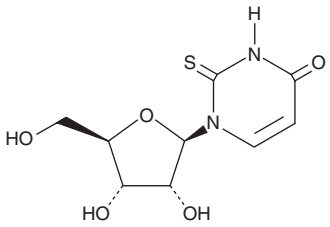
PRODUCT INFORMATION

2-Thiouridine

Item No. 21011

CAS Registry No.:	20235-78-3
Formal Name:	2-thio-uridine
Synonyms:	1-β-D-ribofuranosyl-2-thiouracil, s2U
MF:	$C_9H_{12}N_2O_5S$
FW:	260.3
Purity:	≥98%
UV/Vis.:	λ_{max}: 219, 273 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-Thiouridine is supplied as a crystalline solid. A stock solution may be made by dissolving the 2-thiouridine in the solvent of choice, which should be purged with an inert gas. 2-Thiouridine is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide (DMF). The solubility of 2-thiouridine in ethanol is approximately 2 mg/ml and approximately 10 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-thiouridine can be prepared by directly dissolving the crystalline solid in aqueous buffers. The solubility of 2-thiouridine in PBS (pH 7.2) is approximately 5 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

2-Thiouridine is a modified nucleobase found in tRNAs that is known to stabilize U:A pairs and modestly destabilize U:G wobble pairs.[1-3] Modified nucleobases, including 2-thiouridine, are used to study nucleic acid structure and function as well as to engineer novel RNA-based biomolecules.

References

1. Heuberger, B.D., Pal, A., Del Frate, F., *et al.* Replacing uridine with 2-thiouridine enhances the rate and fidelity of nonenzymatic RNA primer extension. *J. Am. Chem. Soc.* **137(7)**, 2769-2775 (2015).
2. Kumar, R.K., and Davis, D.R. Synthesis and studies on the effect of 2-thiouridine and 4-thiouridine on sugar conformation and RNA duplex stability. *Nucleic Acids Res.* **25(6)**, 1272-1280 (1997).
3. Larsen, A.T., Fahrenbach, A.C., Sheng, J., *et al.* Thermodynamic insights into 2-thiouridine-enhanced RNA hybridization. *Nucleic Acids Res.* **43(16)**, 7675-7687 (2015).

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