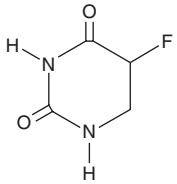
PRODUCT INFORMATION

5,6-dihydro-5-Fluorouracil

Item No. 20977

CAS Registry No.: 696-06-0
Formal Name: 5-fluorodihydro-2,4(1H,3H)-pyrimidinedione
Synonyms: 5-DHFU, 5-Fluorodihydropyrimidine-2,4-dione, 5-Fluorodihydrouracil, 5-Fluoro-5,6-dihydrouracil, 5-FUH_2
MF: $C_4H_5FN_2O_2$
FW: 132.1
Purity: ≥95%
UV/Vis.: λ_{max}: 203 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

5,6-dihydro-5-Fluorouracil is supplied as a crystalline solid. A stock solution may be made by dissolving the 5,6-dihydro-5-fluorouracil in the solvent of choice, which should be purged with an inert gas. 5,6-dihydro-5-Fluorouracil is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide. The solubility of 5,6-dihydro-5-fluorouracil in these solvents is approximately 0.8, 53, and 60 mg/ml, respectively.

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 5,6-dihydro-5-fluorouracil can be prepared by directly dissolving the crystalline solid in aqueous buffers. The solubility of 5,6-dihydro-5-fluorouracil in PBS (pH 7.2) is approximately 8 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

5,6-dihydro-5-Fluorouracil is an active metabolite of the thymidylate synthase inhibitor prodrug 5-fluorouracil (Item No. 14416).[1] It is formed from 5-fluorouracil by dihydropyrimidine dehydrogenase (DPD). 5,6-dihydro-5-Fluorouracil is cytotoxic to HaCaT keratinocytes (IC_{50} = 13.5 µM). Intravenous administration of 5,6-dihydro-5-fluorouracil (90 mg/kg per week), in combination with 5-fluorouracil and the DPD inhibitor eniluracil (Item No. 34251), reduces tumor growth in a rat model of colon carcinoma.[2]

References

1. Fischel, J.-L., Formento, P., Ciccolini, J., *et al.* Lack of contribution of dihydrofluorouracil and α-fluoro-β-alanine to the cytotoxicity of 5'-deoxy-5-fluorouridine on human keratinocytes. *Anticancer Drugs* **15(10)**, 969-974 (2004).
2. Spector, T., Cao, S., Rustum, Y.M., *et al.* Attenuation of the antitumor activity of 5-fluorouracil by (R)-5-fluoro-5,6-dihydrouracil. *Cancer Res.* **55(6)**, 1239-1241 (1995).

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