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Product Information

5-Fluoro-2'-deoxyuridine

Product Number **F 0503**

Store at Room Temperature

Replacement for Product Code 85,665-7

Product Description

Molecular Formula: $C_9H_{11}FN_2O_5$

Molecular Weight: 246.2

CAS Number: 50-91-9

pK_a : 7.6¹

Melting Point: 150-151 °C²

λ_{max} : 269 nm³

Extinction coefficient: $E^{mM} = 8.91$ (0.1 M phosphate buffer, pH 6.0)

Specific rotation: +37° (10 mg/ml in water at 25 °C)

Synonym: dFUR

This product (dFUR) is an antineoplastic agent, which acts as an antimetabolite similarly to flurouracil. When administered by rapid injection it acts as flurouracil, but when infused slowly, usually intra-arterially, it is converted to active F-dUMP, which leads to enhanced inhibition of DNA synthesis.⁴

dFUR inhibits DNA synthesis by blocking thymidylate synthetase.¹ Therefore, it has been suggested that this compound can be used to target thymidylate synthetase in cancer chemotherapy.⁵

The toxicity of this product is significantly reduced by prostaglandin E₁ (PGE₁).⁶ In these experiments, dFUR was infused into the hepatic portal vein of non-tumored animals with or without PGE₁. There was a 50% reduction in the mortality due to acute chemical hepatitis in those animals which received both dFUR and PGE₁ relative to those receiving dFUR alone. In a separate study, PGE₁ was shown to increase the effectiveness of dFUR chemotherapy.⁷ Animals receiving dFUR and PGE₁ showed the greatest reduction in tumor volume, suggesting that both compounds act synergistically to inhibit tumor growth. This product has also been shown to retard glial proliferation at 15 µg/ml.⁸ An 8.47% solution is iso-osmotic with serum and causes 3% hemolysis of erythrocytes after 45 minutes.⁹

Precautions and Disclaimer

For Laboratory Use Only. Not for drug, household or other uses.

Preparation Instructions

This product is soluble in water (50 mg/ml).

Storage/Stability

A sterile 2% solution in water has a pH 4.5-5.0 and should be stable for up to 2 weeks at 2-8 °C.⁴ Solutions should be protected from light.¹⁰

References

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9. Sapp, C., et al., Sodium chloride equivalents, cryoscopic properties, and hemolytic effects of certain medicinals in aqueous solution. III: Supplemental values. J. Pharm. Sci., **64(11)**, 1884-1886 (1975).
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