Print Date: Sep 9th 2019

Certificate of Analysis

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Product Name: **Azidothymidine** **Catalog No.: 4150** **Batch No.: 1**

CAS Number: 30516-87-1

IUPAC Name: 3'-Azido-3'-deoxythymidine

1. PHYSICAL AND CHEMICAL PROPERTIES

Batch Molecular Formula: $C_{10}H_{13}N_5O_4$

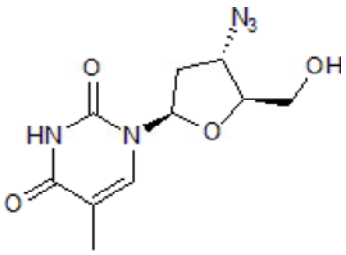
Batch Molecular Weight: 267.24

Physical Appearance: White solid

Solubility: water to 50 mM
DMSO to 100 mM

Storage: Store at -20°C

Batch Molecular Structure:



2. ANALYTICAL DATA

HPLC: Shows 99.8% purity

^{1}H NMR: Consistent with structure

Mass Spectrum: Consistent with structure

Optical Rotation: $[\alpha]_D$ = +65.2 (Concentration = 1, Solvent = Ethanol)

Microanalysis:

	Carbon	Hydrogen	Nitrogen
Theoretical	44.94	4.9	26.21
Found	44.84	4.83	26.21

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Product Information

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IUPAC Name: 3'-Azido-3'-deoxythymidine

Description:

Selective reverse transcriptase inhibitor. Exhibits 100-fold selectivity for HIV reverse transcriptase over DNA polymerase α. Suppresses HIV-1 replication and enhances cell viability in HIV-1 infected T cells. Attenuates growth of multiple myeloma (MM) cells in vitro and reduces growth of MM tumor xenografts in mice. Increases differentiation iPSCs into cortical neurons and reduces the over-proliferation of neural precursors. Orally bioavailable and brain penetrant. Antiretroviral agent. Also decreases CRISPR-mediated homology directed repair (HDR) efficiency.

Physical and Chemical Properties:

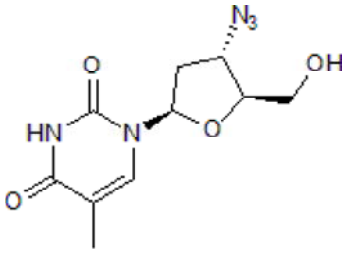
Batch Molecular Formula: $C_{10}H_{13}N_5O_4$

Batch Molecular Weight: 267.24

Physical Appearance: White solid

Minimum Purity: >99%

Batch Molecular Structure:



Storage: Store at -20°C

CAUTION - This product is light sensitive and we recommend that the solid material and any solutions obtained are protected from exposure to light.

Solubility & Usage Info:

water to 50 mM
DMSO to 100 mM

Stability and Solubility Advice:

Some solutions can be difficult to obtain and can be encouraged by rapid stirring, sonication or gentle warming (in a 45-60°C water bath).

Information concerning product stability, particularly in solution, has rarely been reported and in most cases we can only offer a general guide. Our standard recommendations are:

SOLIDS: Provided storage is as stated on the product label and the vial is kept tightly sealed, the product can be stored for up to 6 months from date of receipt.

SOLUTIONS: We recommend that stock solutions, once prepared, are stored aliquoted in tightly sealed vials at -20°C or below and used within 1 month. Wherever possible solutions should be made up and used on the same day.

Licensing Information:

Sold for research purposes under agreement from Viiv.

References:

Hu *et al* (2018) The telomerase inhibitor AZT enhances differentiation and prevents overgrowth of human pluripotent stem cell-derived neural progenitors. J.Biol.Chem. ***293*** 8722. PMID: 29628445 .

Yu *et al* (2015) Small molecules enhance CRISPR genome editing in pluripotent stem cells. Cell Stem Cell ***16*** 142. PMID: 25658371.

Pereira *et al* (2013) Azidothymidine is effective against human multiple myeloma: a new use for an old drug? Anticancer Agents Med.Chem. ***13*** 186. PMID: 22931421.

Broder (2010) The development of antiretroviral therapy and its impact on the HIV-1/AIDS pandemic. Antiviral Res. ***85*** 1. PMID: 20018391.

Furman *et al* (1986) Phosphorylation of 3'-azido-3'-deoxythymidine and selective interaction of the 5'-triphosphate with human immunodeficiency virus reverse transcriptase. Proc.Natl.Acad.Sci.U.S.A. ***83*** 8333. PMID: 2430286.

Mitsuya *et al* (1985) 3'-Azido-3'-deoxythymidine (BW A509U): an antiviral agent that inhibits the infectivity and cytopathic effect of human T-lymphotropic virus type III/lymphadenopathy-associated virus in vitro. Proc.Natl.Acad.Sci.U.S.A. ***82*** 7096. PMID: 2413459.