# PRODUCT INFORMATION

## Puromycin

*Item No. 35841*

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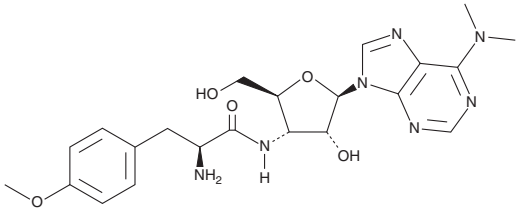
| **CAS Registry No.:** | 53-79-2 |
| **Formal Name:** | 3′-[[(2S)-2-amino-3-(4-methoxyphenyl)-1-oxopropyl] amino]-3′-deoxy-N,N-dimethyl-adenosine |
| **Synonym:** | CL 13,900 |
| **MF:** | $C_{22}H_{29}N_7O_5$ |
| **FW:** | 471.5 |
| **Purity:** | ≥95% |
| **Supplied as:** | A solid |
| **Storage:** | -20°C |
| **Stability:** | ≥4 years |
| **Item Origin:** | Bacterium/*Streptomyces alboniger* |



*Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.*

### Laboratory Procedures

Puromycin is supplied as a solid. A stock solution may be made by dissolving the puromycin in the solvent of choice, which should be purged with an inert gas. Puromycin is soluble in organic solvents such as ethanol, methanol, DMSO, and dimethyl formamide.

### Description

Puromycin is a derivative of the glomerular epithelial cell toxin puromycin aminonucleoside (Item No. 15509) and an inhibitor of protein synthesis that has been found in *S. alboniger*.[1-6] Puromycin is structurally similar to the amino acid-bearing end of tRNA, which allows it to enter the ribosome during protein synthesis, bind to the nascent polypeptide chain, and halt chain elongation.[2-4] It inhibits protein synthesis by 99% *in vitro*.[5] Puromycin is also an inhibitor of puromycin-sensitive aminopeptidase (PSA) and aminopeptidase N (APN; $IC_{50}$s = 9.7 and 41 µM, respectively). It reduces the viability of HL-60 human promyelocytic leukemia and MOLT-4 human acute lymphoblastic leukemia cells ($EC_{50}$s = 0.055 and 0.17 µM, respectively). Puromycin is active against the chloroquine-sensitive and -resistant *P. falciparum* strains T9-96 and K1 ($IC_{50}$s = 0.024 and 0.023 µM, respectively).[6] Puromycin has been used as a selective marker in cell culture systems and has been chemically modified for use in labeling or imaging newly synthesized proteins.[7]

### References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2. Rodriguez-Fonseca, C., Phan, H., Long, K.S., *et al.* Puromycin-rRNA interaction sites at the peptidyl transferase center. *RNA* **6(5)**, 744-754 (2000).
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4. Lührmann, R., Bald, R., Stöffler-Meilicke, M., *et al.* Localization of the puromycin binding site on the large ribosomal subunit of *Escherichia coli* by immunoelectron microscopy. *Proc. Natl. Acad. Sci. USA* **78(12)**, 7276-7280 (1981).
5. Singh, R., Williams, J., and Vince, R. Puromycin based inhibitors of aminopeptidases for the potential treatment of hematologic malignancies. *Eur. J. Med. Chem.* **139**, 325-336 (2017).
6. Ekong, R.M., Kirby, G.C., Patel, G., *et al.* Comparison of the *in vitro* activities of quassinoids with activity against *Plasmodium falciparum*, anisomycin and some other inhibitors of eukaryotic protein synthesis. *Biochem. Pharmacol.* **40(2)**, 297-301 (1990).
7. Aviner, R. The science of puromycin: From studies of ribosome function to applications in biotechnology. *Comput. Struct. Biotechnol. J.* **18**, 1074-1083 (2020).





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