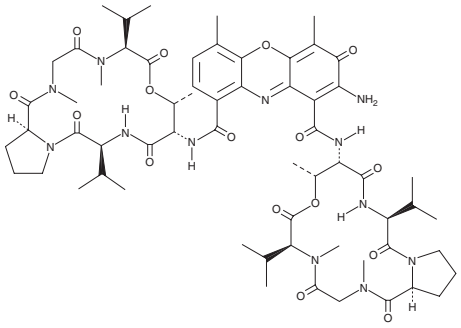
# PRODUCT INFORMATION

## Actinomycin D (solution)

*Item No. 46799*



**CAS Registry No.:** 50-76-0
**Synonyms:** ActD, Actinomycin $C_1$, Dactinomycin, Meractinomycin, NCI C04682, NSC 3053, Oncostatin K
**MF:** $C_{62}H_{86}N_{12}O_{16}$
**FW:** 1,255.4
**Purity:** ≥95%
**Supplied as:** A 1 mM solution in DMSO
**Storage:** -20°C
**Stability:** ≥2 years

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

### Laboratory Procedures

Actinomycin D (solution) is supplied as a solution in DMSO. To change the solvent, simply evaporate the DMSO under a gentle stream of nitrogen and immediately add the solvent of choice. Solvents such as dimethyl formamide (DMF) purged with an inert gas can be used. Actinomycin D (solution) is soluble in DMF.

### Description

Actinomycin D is an antitumor antibiotic that has been found in *Streptomyces* and has diverse biological activities.[1-6] It binds to replicating DNA at the transcription initiation complex and inhibits RNA polymerase elongation.[1,2] It induces apoptosis in PANC-1 pancreatic cancer, MG-63 osteosarcoma, and patient-derived chronic lymphocytic leukemia (CLL) cells.[3-5] Actinomycin D (0.06 mg/kg, i.p.) reduces tumor load and increases survival in a *TCL1* transgenic mouse model of high-risk CLL.[4] It is active against *B. cereus*, *S. pneumoniae*, and methicillin-susceptible *S. aureus* (MICs = 3.125, 12.5, and 6.25 µg/ml, respectively), as well as multiple strains of methicillin-resistant *S. aureus* (MRSA; MICs = 12.5-25 µg/ml).[5] Formulations containing actinomycin D have been used in the treatment of cancer.

### References


1. Paramanathan, T., Vladescu, I., McCauley, M.J., *et al*. Force spectroscopy reveals the DNA structural dynamics that govern the slow binding of Actinomycin D. *Nucleic Acids Res.* **40(11)**, 4925-4932 (2012).
2. Sobell, H.M. Actinomycin and DNA transcription. *Proc. Natl. Acad. Sci. USA* **82**, 5328-5331 (1985).
3. Kleeff, J., Kornmann, M., Sawhney, H., *et al*. Actinomycin D induces apoptosis and inhibits growth of pancreatic cancer cells. *Int. J. Cancer* **86(3)**, 399-407 (2000).
4. Lu, D.F., Wang, Y.S., Li, C., *et al.* Actinomycin D inhibits cell proliferations and promotes apoptosis in osteosarcoma cells. *Int. J. Clin. Exp. Med.* **8(2)**, 1904-1911 (2015).
5. Merkel, O., Wacht, N., Sifft, E., *et al.* Actinomycin D induces p53-independent cell death and prolongs survival in high-risk chronic lymphocytic leukemia. *Leukemia* **26(12)**, 2508-2516 (2012).
6. Qureshi, K.A., Bholay, A.D., Rai, P.K., *et al.* Isolation, characterization, anti-MRSA evaluation, and in-silico multi-target anti-microbial validations of actinomycin $X_2$ and actinomycin D produced by novel *Streptomyces smyrnaeus* UKAQ_23. *Sci. Rep.* **11(1)**, 14539 (2021).



**WARNING**
THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

**SAFETY DATA**
This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the complete Safety Data Sheet, which has been sent *via* email to your institution.

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