

Product Specifications

Custom Oligo Synthesis, antisense oligos, RNA oligos, chimeric oligos, Fluorescent dyes, Affinity Ligands, Spacers & Linkers, Duplex Stabilizers, Minor bases, labeled oligos, Molecular Beacons, siRNA, phosphonates Locked Nucleic Acids (LNA); 2'-5' linked Oligos

SH

Oligo Modifications

For research use only. Not for use in diagnostic procedures for clinical purposes.

Thio-4-rU (s4U)

| Category | Minor Bases | NH |
|--------------------------|-------------|-------------------------------|
| Modification Code | s4U | 5' Oligo |
| Reference Catalog Number | 27-6445 | 0=2-0-1 0 1 0 |
| 5 Prime | Υ | но |
| 3 Prime | Υ | 4-Thio-Uridine (s4U) |
| Internal | Υ | [27-6445-XX] O OH |
| Molecular Weight(mw) | 322.22 | O =P−O−///Oligo-3' I OH |

- 4-Thio Uridine (s4U)) is a thiol-modified ribonucleoside, and is typically used to modify oligos slated for RNA, or RNA-protein, structural studies. A 4-thio-rU modified RNA pentamer was used to study the effect of this modification on codon-anticodon interaction when it is in the wobble position of tRNA (1). Because 4-thio-rU is photoreactive, 4-thio-rU modified RNA oligos have also been used as photoaffinity probes in the role of substrate analogs for characterizing the enzyme:substrate complex of tRNA:pseudouridine-5S synthase (2). 4-thio-rU modified oligos have also been used as modules for assembling U25 small nucleolar RNAs (U25snoRNA) by ligation. These snoRNAs were used in cross-linking studies to identify which proteins assembled on them in vivo in Xenopus oocytes (3). In addition, because the thiol group is chemically reactive, other moieties can be conjugated at the thiol group of 4-thio-rU. Such a strategy was used to introduce spin labels to 4-thio-rU-containing RNA oligos (4). **References**
- 1. Kumar, R.K., 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.* (1997), **25**: 1272-1280.
- 2. Becker, H.F., Grosjean, H., Fourrey, J-L. Chemical Synthesis of 4-Thiouridine-containing Substrate Analogues of tRNA:Pseudouridine-5S Synthase: Photocross-linking Studies. *Nucleosides and Nucleotides*. (1998), **17**: 2403-2416.
 3. Cahill, N.M., Friend, K., Speckmann, W., Li, Z-H., Terns, R.M., Terns, M.P., Steitz, J.A. Site-specific cross-linking analyses reveal an asymmetric protein distribution for a box C/D snoRNP. *EMBO J*. (2002), **21**: 3816-3828.
- 4. Rublack, N., Nguyen, H., Appel, B., Springstubbe, D., Strohbach, D., Muller, S. Synthesis of Specifically Modified Oligonucleotides for Application in Structural and Functional Analysis of RNA. *J. Nuc. Acids* (2011), **2011**: 1-19.

