BIOLINE	**Certificate of Analysis**	**COA No: CA BN-0006**
		Version: 03

dATP 100mM	Storage Conditions:	-20°C
	Lot number:	DA-516101
For Research Use Only	Expiry date:	February 2018

Quality Control Parameters

2'-deoxyadenosine-5'-triphosphate

$C_{10}H_{12}N_5O_{12}P_3Li_4$

MW = 514.916 g /mol

Certified <1% deoxynucleoside monophosphates and deoxynucleoside diphosphates

Characteristics	Specification	Result
Concentration (at λmax, pH 7.0, ε = 15.4 E x $mmol^{-1}$ x cm^{-1})	100 mM ± 5%	102.9 mM
pH of Solution(at 20°C)	7.5 – 8.0	0.751
λmax (at pH 7.0)	259 ± 1 nm	259.5 nm
A250/A260	0.78 ± 0.03	0.78
A280/A260	0.15 ± 0.02	0.14
Purity dATP (HPLC Area % at λmax)	≥99%	>99.7%
dNDP + dNMP (HPLC Area % at λmax)	<1%	Passed
Appearance	Clear colourless solution	Passed

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BIOLINE	Certificate of Analysis	COA No: CA BN-0006
		Version: 03

Analysis	Specification	Result
Functional	A 3Kb Lambda DNA fragment is amplified with a dilution series of dATP, using standard conditions and 30 cycles. Single distinct bands were observed with agarose gel electrophoresis (ethidium stained).	Passed
DNA contamination	Quantitative PCR analysis with no template. Presence of *E. coli* and mouse genomic DNA checked. Test sample must amplify in line with a reference sample.	Passed
DNase / RNase / Nicking Activity	Incubation of a 1Kb double stranded DNA fragment. Incubation for 4 hours at 37°C with dilution series of DNase I. Analysed by agarose gel electrophoresis. Test sample must show less degradation than the limit of detection 2.5 x 10^{-3} U DNase. Quantitative PCR analysis with high and low RNase standards. Test sample must show less RNase activity than the limit of detection 9.7x10^{-3} ng/µl RNase. Incubation of dATP with supercoiled control plasmid. Analysed by agarose gel electrophoresis. Test sample does not show an increase of linearized or relaxed plasmid.	Passed Passed Passed

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BIOLINE	Certificate of Analysis	COA No: CA BN-0007
		Version: 03

dCTP 100mM	Storage Conditions:	-20°C
	Lot number:	DC-416101
For Research Use Only	Expiry date:	February 2018

Quality Control Parameters

2'-deoxycytidine-5'-triphosphate Lithium Salt

$C_{10}H_{12}N_3O_{13}P_3Li_4$

MW = 490.891 g /mol

Characteristics	Specification	Result
Concentration (at λmax, pH 7.0, ε = 9100 M^{-1} x cm^{-1})	100 mM ± 5%	102.4 mM
pH of Solution(at 20°C)	7.5 – 8.0	7.5
λmax (at pH 7.0)	272 ± 1 nm	271 nm
A250/A260	0.82 ± 0.03	0.80
A280/A260	0.98 ± 0.03	0.96
Purity: dCTP (HPLC Area % at λmax)	≥99%	99.8%
Impurities: dNDP + dNMP (HPLC Area % at λmax)	<1%	0.2%
Appearance	Clear colourless solution	Passed

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BIOLINE	**Certificate of Analysis**	**COA No: CA BN-0007**
		Version: 03

Analysis	Specification	Result
Functional	A 3Kb Lambda DNA fragment is amplified with a dilution series of dCTP, using standard conditions and 30 cycles. Single distinct bands were observed with agarose gel electrophoresis (ethidium stained).	Passed
DNA contamination	Quantitative PCR analysis with no template. Presence of *E. coli* and mouse genomic DNA checked. Test sample must amplify in line with a reference sample.	Passed
DNase / RNase / Nicking Activity	Incubation of a 1Kb double stranded DNA fragment. Incubation for 4 hours at 37°C with dilution series of DNase I. Analysed by agarose gel electrophoresis. Test sample must show less degradation than the limit of detection 2.5 x 10^{-3} U DNase. Quantitative PCR analysis with high and low RNase standards. Test sample must show less RNase activity than the limit of detection 9.7x10^{-3} ng/µl RNase. Incubation of dCTP with supercoiled control plasmid. Analysed by agarose gel electrophoresis. Test sample does not show an increase of linearized or relaxed plasmid.	Passed Passed Passed

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BIOLINE	**Certificate of Analysis**	**COA No: CA BN-0008**
		Version: 04

dGTP 100mM	Storage Conditions:	-20°C
	Lot number:	DG-516101
For Research Use Only	Expiry date:	February 2018

