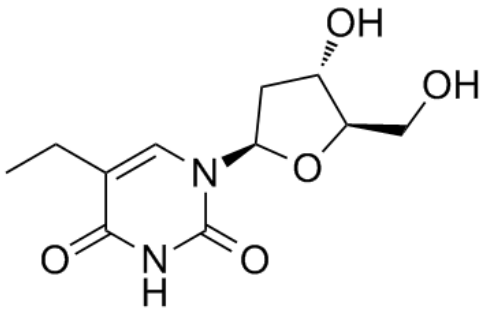
Product Data Sheet

Product Name: Edoxudine (EUDR)
Cat. No.: GC32148

Chemical Properties

Cas. No.	15176-29-1		
SMILES	OC[C@@H]1[C@H](C[C@H](N2C(NC(C(CC)=C2)=O)=O)O1)O		
Formula	$C_{11}H_{16}N_2O_5$	M.Wt	256.26
Solubility	DMSO : ≥ 125 mg/mL (487.79 mM)	Storage	Store at -20°C
General tips	For obtaining a higher solubility , please warm the tube at 37 °C and shake it in the ultrasonic bath for a while.Stock solution can be stored below -20°C for several months.		
Shipping Condition	Evaluation sample solution : ship with blue ice All other available size: ship with RT , or blue ice upon request.		

Structure



Protocol

Product Data Sheet

Cell experiment [1]:

Cell lines	Human foreskin fibroblast (HFF)
Preparation Method	24h prior to assay, human foreskin fibroblasts (HFFs) were seeded in 6-well plates at a concentration of 2.5×10^4 cells per well in MEM containing 10% FBS. The media from the wells was then aspirated with different concentrations of Edoxudine (1, 10, 100, and 1000μM). The cells were incubated in a CO_2 incubator at 37°C for 72h. The media-drug solution was removed, and the cells were washed. 1ml of 0.25% trypsin was added to each well and incubated until the cells started to come off of the plate. The cell-media mixture was then pipetted up and down vigorously to break up the cell suspension, followed by cell counting.
Reaction Conditions	1, 10, 100, and 1000μM; 72h
Applications	Edoxudine treatment decreased the cell viability of HFFs in a dose-dependent manner.

References:

[1] Kumar R, Wiebe L I, Knaus E E. Synthesis and antiviral activity of novel 5-(1-azido-2-haloethyl) and 5-(1-azido-, amino-, or methoxyethyl) analogs of 2'-deoxyuridine[J]. Journal of medicinal chemistry, 1993, 36(17): 2470-2474.

Background

Edoxudine (EUDR) is a deoxy-thymidine analog shown to be effective against herpes simplex virus type 1 and type 2 [1]. Edoxudine has been shown in vertebrate systems to be phosphorylated preferentially by the thymidine kinase and incorporated into viral DNA, and inhibiting viral DNA synthesis[2]. Edoxudine disrupts the outer wall of *Klebsiella pneumoniae* and damages the protective effect of the LPS layer, making the cell membrane of Klebsiella pneumoniae accessible to

antibacterial effectors[3]. Edoxudine has been widely used as a lead compound for the development of drugs targeting the surface protein of monkeypox virus E8 [4].

In vitro, Edoxudine treatment for 72 hours significantly inhibited the proliferation of human foreskin fibroblasts (HFFs), with an IC_{50} value of 115μM[5].

References:

[1] Sharma A, Tiwari V, Sowdhamini R. Computational search for potential COVID-19 drugs from FDA-approved drugs and small molecules of natural origin identifies several anti-virals and plant products[J]. Journal of biosciences, 2020, 45(1): 100.
[2] Mazzacano C A, Fallon A M. Evaluation of a viral thymidine kinase gene for suicide selection in transfected mosquito cells[J]. Insect molecular biology, 1995, 4(2): 125-134.
[3] Ifrid E, Ouertatani-Sakouhi H, Jauslin T, et al. 5-ethyl-2’-deoxyuridine fragilizes Klebsiella pneumoniae outer wall and facilitates intracellular killing by phagocytic cells[J]. Plos one, 2022, 17(10): e0269093.
[4] Podduturi S, Vemula D, Singothu S, et al. In-silico investigation of E8 surface protein of the monkeypox virus to identify potential therapeutic agents[J]. Journal of Biomolecular Structure and Dynamics, 2024, 42(16): 8242-8255.
[5] Kumar R, Wiebe L I, Knaus E E. Synthesis and antiviral activity of novel 5-(1-azido-2-haloethyl) and 5-(1-azido-, amino-, or methoxyethyl) analogs of 2'-deoxyuridine[J]. Journal of medicinal chemistry, 1993, 36(17): 2470-2474.