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DATASHEET

Aphidicolin

Product overview

Aphidicolin Name Cat No HB3690

Alternative names APC, APH, Aphidicoline, (+)-Aphidicolin, NSC234714, BRN4689958, ICI69653

Biological action Inhibitor **Purity** >98%

Description DNA replication inhibitor. Useful for cell synchronization

Biological Data

Biological description

Overview

Aphidicolin is a potent DNA replication inhibitor which is often used to achieve cell synchronization.

Mechanism

Aphidicolin is a potent and specific inhibitor of B-family DNA polymerases and binds at or near the nucleotide-binding site. It prevents DNA polymerase-α from binding dNTPs without blocking the activity of DNA polymerase β or δ .

Aphidicolin inhibits DNA replication and some forms of DNA repair. During cell culture, addition of aphidicolin induces cell cycle pause at the G1/S border. DNA synthesis stops in cells that have entered S-phase, while nondividing cells are unaffected.

<u>Uses</u>

Aphidicolin acts synergistically with vincristine and doxorubicin. In addition to its anti-mitotic effects, it exhibits antibiotic and antiviral activities.

Solubility & Handling

Storage instructions Solubility overview

Soluble in DMSO (25 mM)

Handling

This compound is light sensitive; exposure to light may affect compound performance. We therefore recommend storing the material in the dark and protecting from light. Do not store the material in

solution; make up solutions and use immediately.

Important

This product is for RESEARCH USE ONLY and is not intended for therapeutic or diagnostic use. Not

for human or veterinary use.

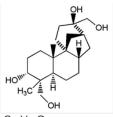
Chemical Data

Chemical name

(3R,4R,4aR,6aS,8R,9R,11aS,11bS)-4,9-bis(hydroxymethyl)-4,11b-dimethyltetradecahydro-8,11a-

methanocyclohepta[a]naphthalene-3,9-diol

Molecular Weight **Chemical structure** 338.5



CO)O

Source Isolated from Phoma sp. BS 7210

InChi InChi=1S/C20H34O4/c1-17(11-21)15-4-3-13-9-14-10-19(13,7-8-20(14,24)12-22)18(15,2)6-5-16(17)

23/h13-16,21-24H,3-12H2,1-2H3/t13-,14+,15-,16+,17-,18-,19-,20-/m0/s1

InChiKey NOFOAYPPHIUXJR-APNQCZIXSA-N

MDL number MFCD00083214
Appearance White to off-white solid

References

Cell synchronization by inhibitors of DNA replication induces replication stress and DNA damage response: analysis by flow cytometry.

Darzynkiewicz et al (2011) Methods Mol Biol. 761 **PubMedID**21755443

Structural basis for inhibition of DNA replication by aphidicolin.

Baranovskiy et al (2014) Nucleic Acids res. 42(22) **PubMedID** 25429975

Aphidicolin inhibits the synthesis and joining of short DNA fragments but not the union of 10-kilobase DNA replication intermediates.

Lonn et al (1983) Proc Natl Acad Sci U S A. 80(13) **PubMedID**6408640

Mechanism of DNA polymerase alpha inhibition by aphidicolin.

Sheaff et al (1991) Biochemistry 30(35) **PubMedID**1909569

Inhibitor analysis of calf thymus DNA polymerases alpha, delta and epsilon.

Wright et al (1994) FEBS lett. 341(1)

PubMedID 8137912