Hello Bio, Inc.
304 Wall St., Princeton, NJ 08540 USA

T. 609-683-7500
F. 609-228-4994

customercare-usa@m2stage.hellobio.com

DATASHEET

Aphidicolin

Product overview

Name	Aphidicolin
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.

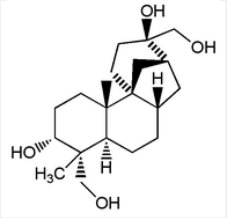
Aphidicolin inhibits DNA replication and some forms of DNA repair. During cell culture, addition of aphidicolin induces cell cycle pause at the G1/S border. DNA synthesis stops in cells that have entered S-phase, while nondividing cells are unaffected.

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

Solubility & Handling

Storage instructions	+4°C
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	338.5
Chemical structure	
Molecular Formula	$C_{20}H_{34}O_4$
CAS Number	38966-21-1
PubChem identifier	457964
SMILES	C[C@]12CC[C@H]([C@@]([C@@H]1CC[C@@H]3[C@@]24CC[C@@]([C@H](C3)C4)(CO)O)(C)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