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ProductInformation

Naloxone hydrochloride dihydrate

Product Number **N 7758**
Storage Temperature 2-8 °C

Product Description

Molecular Formula: $C_{19}H_{21}NO_4 \cdot HCl$
Molecular Formula: 399.9
CAS Number: 51481-60-8
Melting Point: 200-205 °C[1]
Synonyms: (5α(-4,5-epoxy-3,14-dihydroxy-17-(2-propenyl)morphinan-6-one hydrochloride dihydrate; 17-allyl-4,5α-epoxy-3,14-dihydroxymorphinan-6-one hydrochloride dihydrate[1]

Naloxone is a specific, competitive opioid antagonist that acts at opioid receptors with agonist or mixed agonist-antagonist activity.[1-3] In conjunction with calcium salts, naloxone has been proposed to participate in control of calcium turnover and the pain and functional activity of endocrine glands, by means of the down regulation and desensitization of opioid receptor and protein kinase C stimulation.[4] Naloxone is studied in addiction research and alcoholism research.[5,6]

The role of naloxone (1 μM) and other opioids on apoptosis in several human cancer cell lines has been probed.[7] Naloxone (10-100 μM) has been used to study proliferation and neurogenesis in cultured rat adult hippocampal progenitors.[8] Naloxone has also been utilized to modulate the NMDA receptor activation capability of the μ-opioid receptor agonist DAMGO.[9]

Precautions and Disclaimer

For Laboratory Use Only. Not for drug, household or other uses.

Preparation Instructions

This product is soluble in water (50 mg/ml), yielding a clear, colorless to yellow solution.

References

1. The Merck Index, 12th ed., Entry# 6449.
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3. Roth, B. L., and Coscia, C. J., Microsomal opiate receptors: Characterization of smooth microsomal and synaptic membrane opiate receptors. J. Neurochem., **42(6)**, 1677-1684 (1984).
4. Minoia, P., and Sciorsci, R. L., Metabolic control through L calcium channel, PKC and opioid receptors modulation by an association of naloxone and calcium salts. Curr. Drug Targets Immune Endocr. Metabol. Disord., **1(2)**, 131-137 (2001).
5. Dafny, N., et al., Alteration of morphine withdrawal to naloxone by interferon. Neuropeptides, **3**, 453-463 (1983).
6. Herz, A., Endogenous opioid systems and alcohol addiction. Psychopharmacology (Berl), **129(2)**, 99-111 (1997).
7. Zagon, I. S., and McLaughlin, P. J., Opioids and the apoptotic pathway in human cancer cells. Neuropeptides, **37(2)**, 79-88 (2003).
8. Persson, A. I., et al., μ- and ξ-opioid receptor antagonists decrease proliferation and increase neurogenesis in cultures of rat adult hippocampal progenitors. Eur. J. Neurosci., **17(6)**, 1159-1172 (2003).
9. Kow, L. M., et al., Potentiation of the excitatory action of NMDA in ventrolateral periaqueductal gray by the μ-opioid receptor agonist, DAMGO. Brain Res., **935(1-2)**, 87-102 (2002).