Floxuridine

Cat. No.: HY-B0097

CAS No.: 50-91-9

Molecular Formula: $C_9H_{11}FN_2O_5$

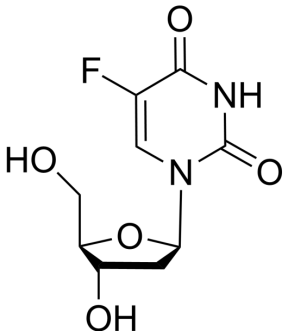
Molecular Weight: 246.19

Target: Nucleoside Antimetabolite/Analog; DNA/RNA Synthesis; Bacterial; CMV; HSV; Apoptosis

Pathway: Cell Cycle/DNA Damage; Anti-infection; Apoptosis

Storage:

Powder	-20°C	3 years
	4°C	2 years
In solvent	-80°C	2 years
	-20°C	1 year



SOLVENT & SOLUBILITY

In Vitro

DMSO : 125 mg/mL (507.74 mM; Need ultrasonic)

H_2O : ≥ 50 mg/mL (203.10 mM)

* "≥" means soluble, but saturation unknown.

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	4.0619 mL	20.3095 mL	40.6190 mL
5 mM	0.8124 mL	4.0619 mL	8.1238 mL
10 mM	0.4062 mL	2.0310 mL	4.0619 mL

Please refer to the solubility information to select the appropriate solvent.

In Vivo

1. Add each solvent one by one: PBS
   Solubility: 100 mg/mL (406.19 mM); Clear solution; Need ultrasonic
2. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 2.08 mg/mL (8.45 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.08 mg/mL (8.45 mM); Clear solution
4. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.08 mg/mL (8.45 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Floxuridine (5-Fluorouracil 2'-deoxyriboside) is a pyrimidine analog and known as an oncology antimetabolite. Floxuridine inhibits Poly(ADP-Ribose) polymerase and induces DNA damage by activating the ATM and ATR checkpoint signaling

	pathways in vitro. Floxuridine is a extreamly potent inhibitor for S. aureus infection and induces cell apoptosis[1][2]. Floxuridine has antiviral effects against HSV and CMV[3].

IC_{50} & Target	DNA synthesis	Bacterial	HSV	CMV

In Vitro

Floxuridine (0-25 μM; 4-24 hours) is affectd by inhibitors of PARP and its sensitivity of ovarian cancer cells is enhanced. Co-exposed to FdUrd and the PARP inhibitor markedly increases killing cell numbers when its compare to treatment alone in ovarian cancer cells[1].

Floxuridine (300 μM; 4-24 hours) increases p-Chk1 and p-Chk2 in ovarian cancer cell lines. It may induce DNA damage and activate the ATM and ATR checkpoint signaling pathways[1].

Floxuridine (0-2.5 μM; 24 hours) causes a G1/S-phase arrest and following removal of the FdUrd, the G1/S-phase-arrested cells moved synchronously through S phase and into G2/M[1].

Floxuridine is also a very potent inhibitor of staphylococcal growth (MIC, 0.025–0.00313 μM)[2].

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Cell Viability Assay[1]

Cell Line:	Ovarian cancer cells
Concentration:	0-25 μM
Incubation Time:	4, 8, 24 hours
Result:	Was potentiated the sensitivity by PARP inhibitors.

Western Blot Analysis[1]

Cell Line:	OVCAR-8 and SKOV3ip cells
Concentration:	300 μM
Incubation Time:	4, 8, 24 hours
Result:	Induced phosphorylation of Chk1 and Chk2 in two ovarian cancer cell lines

Cell Cycle Analysis[1]

Cell Line:	A2780, SKOV3ip, OVCAR-5, and OVCAR-3 ovarian cancer cells
Concentration:	0.5, 1.0, 1.5, 2.0, and 2.5 μM
Incubation Time:	24 hours
Result:	Induced cell arrest at G1/S-phase period.

In Vivo

Floxuridine (intraperitoneal injection; 0.5-1.25 mg/kg; once per day for 7 days or single dose) is sufficient to show statistically significant protection against S. aureus infection at 0.5 mg/kg for 7 days. In addition, 1.25 mg/kg single administration of the compound shows statistically significant protection against S. aureus infection[2].

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	C57BL/6 mice injected with S. aureus[2]
Dosage:	0.5-1.25 mg/kg
Administration:	once per day for 7 days or single dose
Result:	Was a very potent inhibitor for S. aureus infection in vivo.

CUSTOMER VALIDATION

- Small. 2022 Jul;18(30):e2202337.
- J Mol Med (Berl). 2019 Aug;97(8):1183-1193.
- bioRxiv. 2023 Oct 19.

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REFERENCES

[1]. Huehls AM, et al. Poly(ADP-Ribose) polymerase inhibition synergizes with 5-fluorodeoxyuridine but not 5-fluorouracil in ovarian cancer cells.Cancer Res. 2011 Jul 15;71(14):4944-54.

[2]. Yeo WS, et al. The FDA-approved anti-cancer drugs, streptozotocin and floxuridine, reduce the virulence of Staphylococcus aureus.Sci Rep. 2018 Feb 6;8(1):2521.

[3]. Langman J, et al. Floxuridine and its influence on postnatal cerebellar development. Pediatr Res. 1972 Oct;6(10):758-64.

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