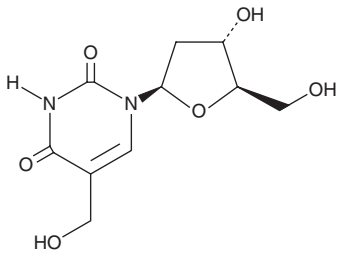
PRODUCT INFORMATION

5-(Hydroxymethyl)-2'-deoxyuridine

Item No. 23381

CAS Registry No.:	5116-24-5
Formal Name:	α-hydroxy-thymidine
MF:	$C_{10}H_{14}N_2O_6$
FW:	258.2
Purity:	≥98%
UV/Vis.:	λ_{max}: 208, 266 nm
Supplied as:	A crystalline solid
Storage:	-20°C
Stability:	≥4 years



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Laboratory Procedures

5-(Hydroxymethyl)-2'-deoxyuridine is supplied as a crystalline solid. A stock solution may be made by dissolving the 5-(hydroxymethyl)-2'-deoxyuridine in the solvent of choice, which should be purged with an inert gas. 5-(Hydroxymethyl)-2'-deoxyuridine is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide (DMF). The solubility of 5-(hydroxymethyl)-2'-deoxyuridine in ethanol is approximately 25 mg/ml and approximately 20 mg/ml in DMSO and DMF.

Further dilutions of the stock solution into aqueous buffers or isotonic saline should be made prior to performing biological experiments. Ensure that the residual amount of organic solvent is insignificant, since organic solvents may have physiological effects at low concentrations. Organic solvent-free aqueous solutions of 5-(hydroxymethyl)-2'-deoxyuridine can be prepared by directly dissolving the crystalline solid in aqueous buffers. The solubility of 5-(hydroxymethyl)-2'-deoxyuridine in PBS (pH 7.2) is approximately 10 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

5-(Hydroxymethyl)-2'-deoxyuridine is a nucleoside analog with anticancer and antiviral activities.[1] It inhibits the replication of murine S180 lung carcinoma cells and Ehrlich ascites mammary carcinoma cells (ED_{50}s = 8.5 and 4 µM, respectively) and multiple human leukemia cell lines (IC_{50}s = 1.7-5.8 µM).[1,2] 5-(Hydroxymethyl)-2'-deoxyuridine acts synergistically with 5-fluorouracil (5-FU; Item No. 14416) against HT-29, HCT116, PANC-1, and EKVX cancer cells with no effect on WI38 embryonic lung fibroblasts.[3] It inhibits herpes simplex virus type 1 (HSV-1) pyrimidine 2'-deoxyribonucleoside kinase (K_i = 3.5 µM) and reduces HSV-1 viral titer to 0.05% of the control at a concentration of 200 µM.[1] 5-(Hydroxymethyl)-2'-deoxyuridine is also a DNA adduct, formed in response to oxidative stress, that is found in hepatic DNA of rats treated with gamma irradiation, diethylnitrosamine, 2-acetylaminofluorene, and ciprofibrate (Item No. 18515).[4]

References

1. Shiau, G.T., Schinazi, R.F., Chen, M.S., *et al. J. Med. Chem.* **23(2)**, 127-133 (1980).
2. Kahilainen, L.I., Berstrom, D.E., and Vilpo, J.A. *Acta. Chem. Scand. B* **39(6)**, 477-484 (1985).
3. Matsumoto, Y., Rodriguez, V., Whitford, T.A., *et al. Oncoscience* **2(3)**, 272-284 (2015).
4. Srinivasan, S. and Glauert, H.P. *Carcinogenesis* **11(11)**, 2021-2024 (1990).

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