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ProductInformation

Bumetanide

Product Number **B 3023**
Store at Room Temperature

Product Description
Molecular Formula: $C_{17}H_{20}N_2O_5S$
Molecular Weight: 364.4
CAS Number: 28395-03-1
Melting Point: 230-231 °C[1]
Synonyms: 3-(aminosulfonyl)-5-(butylamino)-4-phenoxybenzoic acid; 3-(butylamino)-4-phenoxy-5-sulfamoylbenzoic acid[1]

Bumetanide is a benzoic acid derivative that is used in ion channel research. It is an inhibitor of cation-chloride cotransporters, which mediate the coupled ion movement of Na^+, K^+, and Cl^- across the plasma membrane of animal cells.[2]

Bumetanide has been used to probe the role of prostaglandin E_2 in the regulation of chloride secretion across porcine endometrial epithelial cells.[3] A study of the effects of bumetanide application and subsequent sodium potassium chloride cotransporter 1 (NKCC1) inhibition in cultured liver cells has indicated increased α_1-smooth muscle actin expression in 2-day-cultured hepatic stellate cells.[4] An investigation of lactacidosis treatment of suspended G6 glial cells with bumetanide included at 0.1 mM has shown diminished cell swelling due to lactacidosis.[5]

An HPLC method for the analysis of bumetanide in plasma has been published.[6] The hydrogen abstraction and ionization patterns of bumetamide and other diuretic compounds in negative electrospray ionization mass spectrometry have been investigated.[7]

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

Preparation Instructions
This product is soluble in ethanol (50 mg/ml), with heat as needed, yielding a clear to slightly hazy, colorless to yellow solution. It is also soluble in acetone and alkaline solutions, slightly soluble in chloroform and in ether, and very slightly soluble in water.[8]

References
1. The Merck Index, 12th ed., Entry# 1508.
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3. Deachapunya, C., and O'Grady, S. M., Regulation of chloride secretion across porcine endometrial epithelial cells by prostaglandin E2. J. Physiol., **508(Pt 1)**, 31-47 (1998).
4. Schliess, F., et al., Expression and regulation of the $Na^+/K^+/2Cl^-$ cotransporter NKCC1 in rat liver and human HuH-7 hepatoma cells. Arch. Biochem. Biophys., **401(2)**, 187-197 (2002).
5. Ringel, F., et al., Contribution of anion transporters to the acidosis-induced swelling and intracellular acidification of glial cells. J. Neurochem., **75(1)**, 125-132 (2000).
6. Smith, D. E., High-performance liquid chromatographic assay for bumetanide in plasma and urine. J. Pharm. Sci., **71(5)**, 520-523 (1982).
7. Thevis, M., et al., Effect of the location of hydrogen abstraction on the fragmentation of diuretics in negative electrospray ionization mass spectrometry. J. Am. Soc. Mass Spectrom., **14(6)**, 658-670 (2003).
8. Martindale The Extra Pharmacopoeia, 31st ed., Reynolds, J. E. F., ed., Royal Pharmaceutical Society (London, UK: 1996), pp. 836-837.

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