

dNTP Mix

Cat No.	Conc.	Size
BIO-39043	40mM total	20 μ mol (1 x 500 μ l)
BIO-39028	100mM total	50 μ mol (1 x 500 μ l)
BIO-39029	100mM total	200 μ mol (4 x 500 μ l)
BIO-39053	10mM total	100 μ mol (10 x 1ml)
BIO-39044	10mM total	10 μ mol (1ml)
BIO-39056	40mM total	1000 μ mol (5 x 5ml)

Features

- Ultra-pure: >99% trisphosphate by HPLC
- Shelf-life of 24 months at -20°C
- Free from PCR inhibitors
- DNase, RNase and Nickase free
- Convenient, pre-optimized mixes available
- Choice of sets or mix packs

Applications

- Standard and long range PCR assays
- cDNA synthesis
- Real-time PCR
- Microarrays
- DNA sequencing
- Low-copy assays
- Genotyping
- Site-directed mutagenesis

Description

A ready-to-use molecular grade dNTP Mix containing dATP, dCTP, dGTP and dTTP at pH 7.5 as lithium salts in purified water. The mix is designed to save hands-on time for researchers and minimize the possibility of contamination. For use in DNA polymerization reactions, DNA labeling and sequencing processes. Dependable PCR grade. The dNTP Mix is designed to save hands-on time for researchers and minimize the possibility of contamination and pipetting errors.

Storage Conditions

dNTP Set and dNTP Mix can be stored for 24 months at -20°C. Avoid multiple freeze/thaw cycles. For long-term storage, aliquoting is recommended.

Shipping Conditions

On Dry Ice or Blue Ice.

Improved Stability and Extended Shelf-Life All Bioline dNTPs are supplied as Lithium salts in purified water at pH 7.5. Lithium salts have greater resistance to repeated freezing and thawing cycles than Sodium salts, and Lithium salt dNTP preparations remain sterile over the entire shelf-life due to the bacteriostatic activity of Lithium towards various microorganisms.

dNTP Mix Reaction Guidelines

100mM Mix contains 25 mM of each dNTP

Reaction Volume Master Mix Reactions
50µl 0.5µl 1000

40mM Mix contains 10 mM of each dNTP

Reaction Volume Master Mix Reactions
50µl 1.25µl 400

10mM Mix contains 2.5 mM of each dNTP

Reaction Volume Master Mix Reactions
50µl 5.0µl 200

This is a guide only, for long-range applications adjust accordingly.

Product Insert

dNTP MIX

Product Specifications

A mix of dATP, dCTP, dGTP, and dTTP, (pH 7.5).

Storage Conditions:

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Shipping Conditions:

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Typical Analysis:

Lithium salts, >99% deoxynucleoside triphosphates (HPLC, area %), <1% deoxynucleoside monophosphates and deoxynucleoside diphosphates.

Purity:

Bioline dNTPs are >99% pure by HPLC and are free of DNase, RNase, Protease,

phosphatase and nicking activity.

dNTP Characteristics: dNTPs	Mol. Wt	Molar Extinction(1μmol)
dATP 514.9		15.4 (A ₂₅₉)
dGTP	530.9	13.7 (A ₂₅₂)
dCTP 490.9		9.1 (A ₂₇₂)
dTTP	505.9	9.6 (A ₂₆₇)

Product Citations

1. Ferraz-de-Souza, B., *et al. FASEB J.* **25**, 1166-1175 (2011).
2. Hogan, C.J., *et al. Mol. Cell. Biol.* **30**, 657-674 (2010).
3. Meijer, P-J., *et al. Meth. Mol. Biol.* **525(3)**, 1-17 (2009).
4. Varley, K.E. & Mitra, R.D. *Cold Spring Harb. Prot.* doi:10.1101/pdb.prot5252 (2009).
5. Zampolla, T., *et al. Cryobiol.* **59 (2)**, 188-194 (2009).
6. Hampson, L., *et al. FEBS Lett.* **581(21)**, 3955-3960 (2007).
7. Tayeb, M.T., *et al. Br. J. Can.* **88**, 928-932 (2003).
8. Charlton, K.A., *et al. J. Immunol.* **164**, 6221-6229 6221-6229 (2000).

