

Product Information

Neocarzinostatin

from *Streptomyces carzinostaticus*

Catalog Number **N9162**

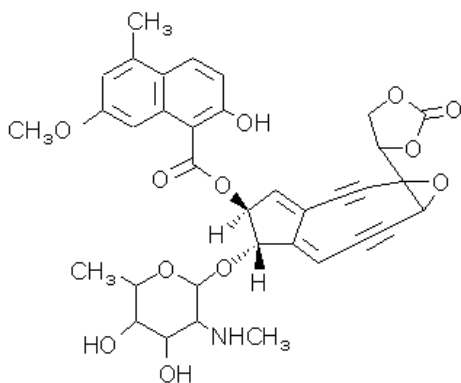
Store at 2-8 °C

CAS RN 9014-02-2

Synonyms: NCS; Zinostatin; NSC-69856;

Holoneocarzinostatin

Chromophore



Product Description

Molecular Formula: Chromophore C₃₅H₃₃NO₁₂

Molecular Weight: Chromophore: 659

Apoprotein: ~11,000

Neocarzinostatin (NCS) is a protein-small molecule complex composed of an enediyne chromophore tightly bound to a 113 amino acid single chain protein. The complex possesses antiproliferative and antitumor activity.¹ The chromophore is the active compound, responsible for DNA cleavage, while the apoprotein stabilizes and regulates the availability of the labile chromophore.² NCS chromophore is bound non-covalently in a cleft of the binding protein and is dissociable. Upon addition of a thiol, the chromophore forms a highly reactive biradical species that can induce sequence-specific single and double strand breaks in DNA.³

Neocarzinostatin has been shown to inhibit DNA synthesis⁴ and to possess antitumor activity in patients with liver cancer, bladder cancer, stomach cancer, and leukemia.⁵ Its antitumor activity is also effective in various animal tumors.⁵

NCS was found to inhibit cellular proliferation by inducing G2 cell cycle arrest and apoptosis in both human papillomavirus (HPV)-positive and -negative cell lines.⁶

Reagent

Supplied as a solution in 20 mM MES buffer, pH 5.5.

Purity: > 90% (SDS-PAGE)

Protein concentration: ~0.5 mg/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.

Storage/Stability

Store protected from light at 2-8 °C. Under these conditions, the product is stable for 2 years.

Do not freeze.

References

1. Tanoue, S., et al., Neocarzinostatin-chromophore: a potent inhibitor of casein kinase II *in vitro.*, *J. Antibiotic.*, **51**, 95-98 (1998).
2. Heyd, B., et al., Reinvestigation of the proteolytic activity of neocarzinostatin. *J. Bacteriol.*, **182**, 1812-1818 (2000).

3. Smith, B.L., et al., DNA damage induced by bleomycin, neocarzinostatin, and melphalan in a precisely positioned nucleosome. *J. Biol. Chem.*, **269**, 30587-30594 (1994).
4. Kappen, L.S., et al., Roles of chromophore and apo-protein in neocarzinostatin action. *Proc. Natl. Acad. Sci. USA*, **77**, 1970-1974 (1980).
5. Smith, A.L., and Nicolaou, K.C., The enediyne antibiotics. *J. Med. Chem.*, **39**, 2103-2117 (1996).
6. Banuelos, A., et al., Neocarzinostatin induces an effective p53-dependent response in human papillomavirus-positive cervical cancer cells. *J. Pharmacol. Exp. Ther.*, **306**, 671-680 (2003).

ES,SP,KAA,PHC 03/06-1

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