



# SZABO SCANDIC

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## Produktinformation



Forschungsprodukte & Biochemikalien



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Diagnostik & molekulare Diagnostik



Laborgeräte & Service

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- Trockeneiszuschlag
- Gefahrgutzuschlag
- Expressversand

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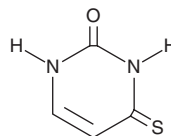
# PRODUCT INFORMATION



## 4-Thiouracil

Item No. 16952

**CAS Registry No.:** 591-28-6  
**Formal Name:** 3,4-dihydro-4-thioxo-2(1H)-pyrimidinone  
**Synonyms:** 2-hydroxy-4-Mercaptopyrimidine, NSC 43288, 4-Thiopyrimidin-2-one, 4-TU  
**MF:** C<sub>4</sub>H<sub>4</sub>N<sub>2</sub>OS  
**FW:** 128.1  
**Purity:** ≥98%  
**Stability:** ≥2 years at -20°C  
**Supplied as:** A crystalline solid  
**UV/Vis.:** λ<sub>max</sub>: 246, 326 nm



### Laboratory Procedures

For long term storage, we suggest that 4-thiouracil be stored as supplied at -20°C. It should be stable for at least two years.

4-Thiouracil is supplied as a crystalline solid. A stock solution may be made by dissolving the 4-thiouracil in the solvent of choice. 4-Thiouracil is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide (DMF), which should be purged with an inert gas. The solubility of 4-thiouracil in these solvents is approximately 2, 10, and 12 mg/ml, respectively.

4-Thiouracil is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, 4-thiouracil should first be dissolved in DMF and then diluted with the aqueous buffer of choice. 4-Thiouracil has a solubility of approximately 0.5 mg/ml in a 1:5 solution of DMF:PBS (pH 7.2) using this method. We do not recommend storing the aqueous solution for more than one day.

### Description

4-Thiouracil is a site-specific, photoactivatable probe used to detect RNA structures and nucleic acid-nucleic acid contacts.<sup>1</sup> It absorbs ultraviolet light >300 nm and, in the presence of oxygen, acts as an energy donor to produce singlet oxygen by triplet-triplet energy transfer. The highly reactive oxygen species then reacts readily with 4-thiouracil, leading to the production of uracil and uracil-6-sulfonate, which is fluorescent at a wavelength of ~390 nm.<sup>2</sup> 4-Thiouracil is used as a *T. gondii* uracil phosphoribosyltransferase substrate to produce 4-thiouridine monophosphate, which can ultimately be incorporated into RNA.<sup>3</sup>

### References

1. Miller, M.R., Robinson, K.J., Cleary, M.D., *et al.* TU-tagging: Cell type-specific RNA isolation from intact complex tissues. *Nat. Methods* **6**(6), 439-441 (2009).
2. Zou, X., Dai, X., Liu, K., *et al.* Photophysical and photochemical properties of 4-thiouracil: Time-resolved IR spectroscopy and DFT studies. *J. Phys. Chem. B* **118**(22), 5864-5872 (2014).
3. Zeiner, G.M., Cleary, M.D., Fouts, A.E., *et al.* RNA analysis by biosynthetic tagging using 4-thiouracil and uracil phosphoribosyltransferase. *Methods Mol. Biol.* **418**, 135-146 (2008).

#### WARNING

THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

#### SAFETY DATA

This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the [complete](#) Safety Data Sheet, which has been sent via email to your institution.

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