Product Specifications

A mix of dATP, dCTP, dGTP, and dTTP, (pH 7.5).

Storage Conditions:

dNTP Mix can be stored for 24 months at -20°C. Avoid multiple freeze/thaw cycles. For long-term storage, aliquoting is recommended.

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Typical Analysis:

Lithium salts, >99% deoxynucleoside triphosphates (HPLC, area %), <1% deoxynucleoside monophosphates and deoxynucleoside diphosphates.

Purity:

Bioline dNTPs are >99% pure by HPLC and are free of DNase, RNase, Protease, phosphatase and nicking activity.

- **≥99% triphosphate purity by HPLC**
- **Free from DNase, RNase, Protease, Nickase and other PCR inhibitors**
- **Validated in wide range of applications**
- **Custom, bulk and OEM service**

Setting the standard for nucleotide purity

Bioline's ultra-high purity deoxynucleoside triphosphates (dNTPs) are manufactured to the highest standard in the industry. Our dNTPs are enzymatically synthesized from premium quality raw materials in state-of-the-art production facilities. The manufacturing process

eliminates impurities and PCR-specific inhibitors such as modified nucleotides, tetraphosphates and pyrophosphates commonly observed in other commercially available dNTP products. Bioline's dNTPs undergo stringent purification steps including quantitative HPLC and possess $\geq 99\%$ purity to enhance incorporation and yield optimal results.

Outstanding performance and reliability for the most demanding applications

Bioline's ultra-pure dNTPs have been extensively tested and validated for use in a wide variety of molecular biology applications including highly sensitive techniques such as cDNA synthesis/RT-PCR (fig. 1), long-range PCR (>20kb), real-time PCR (fig. 2) and low copy assays as well as DNA sequencing, site-directed mutagenesis, and microarrays.

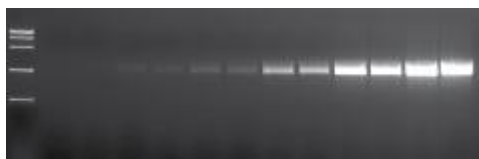


Fig. 1 Exceptional sensitivity in One-Step RT-PCR

Varying concentrations of mouse total RNA (30ng to 3pg) in duplicate was used for highly sensitive first-strand cDNA synthesis and PCR in a single tube with MyTaq™ One-Step RT-PCR Kit (BIO-65048). PCR primers specific to RN18S was used to produce a 1kb fragment. The results illustrate that using Bioline's dNTPs, RT-PCR was successful even with very low template concentrations.

	dATP	dCTP	dGTP	dTTP	dUTP	HMdCTP
Concentration	100mM \pm 2%					
Appearance	Clear Colorless Solution					
pH of Solution	7.5					
Purity (HPLC)	$\geq 99\%$					
DNase, RNase, Nicking Activity	Negative					
Stability	≥ 24 months					

Ultra-pure Nucleotides

Quality control and performance

Bioline's dNTPs are tested for the absence of DNase, RNase, Protease, Nickase activity and the absence of human, viral, and bacterial DNA. Each batch is purified with quantitative HPLC and undergoes stringent functional tests with a wide range of assays to guarantee performance and outstanding results.

Improved stability and extended shelf-life

All Bioline ultra-pure dNTP solutions are ready-to-use, at pH 7.5, in lithium salts, which offer greater resistance to repeated freeze/thaw cycles than sodium salts and also remain sterile over the entire shelf life due to lithium's bacteriostatic activity.

Excellence in nucleotide development and production

Bioline is an ISO 9001:2008 certified primary manufacturer of nucleotides. Our purpose built facility is dedicated to the development and production of superior quality dNTPs and has the capacity for small scale to industrial scale production in a wide range of formats and arrangements.

