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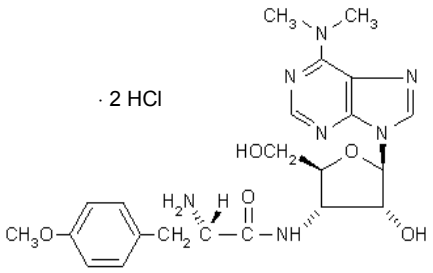
Product Information

Puromycin dihydrochloride
from *Streptomyces alboniger*

Catalog Number **P7255**
Storage Temperature –20 °C

CAS RN: 58-58-2 (dihydrochloride)
53-79-2 (free base)
Synonyms: Stylomycin dihydrochloride;
(S)-3′-[[2-amino-3-(4-methoxyphenyl)-1-oxopropyl]-amino]-3′-deoxy-N,N-dimethyl-adenosine dihydrochloride



Molecular formula: $C_{22}H_{29}N_7O_5 \cdot 2HCl$
Molecular weight: 544.43

Melting Point:[1,2] 175.5–177 °C (free base)
pK_a values:[2,3] 6.8, 7.2
Extinction coefficient:[2] 20.3 (275 nm, 0.1 N NaOH)
Extinction coefficient: 19.5 (268 nm, 0.1 N HCl)
$[\alpha]^{25}$:[4] –11° (ethanol)

Product Description
Puromycin dihydrochloride belongs to the amino-nucleoside family of antibiotics and is isolated from *Streptomyces albonige*r. Since the partial structure of this antibiotic showed it to be a purine derivative, puromycin was assigned as its generic name.

Puromycin is a broad spectrum antibiotic and antibacterial agent. It is active against Gram-positive microorganisms, less active against acid-fast bacilli, and weakly active against Gram-negative microorganisms.[2,5] It prevents growth of bacteria, protozoa, algae, and mammalian cells. Puromycin also possesses antitrypanosomal activity. It acts very quickly and can kill 99% of the cells within 2 days. It also exhibits antitumor activity in studies on brain tumor cells.[6]

Puromycin is a protein synthesis inhibitor that causes premature chain termination by acting as an analog of the 3′-terminal end of aminoacyl-tRNA. It has been found to inhibit the incorporation of ^{14}C-L-leucine into protein in a cell-free preparation from rat liver. It was postulated the inhibition was due to the fact that no ^{14}C-L-leucine was transferred from soluble (or transfer) ribonucleic acid–^{14}C-L-leucine to microsomal protein.[5] It has been used to study transcriptional regulatory mechanisms that control the sequential and coordinate expression of genes during cell differentiation.[7,8]

The optimal working concentration of puromycin varies between cell lines. Usually, the working concentration for eukaryote cell culture is 1–10 μg/ml.

Precautions and Disclaimer
This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.

Preparation Instructions
The product is soluble in water (50 mg/ml), yielding a clear, colorless to faint yellow solution. The stock solution may be passed through a 0.22 μm filter and stored in aliquots at –20 °C.

It is also soluble in methanol (10 mg/ml).

Storage/Stability
Store the product at –20 °C. Under these conditions, the powder remains active for four years.

References

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5. Antibiotics: origin, nature, and properties, Korzybski, T., et al., American Society for Microbiology (Washington, DC: 1978), pp. 1173-1180.
6. Lee, Y.S., and Wurster, R.D., *Cancer Lett.*, **93**, 157-163 (1995).
7. Manabe I. And Owens, G.K., *Circ. Res.*, **88**, 1127-34 (2001).
8. Marchetti S., et al., *J. Cell Sci.*, **115**, 2075-85 (2002).

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