Quality Control Parameters

2'-deoxyguanosine-5'-triphosphate

$C_{10}H_{12}N_5O_{13}P_3Li_4$

MW = 530.916 g /mol

Certified <1% deoxynucleoside monophosphates and deoxynucleoside diphosphates

Characteristics	Specification	Result
Concentration (at λmax, pH 7.0, ε = 13.7 E x $mmol^{-1}$ x cm^{-1})	100 mM ± 5%	103.1mM
pH of Solution(at 20°C)	7.5 – 8.0	7.51 @ 18.9°C
λmax (at pH 7.0)	252 ± 1 nm	252.5 nm
A250/A260	1.16 ± 0.05	1.16
A280/A260	0.66 ± 0.03	0.68
dNTP (HPLC Area % at λmax)	≥99%	99.7%
dNDP + dNMP (HPLC Area % at λmax)	<1%	Passed
Appearance	Clear colourless solution	Passed

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BIOLINE	**Certificate of Analysis**	**COA No: CA BN-0008**
		Version: 04

Analysis	Specification	Result
Functional	A 3Kb Lambda DNA fragment is amplified with a dilution series of dGTP, using standard conditions and 30 cycles. Single distinct bands were observed with agarose gel electrophoresis (ethidium stained).	Passed
DNA contamination	Quantitative PCR analysis with no template. Presence of *E. coli* and mouse genomic DNA checked. Test sample must amplify in line with a reference sample.	Passed
DNase / RNase / Nicking Activity	Incubation of a 1Kb double stranded DNA fragment. Incubation for 4 hours at 37°C with dilution series of DNase I. Analysed by agarose gel electrophoresis. Test sample must show less degradation than the limit of detection 2.5 x 10^{-3} U DNase. Quantitative PCR analysis with high and low RNase standards. Test sample must show less RNase activity than the limit of detection 9.7x10^{-3} ng/µL RNase. Incubation of dGTP with supercoiled control plasmid. Analysed by agarose gel electrophoresis. Test sample does not show an increase of linearized or relaxed plasmid.	Passed Passed Passed

Authorised by Christopher Weatherall

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BIOLINE	Certificate of Analysis	COA No: CA BN-0009
		Version: 03

dTTP 100mM		
For Research Use Only	Storage Conditions:	-20°C
	Lot number:	DT-516101
	Expiry date:	February 2018

Quality Control Parameters

2'-deoxythymidine-5'-triphosphate

$C_{10}H_{13}N_2O_{14}P_3Li_4$

MW = 505.903 g /mol

Certified <1% deoxynucleoside monophosphates and deoxynucleoside diphosphates

Characteristics	Specification	Result
Concentration (at λmax, pH 7.0, ε = 9.5 E x $mmol^{-1}$ x cm^{-1})	100 mM ± 5%	102.8mM
pH of Solution(at 20°C)	7.5 – 8.0	7.51
λmax (at pH 7.0)	267 ± 1 nm	267.5nm
A250/A260	0.65 ± 0.03	0.64
A280/A260	0.73 ± 0.02	0.74
Purity dTTP (HPLC Area % at λmax)	≥99%	≥99.8%
dNDP + dNMP (HPLC Area % at λmax)	<1%	Passed
Appearance	Clear colourless solution	Passed

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BIOLINE	Certificate of Analysis	COA No: CA BN-0009
		Version: 03

Analysis	Specification	Result
Functional	A 3Kb Lambda DNA fragment is amplified with a dilution series of dTTP, using standard conditions and 30 cycles. Single distinct bands were observed with agarose gel electrophoresis (ethidium stained).	Passed
DNA contamination	Quantitative PCR analysis with no template. Presence of *E. coli* and mouse genomic DNA checked. Test sample must amplify in line with a reference sample.	Passed
DNase / RNase / Nicking Activity	Incubation of a 1Kb double stranded DNA fragment. Incubation for 4 hours at 37°C with dilution series of DNase I. Analysed by agarose gel electrophoresis. Test sample must show less degradation than the limit of detection 2.5 x 10^{-3} U DNase. Quantitative PCR analysis with high and low RNase standards. Test sample must show less RNase activity than the limit of detection 9.7x10^{-3} ng/µl RNase. Incubation of dTTP with supercoiled control plasmid. Analysed by agarose gel electrophoresis. Test sample does not show an increase of linearized or relaxed plasmid.	Passed Passed Passed

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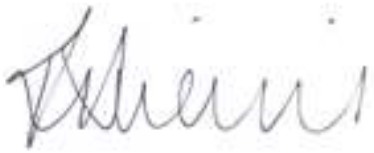

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