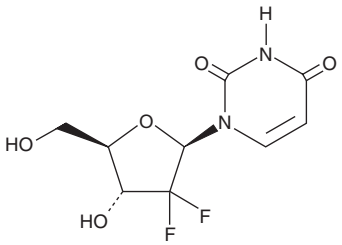
PRODUCT INFORMATION

2',2'-Difluoro-2'-deoxyuridine

Item No. 11689

CAS Registry No.: 114248-23-6
Formal Name: 2′-deoxy-2′,2′-difluoro-uridine
Synonym: dFdU
MF: $C_9H_{10}F_2N_2O_5$
FW: 264.2
Purity: ≥95%
UV/Vis.: λ_{max}: 258 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

2',2'-Difluoro-2'-deoxyuridine is supplied as a crystalline solid. A stock solution may be made by dissolving the 2',2'-difluoro-2'-deoxyuridine in the solvent of choice, which should be purged with an inert gas. 2',2'-Difluoro-2'-deoxyuridine is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide (DMF). The solubility of 2',2'-difluoro-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 2',2'-difluoro-2'-deoxyuridine can be prepared by directly dissolving the crystalline solid in aqueous buffers. The solubility of 2',2'-difluoro-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

2',2'-Difluoro-2'-deoxyuridine is an active metabolite of the anticancer nucleoside analog gemcitabine (Item No. 11690).[1] It is formed by deamination of gemcitabine by cytidine deaminase in the liver. 2',2'-Difluoro-2'-deoxyuridine is cytotoxic to HepG2 and A549 cancer cells (IC_{50}s = 3.13 and 3.92 µM, respectively). It enhances radiation-induced cell death of ECV304 and NCI H292 cells when used at concentrations ranging from 10 to 100 µM.[2]

References

1. Veltkamp, S.A., Pluim, D., van Eijndhoven, M.A.J., *et al.* New insights into the pharmacology and cytotoxicity of gemcitabine and 2',2'-difluorodeoxyuridine. *Mol. Cancer Ther.* **7(8)**, 2415-2425 (2008).
2. Pauwels, B., Korst, A.E.C., Lambrechts, H.A.J., *et al.* The radiosensitising effect of difluorodeoxyuridine, a metabolite of gemcitabine, in vitro. *Cancer Chemother. Pharmacol.* **58(2)**, 219-228 (2006).

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