Revised: June 3, 2021

# Product Information

## Biotinylated Nucleotides

| Catalog No. | Nucleotide | MW | Format | Size |
|---|---|---|---|---|
| 40029 | Biotin-11-dUTP | 887 | 1 mM in pH 7.5 Tris-HCl buffer | 50 ul |
| 40029-1 | | | lyophilized powder | 50 ug |
| 40022 | Biotin-16-dUTP | 972 | 1 mM in pH 7.5 Tris-HCl buffer | 50 ul |
| 40022-1 | | | lyophilized powder | 50 ug |
| 40030 | Biotin-20-dUTP | 1021 | 1 mM in pH 7.5 TE buffer | 50 ul |
| 40030-1 | | | lyophilized powder | 50 ug |
| 40036 | Biotin-11-dCTP | 885 | 1 mM in pH 7.5 TE buffer | 50 ul |
| 40033 | Biotin-11-UTP | 903 | 10 mM in pH 7.5 Tris-HCl buffer | 25 ul |
| 40071 | | | 75 mM in pH 7.5 Tris-HCl buffer | 30 ul |
| 40023 | Biotin-16-UTP | 988 | 10 mM in pH 7.5 Tris-HCl buffer | 25 ul |
| 40070 | | | 75 mM in pH 7.5 Tris-HCl buffer | 30 ul |
| 40034 | Biotin-20-UTP | 1036 | 10 mM in pH 7.5 Tris-HCl buffer | 25 ul |
| 40035 | Biotin-11-CTP | 901 | 10 mM in pH 7.5 Tris-HCl buffer | 25 ul |

### Storage and Handling

Store at -20°C, desiccated. Avoid repeated freeze-thaw cycles. Product is stable for at least 12 months from date of receipt when stored as recommended.

For nucleotides in solid form, stock solutions may be prepared in water or aqueous buffer. Solutions can be aliquoted and stored at -20°C, for up to 6 months.

### Molecular Information

**Color and Form:** Colorless liquid/solid
**Solubility:** Water or aqueous buffer

### Product Description

Biotinylated nucleotides may be enzymatically incorporated into DNA or RNA for the synthesis of polynucleotide probes. Downstream detection of specific sequences can then be accomplished through streptavidin-based methods. Biotinylated UTP and CTP can be enzymatically incorporated into RNA via *in vitro* transcription using a variety of RNA polymerases. Biotinylated dUTP and dCTP may be incorporated into DNA via nick translation, random priming, or 3'-end terminal labeling (1). Biotinylated dUTP are also used for the terminal deoxynucleotidyl transferase (TdT)-mediated biotin-dUTP nick end-labeling (TUNEL) method, a technique commonly used for apoptosis studies (2-4). The numbers 11, 16, and 20 in the compound name refer to the number of atoms in the linker between biotin and the nucleotide. In general, biotinylated nucleotides with shorter linkers are more efficiently incorporated into polynucleotides. On the other hand, biotinylated nucleotides with longer linkers are predicted to bind more efficiently to avidin or streptavidin.

**Note:** For PCR applications, Taq polymerase should be used with dUTP conjugates, because dUTP inhibits archaeal polymerases such as Pfu and Vent (5,6).

### References

1) Anal. Biochem. 193, 2(1991); 2) J. Cell. Biol. 119, 493(1992); 3) NeuroReport, 7, 61(1995); 4) Biotechniques 19, 800(1995); 5) Anal Biochem. 211,164(1993); 6) PNAS 99,596(2002).

### Related Products

| Catalog number | Product |
|---|---|
| 30063 | CF®488A TUNEL Assay Apoptosis Detection Kit |
| 30064 | CF®594 TUNEL Assay Apoptosis Detection Kit |
| 30074 | CF®640R TUNEL Assay Apoptosis Detection Kit |
| 40059 | DEAC-dUTP |
| 40001 | 5-TAMRA-dUTP |
| 40063 | Fluorescein-12-dUTP |
| 40064 | Cyanine 555 dUTP |
| 40065 | Cyanine 647 dUTP |
| 40020 | 5-Aminoallyl-dUTP (AA-dUTP), 10 mM Solution |
| 40021 | 5-Aminoallyl-UTP, Sodium Salt, 10 mM Solution |
| 40024 | BrdU (5-Bromo-2'-deoxyuridine) |
| 40025 | 5-Bromo-dUTP, 10 mM Solution |
| 40026 | BrUTP, 10 mM Solution |
| 40078 | Digoxigenin-dUTP, Alkali Stable |
| 29050 | Cheetah™ HotStart Taq DNA Polymerase |
| 40052 | dNTP Set, 100 mM Each |
| 41024-4L | Water, Ultrapure Molecular Biology Grade |

Please visit our website at www.biotium.com to see our selection of fluorescent dUTP and dCTP labeled with our bright and photostable CF® dyes. Also see our environmentally friendly EvaGreen® qPCR master mixes, universal probe qPCR master mixes, dNTP mixes, and more.