Creative solutions: custom, bulk and OEM services

We specialize in customized solutions to meet your specific nucleotide needs, from micro-liter to multi-liter quantities, to special mixes, blends and concentrations. At Bioline, each custom, bulk and OEM arrangement comes with a comprehensive package of customer services including:

- Customized product specifications

- Technical and scientific support
- Special testing capabilities
- Secure delivery
- Mutually agreed confidentiality

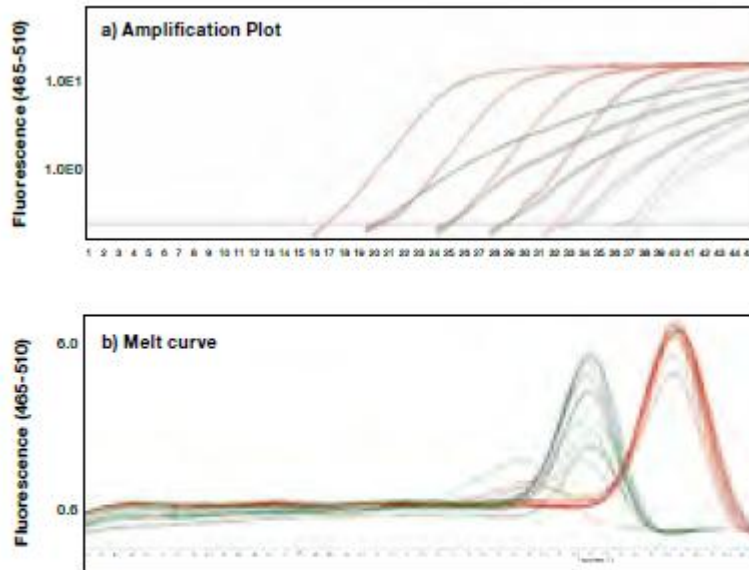


Fig. 2 Superior real-time PCR results
 Biorline's dNTP mix is formulated for optimal performance in real-time PCR applications, the most sensitive technique for gene expression analysis, as it is dependent upon high quality reagents to generate reliable data. Human *β-actin* gene was amplified using SensIFAST™ SYBR Lo-ROX One-Step (red) and the results compared with those from a One-Step Kit from supplier A (green). The experiment used 10-fold serial dilutions of human RNA (in triplicate) over 5 orders of magnitude. The results illustrate that Biorline's dNTPs are ideal for highly sensitive (earlier Ct), reproducible, and specific real-time PCR even with very low template concentrations.

Ordering Information			
PRODUCT	PACK SIZE	PRESENTATION	CAT NO.
dNTP Individual			
dATP	25µmol	100mM (1 x 250µl)	BIO-39036
dCTP	25µmol	100mM (1 x 250µl)	BIO-39038
dGTP	25µmol	100mM (1 x 250µl)	BIO-39037
dTTP	25µmol	100mM (1 x 250µl)	BIO-39039
dUTP	25µmol	100mM (1 x 250µl)	BIO-39035
HMdCTP	25µmol	100mM (1 x 250µl)	BIO-39046
dNTP Set (dATP, dCTP, dGTP, dTTP)			
dNTP Set	100mM total	4 x 25µmol (4 x 250µl)	BIO-39025
	100mM total	4 x 100µmol (4 x 1ml)	BIO-39049
	100mM total	4 x 100µmol (4 x 4 x 250µl)	BIO-39026
	100mM total	4 x 500µmol (4 x 20 x 250µl)	BIO-39027
	100mM total	4 x 1000µmol (4 x 10ml)	BIO-39055
dNTP Mix (dATP, dCTP, dGTP, dTTP)			
dNTP Mix	10mM total	10µmol (1 x 1ml)	BIO-39044
	40mM total	20µmol (1 x 500µl)	BIO-39043
	100mM total	50µmol (1 x 500µl)	BIO-39028
	10mM total	100µmol (10 x 1ml)	BIO-39053
	100mM total	200µmol (4 x 500µl)	BIO-39029
	40mM total	1000µmol (5 x 5ml)	BIO-39056
dUTP Mix (dATP, dCTP, dGTP, dUTP)			
dUTP Mix	50mM total	25µmol (1 x 500µl)	BIO-39041

dNTP Characteristics: dNTPs	Mol. Wt	Molar Extinction (1μmol)
dATP 514.9		15.4 (A_{259})
dGTP	530.9	13.7 (A_{252})
dCTP 490.9		9.1 (A_{272})
dTTP	505.9	9.6 (A_{267})

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