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ProductInformation

Echinomycin

Product Number **E 4392**
Storage Temperature 2-8 °C

Product Description
Molecular Formula: $C_{51}H_{64}N_{12}O_{12}S_2$
Molecular Weight: 1,101
CAS Number: 512-64-1
Synonym: quinomycin A

Echinomycin is an antimicrobial and antitumor agent produced by *Streptomyces echinatus*. Echinomycin belongs to a family of peptide antibiotics that contain quinoxaline chromophores. *S. echinatus* protoplast studies suggest that another quinoxaline antibiotic, triostin A, is the natural precursor of echinomycin. Echinomycin strongly binds double-stranded DNA by nucleotide sequence-selective intercalation and inhibits RNA synthesis. Echinomycin has low affinity for single-stranded RNA or DNA.[1,2,3]

Footprinting experiments and crystallographic studies suggest that echinomycin binds 5'-CG-3' base-pairs. Footprinting analysis indicates that echinomycin has a binding-site size of four base-pairs and that strong binding sites for echinomycin are the sequences (5'-3') ACGT and TCGT.[1,4-7]

The quinoxaline chromophores play a role in echinomycin selectively to specific DNA sequences. The quinoxaline chromophore moieties of echinomycin interact with DNA much more weakly than does echinomycin, suggesting that the peptide portion of the antibiotic is a determinant of binding strength. Properties of other quinoxaline antibiotics and analogues of echinomycin suggest that the peptide portion is also a determinant of binding specificity.[8-11]

If an echinomycin-DNA complex is allowed to equilibrate for increasing longer periods of time after forming, an increasing proportion of the bound antibiotic dissociates slowly on addition of detergent. This observation supports the proposal that sequence-selective antibiotics “shuffle” among binding sites in the process of locating the highest affinity nucleotide sequences.[12]

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

Preparation Instructions
This product is soluble in chloroform (10 mg/ml), yielding a clear, faint yellow solution. It is also soluble in methanol (1 mg/ml) and DMSO (1 mM).

Storage/Stability
Store stock solutions at 4 °C. Dilute to working concentrations just prior to use.[7]

References
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