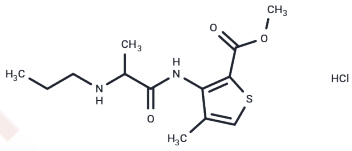
Data Sheet (Cat.No.T2131)

TargetMol

Articaine hydrochloride

Chemical Properties



CAS No. :	23964-57-0
Formula:	C13H21ClN2O3S
Molecular Weight:	320.84
Storage:	Powder: -20°C for 3 years | In solvent: -80°C for 1 year Actual storage temperature shall be subject to the COA.

Biological Description

Description	Articaine hydrochloride (Hoe-045), a thiophene-containing local anesthetic, is pharmacologically similar to mepivacaine.
Targets(IC50)	NF-κB,NOD-like Receptor (NLR),Sodium Channel
In vivo	The time to maximum drug concentrations of articaine occurs about 10 to 15 minutes after submucosal injection of articaine 4% 80 mg. The elimination half-time of articaine is about 20 minutes. Articaine is better able to diffuse through soft tissue and bone than other local anaesthetics, the concentration of articaine in the alveolus of a tooth in the upper jaw after extraction is about 100 times higher than that in systemic circulation. [1] Articaine: VAS (Visual Analogue Scale) scores (from 0 to 10 cm) by patients 4 to < 13 years of age are 0.5 for simple procedures and 1.1 for complex procedures, and average investigator scores are 0.4 and 0.6 for simple and complex procedures, respectively. No serious adverse events related to the articaine occurres, the only adverse event considered related to articaine is accidental lip injury in one patient. [2] Articaine results in success rate of 64.5% in electronic pulp testing in healthy adult volunteers injected with 4% articaine. Articaine infiltration produces significantly more episodes of no response to maximum stimulation in first molars than lidocaine. Mandibular buccal infiltration is more effective with 4% articaine with epinephrine compared to 2% lidocaine with epinephrine. [3] Articaine (4%) results in the success rate of 24% for the inferior alveolar nerve block in randomized, double-blind study. [4] Articaine formulation results in successful pulpal anesthesia ranged from 75 to 92 percent and onset of pulpal anesthesia ranged from 4.2 to 4.7 minutes in healthy volunteer. For articaine, 4 percent (two of 56) of the subjects reported swelling and no subjects reported bruising. Ninety-eight percent (59 of 60) of the subjects had lip numbness with the articaine solution. [5]

Solubility Information

Solubility	DMSO: 60 mg/mL (187.01 mM),Sonication is recommended. H2O: 59 mg/mL (183.89 mM),Sonication is recommended. Ethanol: 60 mg/mL (187.01 mM),Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)

In vivo Formulation	10% DMSO+40% PEG300+5% Tween 80+45% Saline: 2 mg/mL (6.23 mM),Sonication is recommended. *Please add the solvents sequentially, clarifying the solution as much as possible before adding the next one. Dissolve by heating and/or sonication if necessary. Working solution is recommended to be prepared and used immediately. The formulation provided above is for reference purposes only. In vivo formulations may vary and should be modified based on specific experimental conditions.*

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	3.1168 mL	15.5841 mL	31.1682 mL
5 mM	0.6234 mL	3.1168 mL	6.2336 mL
10 mM	0.3117 mL	1.5584 mL	3.1168 mL
50 mM	0.0623 mL	0.3117 mL	0.6234 mL

Please select the appropriate solvent to prepare the stock solution, according to the solubility of the product in different solvents. Please use it as soon as possible.

Note: The dilution table applies only to solid products. For liquid products, please calculate the stock solution based on the stated concentration and/or density.

Reference

Oertel R, et al. Clin Pharmacokinet, 1997, 33(6), 417-425.
Malamed SF, et al. Pediatr Dent, 2000, 22(4), 307-311.
Kanaa MD, et al. J Endod, 2006, 32(4), 296-298.
Claffey E, et al. J Endod, 2004, 30(8), 568-571.
Robertson D, et al. J Am Dent Assoc, 2007, 138(8), 1104-1112.