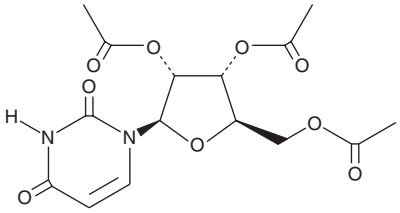
PRODUCT INFORMATION

2’,3’,5’-Triacetyluridine

Item No. 27445

CAS Registry No.: 4105-38-8
Formal Name: 2’,3’,5’-triacetate uridine
Synonyms: PN401, RG2133, 2’,3’,5’-Tri-O-acetyluridine, Uridine Triacetate
MF: $C_{15}H_{18}N_2O_9$
FW: 370.3
Purity: ≥98%
UV/Vis.: λ_{max}: 257 nm
Supplied as: A 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’,3’,5’-Triacetyluridine is supplied as a solid. A stock solution may be made by dissolving the 2’,3’,5’-triacetyluridine in the solvent of choice, which should be purged with an inert gas. 2’,3’,5’-Triacetyluridine is soluble in organic solvents such as DMSO and dimethyl formamide. The solubility of 2’,3’,5’-triacetyluridine in these solvents is approximately 30 mg/ml.

2’,3’,5’-Triacetyluridine is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, 2’,3’,5’-triacetyluridine should first be dissolved in DMSO and then diluted with the aqueous buffer of choice. 2’,3’,5’-Triacetyluridine has a solubility of approximately 0.25 mg/ml in a 1:3 solution of DMSO:PBS (pH 7.2) using this method. We do not recommend storing the aqueous solution for more than one day.

Description

2’,3’,5’-Triacetyluridine is a prodrug of uridine (Item No. 20300).[1] It is more lipid soluble than uridine and resistant to degradation by uridine phosphorylase. It is cleaved by plasma esterases *in vivo* to release uridine. 2’,3’,5’-Triacetyluridine (6% in the diet) decreases neurodegeneration in the piriform cortex and striatum, as well as reduces the amount of huntingtin-positive aggregates and increases BDNF protein levels in the piriform cortex in a transgenic mouse model of Huntington’s disease.[2] It also improves rotarod performance and increases survival in transgenic mouse models of Huntington’s disease. 2’,3’,5’-Triacetyluridine reverses toxicity and increases survival in a mouse model of dihydropyrimidine dehydrogenase (DPD) deficiency-induced 5-fluorouracil (5-FU; Item No. 14416) overdose when used at a concentration of 2,000 mg/kg three times per day beginning within 24 hours of 5-FU administration.[3] Formulations containing 2’,3’,5’-triacetyluridine have been used in the treatment of hereditary orotic aciduria and of overdose or life-threatening toxicity due to flurouracil or capecitabine.

References

1. Ashour, O.M., Naguib, F.N.M., and el Kouni, M.H. 5-(*m*-Benzyloxybenzyl)barbituric acid acyclonucleoside, a uridine phosphorylase inhibitor, and 2’,3’,5’-tri-O-acetyluridine, a prodrug of uridine, as modulators of plasma uridine concentration: Implications for chemotherapy. *Biochem. Pharmacol.* **51(12)**, 1601-1611 (1996).
2. Saydoff, J.A., Garcia, R.A.G., Browne, S.E., *et al.* Oral uridine pro-drug PN401 is neuroprotective in the R6/2 and N171-82Q mouse models of Huntington’s disease. *Neurobiol. Dis.* **24(3)**, 455-465 (2006).
3. von Borstel, R.W., O’Neil, J.D., Saydoff, J.A., *et al.* Uridine triacetate for lethal 5-FU toxicity due to dihydropyrimidine dehydrogenase (DPD) deficiency. *J. Clin. Oncol.* **28(15_supp)**, e13505-e13505 (2010).

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