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ProductInformation

Suramin sodium salt

Product Number **S 2671**
Store at room temperature

Product Description
Molecular Formula: $C_{51}H_{34}N_6Na_6O_{23}S_6$
Molecular Weight: 1429
CAS Number: 129-46-4

Suramin inhibits parasite and human enzymes including trypanosoma glycolytic enzymes, human DNA and RNA polymerases, human reverse transcripase, ATPase, protein kinase C, and human lysosomal enzymes such as β-glucuronidase. Suramin is a trypanocide used in the treatment of the early stages of African trypanosomiasis and is effective as an anthelmintic in the treatment of onchocerciasis.[1] It has been shown to have activity against HIV, but with disappointing results and has been reported to have some antineoplastic activity.[2] In *in vitro* studies, suramin inhibited the reverse transcriptase of HIV,[2,3,4] HIV infectivity, and the cytopathic effect on helper/inducer T cells.[5]

Suramin is a hexasulfonated naphthylurea compound used as an anti-tumor drug and is a potent inhibitor of human neutrophil elastase, cathepsin G, and proteinase 3.[6] One molecule of elastase binds four molecules of suramin with an inhibitor constant, K_I, of 2×10^{-7} M. The K_i for cathepsin G is 8×10^{-8} M. The K_i proteinase 3 is 5×10^{-7} M. Ionic strength increases the K_i of the elastase suramin complex in a way that suggests that four of the six sulfonate groups of suramin have ionic interactions with basic residues of the enzyme and, at saturation, almost all arginines of elastase form salt bridges with suramin.

The neutrophil proteinase inhibitory activity of suramin may be used to prevent tissue destruction and thrombus formation in diseases where massive infiltration and activation of neutrophils take place. Suramin was also shown to prevent platelet aggregation and serotonin release in platelet activation, mediated by formyl-Met-Leu-Phe stimulated neutrophils.

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

Preparation Instructions
The product is soluble in water (50 mg/ml), yielding a clear, faint yellow solution. It is also soluble in physiological saline, sparingly soluble in 95% ethanol, insoluble in benzene, ether, petroleum ether, and chloroform.[3]

Storage/Stability
Solutions deteriorate on storage and should be used immediately after preparation. Protect product from light.

References
1. Martindale The Extra Pharmacopoeia, 30th ed., Reynolds, J. E. F., ed., The Pharmaceutical Press (London, England: 1993), p. 528.
2. Stein, C. A., et al., Suramin: an Anticancer Drug with a Unique Mechanism of Action. J. Clin. Oncol.,**7(4)**, 499-508 (1989).
3. The Merck Index, 12th ed., Entry# 9181.
4. De Clercq, E., Suramin: a Potent Inhibitor of the Reverse Transcriptase of RNA Tumor Viruses. Cancer Lett.,**8(1**), 9-22 (1979).
5. Mitsuya, H., et al., Suramin Protection of T Cells in Vitro Against Infectivity and Cytopathic Effect of HTLV-III. Science, **226(4671**), 172-174 (1984).
6. Cadene, M., et al., Inhibition of Neutrophil Serine Proteinases by Suramin. J. Biol. Chem., **272(15**),9950-9955 (1997).

ALF/RXR 10/02