

Zidovudine

Catalog No: tcsc1246



Available Sizes

Size: 100mg

Size: 500mg



Specifications

CAS No:

30516-87-1

Formula:

$C_{10}H_{13}N_5O_4$

Pathway:

Anti-infection; Cell Cycle/DNA Damage

Target:

HIV; CRISPR/Cas9

Purity / Grade:

>98%

Solubility:

DMSO : ≥ 100 mg/mL (374.20 mM)

Alternative Names:

Azidothymidine; AZT; ZDV

Observed Molecular Weight:

267.24

Product Description

Zidovudine is a nucleoside reverse transcriptase inhibitor (**NRTI**), widely used to treat HIV infection. Zidovudine increases

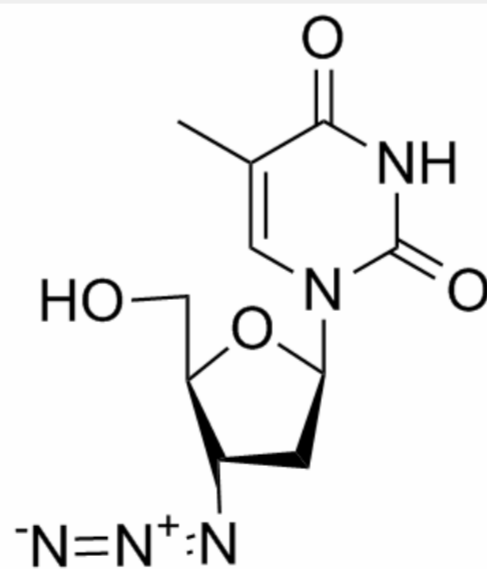
CRISPR/Cas9-mediated editing frequency.

IC50 & Target: NRTI, HIV^[1]

CRISPR/Cas9^[2]

In Vitro: Zidovudine inhibits SVG, Primary human fetal astrocytes (PFA), peripheral blood mononuclear cells (PBMC), and monocyte-derived macrophages (MDM) with EC₅₀ of 17, 1311, 8, and 5 nM, respectively. Zidovudine inhibits SVG, PFA, PBMC, and MDM with EC₉₀ of 0.205 μM, 44.157 μM, 0.481 μM, and 0.219 μM, respectively^[1]. Genome editing via CRISPR/Cas9 has become an efficient and reliable way to make precise, targeted changes to the genome of living cells. CXCR4 is a co-receptor for the human immunodeficiency virus type 1 (HIV-1) infection and has been considered as an important therapeutic target for AIDS. CXCR4 mediates viral entry into human CD4⁺ cells by binding to envelope protein, gp120. Human CXCR4 gene is efficiently disrupted by CRISPR/Cas9-mediated genome editing, leading to HIV-1 resistance of human primary CD4⁺ T cells. The Cas9-mediated ablation of CXCR4 demonstrated high specificity and negligible off-target effects without affecting cell division and propagation^[2].

In Vivo: Intravitreal injection of the NRTIs Lamivudine (3TC), Zidovudine (AZT), or Abacavir (ABC) suppresses the laser-induced choroidal neovascularization (CNV) in wild-type mice compared to PBS vehicle. The mean level of VEGF-A in the RPE/choroid, which peaks on day 3 after laser injury, is significantly reduced in 3TC-, AZT- and ABC-treated eyes compared with control eyes in wild-type mice, but not in *P2rx7*^{-/-} mice^[3].



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