

# PRODUCT INFORMATION



## Nogalamycin

Item No. 27995

**CAS Registry No.:** 1404-15-5  
**Formal Name:** (2R,3S,4R,5R,6R,11S,13S,14R)-11-[(6-deoxy-3-C-methyl-2,3,4-tri-O-methyl- $\alpha$ -L-mannopyranosyl)oxy]-4-(dimethylamino)-3,4,5,6,9,11,12,13,14,16-decahydro-3,5,8,10,13-pentahydroxy-6,13-dimethyl-9,16-dioxo-2,6-epoxy-2H-naphthaceno[1,2-b]oxocin-14-carboxylic acid, methyl ester

**Synonyms:** NSC 70845, U 15167

**MF:**  $C_{39}H_{49}NO_{16}$

**FW:** 787.8

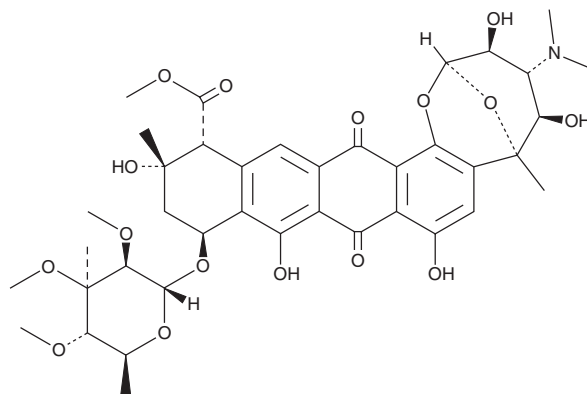
**Purity:**  $\geq 95\%$

**Supplied as:** A solid

**Storage:**  $-20^{\circ}\text{C}$

**Stability:**  $\geq 4$  years

**Item Origin:** Bacterium/*Streptomyces* sp.



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

### Laboratory Procedures

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

### Description

Nogalamycin is an anthracycline originally isolated from *S. nogalater* and a DNA-intercalating agent.<sup>1,2</sup> It inhibits the DNA-unwinding and ATPase activities of *P. falciparum* DNA helicase 60 ( $IC_{50}$ s = 2 and 0.5  $\mu\text{M}$ , respectively) and the DNA cleavage activity of vaccinia virus topoisomerase ( $IC_{50}$  = 0.7  $\mu\text{M}$ ).<sup>3,4</sup> Nogalamycin also inhibits the growth of MCF-7 and MDA-MB-231 human breast cancer cells ( $IC_{50}$ s = 0.242 and 0.37  $\mu\text{M}$ , respectively).<sup>5</sup>

### References

1. Torkkell, S., Kunnari, T., Palmu, K., *et al.* Identification of a cyclase gene dictating the C-9 stereochemistry of anthracyclines from *Streptomyces nogalater*. *Antimicrob. Agents Chemother.* **44**(2), 396-399 (2000).
2. Neidle, S., Pearl, L.H., and Skelly, J.V. DNA structure and perturbation by drug binding. *Biochem. J.* **243**(1), (1987).
3. Pradhan, A. and Tuteja, R. *Plasmodium falciparum* DNA helicase 60. dsRNA- and antibody-mediated inhibition of malaria parasite growth and downregulation of its enzyme activities by DNA-interacting compounds. *FEBS J.* **273**(15), 3545-3556 (2006).
4. Yakovleva, L., Handy, C.J., Sayer, J.M., *et al.* Benzo[c]phenanthrene adducts and nogalamycin inhibit DNA transesterification by vaccinia topoisomerase. *J. Biol. Chem.* **279**(22), 23335-23342 (2004).
5. Dasgupta, H., Islam, M.S., Alam, N., *et al.* Induction of HRR genes and inhibition of DNMT1 is associated with anthracycline anti-tumor antibiotic-tolerant breast carcinoma cells. *Mol. Cell Biochem.* **453**(1-2), 163-178 (2019).

#### 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.

#### WARRANTY AND LIMITATION OF REMEDY

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