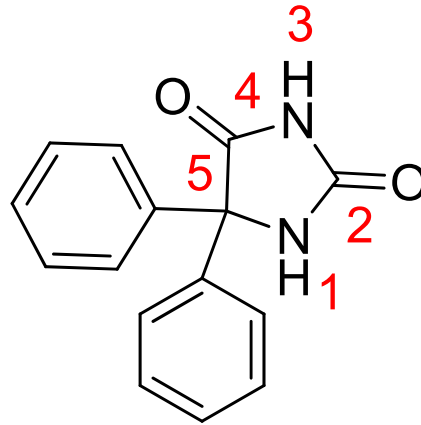


## Phenytoin

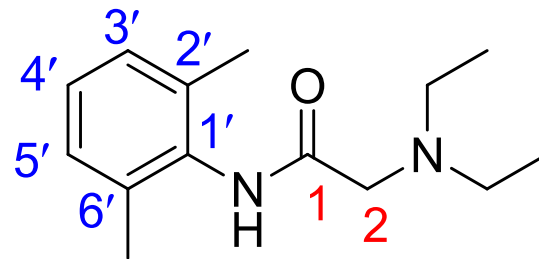


IUPAC: 5,5-diphenylimidazolidine-2,4-dione

**MOA:** Phenytoin is often described as a non-specific sodium channel blocker and targets almost all voltage-gated sodium channel subtypes. More specifically, phenytoin prevents seizures by inhibiting the positive feedback loop that results in neuronal propagation of high frequency action potentials.

**Uses:** Phenytoin is indicated to treat grand mal seizures, complex partial seizures, and to prevent and treat seizures during or following neurosurgery. For the prevention and treatment of seizures occurring during neurosurgery.

## Lidocaine hydrochloride

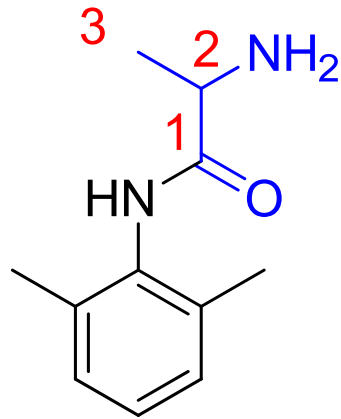


IUPAC: 2-(Diethylamino)-N-(2,6-dimethylphenyl)acetamide

MOA: Lidocaine is a local anesthetic of the amide type. It is used to provide local anesthesia by nerve blockade at various sites in the body. It does so by stabilizing the neuronal membrane by inhibiting the ionic fluxes required for the initiation and conduction of impulses, thereby effecting local anesthetic action. In particular, the lidocaine agent acts on sodium ion channels located on the internal surface of nerve cell membranes.

Uses: Lidocaine is an anesthetic of the amide group indicated for production of local or regional anesthesia.

## Tocainide hydrochloride

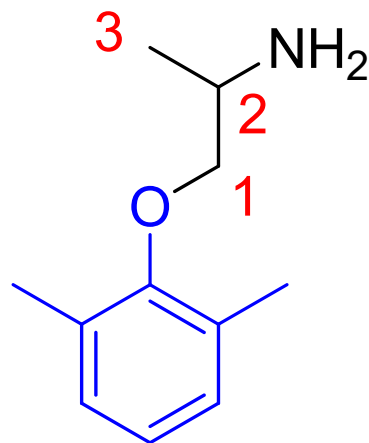


IUPAC: 2-amino-N-(2,6-dimethylphenyl)propanamide

MOA: The antiarrhythmic actions are mediated through effects on sodium channels in Purkinje fibers. Tocainide acts on sodium channels on the neuronal cell membrane, limiting the spread of seizure activity and reducing seizure propagation. Tocainide binds preferentially to the inactive state of the sodium channels.

Uses: For the treatment of documented ventricular arrhythmias, such as sustained ventricular tachycardia.

## Mexiletine hydrochloride



IUPAC: ( $\pm$ )-1-(2,6-dimethylphenoxy)propan-2-amine

**MOA:** Inhibits the inward sodium current required for the initiation and conduction of impulses, thus reducing the rate of rise of the action potential, Phase 0. It achieves this reduced sodium current by inhibiting sodium channels. Mexiletine decreases the effective refractory period (ERP) in Purkinje fibers in the heart.

**Uses:** For the treatment of ventricular tachycardia and symptomatic premature ventricular beats, and prevention of ventricular fibrillation.