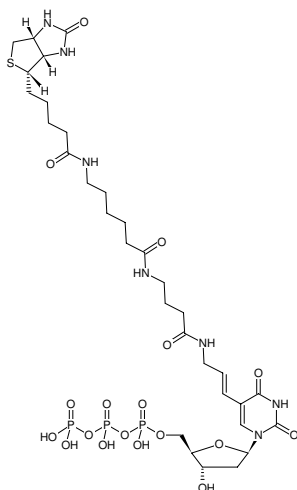


**Biotin-16-dUTP**

Biotin-16-(5-aminoallyl)-dUTP

Biotinyl-ε-aminocaproyl-γ-aminobutyryl-5-(3-aminoallyl)-2'-deoxyuridine-5'-triphosphate, Triethylammonium salt

| Cat. No. | Amount |
|----------------|-------------------|
| NU-803-BIO16-S | 200 µl (1 mM) |
| NU-803-BIO16-L | 5 x 200 µl (1 mM) |



Structural formula of Biotin-16-dUTP

For research use only!**Shipping:** shipped on gel packs**Storage Conditions:** store at -20 °C

Short term exposure (up to 1 week cumulative) to ambient temperature possible.

Shelf Life: 12 months after date of delivery**Molecular Formula:** C₃₂H₅₂N₇O₁₈P₃S (free acid)**Molecular Weight:** 947.78 g/mol (free acid)**Exact Mass:** 947.23 g/mol (free acid)**Purity:** ≥ 98 % (HPLC)**Form:** sterile solution in water**Color:** colorless to slightly yellow**Concentration:** 1.0 mM - 1.1 mM**pH:** 7.5 ± 0.5**Spectroscopic Properties:** λ_{max} 240 nm, ε 10.7 L mmol⁻¹ cm⁻¹ (Tris-HCl pH 7.5)**Applications:**

Incorporation into DNA/cDNA by

- PCR with *Taq* polymerase [1,2] & in-house data
- Nick Translation with DNase I/ DNA Polymerase I [3,4] & in-house data
- Primer Extension with Klenow *exo*⁻ [2,5]
- 3'-End Labeling with Terminal deoxynucleotidyl Transferase (TdT) [6,7]
- Reverse Transcription with MMLV Reverse Transcriptase [8,9]

Incorporation into RNA by

- 3'-End Labeling with Terminal deoxynucleotidyl Transferase (TdT) [10]

Description:

Biotin-16-dUTP is enzymatically incorporated into DNA/cDNA as substitute for its natural counterpart dTTP. The resulting Biotin-labeled DNA/cDNA probes are subsequently detected using streptavidin conjugated with horseradish peroxidase (HRP), alkaline phosphatase (AP), a fluorescent dye or agarose/magnetic beads. Optimal substrate properties and thus labeling efficiency as well as an efficient detection of the Biotin moiety is ensured by a 16-atom linker attached to the C5 position of uridine.

Recommended Biotin-16-dUTP/dTTP ratio for PCR and Nick Translation: 50% Biotin-16-dUTP/ 50% dTTP

Please note: The optimal final concentration of Biotin-16-dUTP may very depending on the application and assay conditions. For optimal product yields and high incorporation rates an individual optimization of the Biotin-16-dUTP/dTTP ratio is recommended.

Related Products:

Biotin-11-dUTP, #NU-803-BIOX
 Biotin-16-dCTP, #NU-809-BIO16
 Biotin-11-dCTP, #NU-809-BIOX
 Digoxigenin-11-dUTP, #NU-803-DIGX

Selected References:

- [1] Anderson *et al.* (2005) Incorporation of reporter-labeled nucleotides by DNA polymerases. *Biotechniques* **38**:257.
- [2] Cross *et al.* (1990) The structure of a subterminal repeated sequence present on many human chromosomes. *Nucleic Acids Res.* **18**:6649.
- [3] Langer *et al.* (1981) Enzymatic synthesis of biotin-labeled polynucleotides: novel nucleic acid affinity probes. *Proc. Natl. Sci. USA* **78**:6633.
- [4] Brigati *et al.* (1983) Detection of viral genomes in cultured cells and para-embedded tissue sections using biotin-labeled hybridization probes. *Virology* **126**:32.
- [5] Perry *et al.* (2007) Diet and the evolution of human amylase gene copy number variation. *Nat Genet* **39**:1256.
- [6] Gorczyca *et al.* (1993) Detection of DNA strand breaks in individual apoptotic cells by the in situ terminal deoxynucleotidyl transferase and nick

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translation assays. *Cancer Res* **63**:1954.

[7] Bassell *et al.* (1994) Single mRNAs visualized by ultrastructural in situ hybridization are principally localized at actin filament intersections in fibroblasts. *J Cell Biol* **126**:863.

[8] Yih *et al.* (2002) Changes in gene expression profiles of human fibroblasts in response to sodium arsenite treatment. *Carcinogenesis* **23**:867.

[9] Luo *et al.* (2003) Designing, testing, and validating a focused stem cell microarray for characterization of neural stem cells and progenitor cells. *Stem Cells* **21**:575.

[10] Rosemeyer *et al.* (1995) Nonradioactive 3'-End Labeling of RNA molecules of different length by Terminal Deoxynucleotidyltransferase. *Analytical Biochemistry* **224**:446.