	<b>Certificate of Analysis</b>	COA No: CA_XBN-0006
		Version: 10

<b>dATP 100mM</b>  Suitable for Research and further Manufacturing Use	Catalog No:	BIO-39049
	Lot No:	DS405-B126170
	Storage Conditions:	-20°C
	Component Lot No:	DA-224203A
	Expiry date:	April 2026

### Quality Control Parameters

2'-deoxyadenosine-5'-triphosphate



MW = 514.916 g /mol

Certified <1% deoxynucleoside monophosphates and deoxynucleoside diphosphates

Characteristics	Specification	Result
Concentration (at $\lambda_{\text{max}}$ , pH 7.0, $\epsilon = 15.4 \text{ E} \times \text{mmol}^{-1} \times \text{cm}^{-1}$ )	100 mM $\pm$ 5%	101.73 mM
pH of Solution(at 20°C)	7.5 – 8.0	7.55 @ 22°C
$\lambda_{\text{max}}$ (at pH 7.0)	259 $\pm$ 1 nm	259.6 nm
A250/A260	0.78 $\pm$ 0.03	0.78
A280/A260	0.15 $\pm$ 0.02	0.13
Purity dATP (HPLC Area % at $\lambda_{\text{max}}$ )	$\geq$ 99%	99.72 %
dNDP + dNMP (HPLC Area % at $\lambda_{\text{max}}$ )	<1%	Passed
Appearance	Clear colourless solution	Passed

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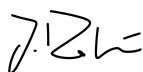
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	<b>Certificate of Analysis</b>	COA No: CA_XBN-0006
		Version: 10

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 <i>E. coli</i> and mouse genomic DNA checked. Test sample must amplify in line with a reference sample.	Passed
DNase	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 $2.5 \times 10^{-3}$ U DNase.	Passed
RNase	Quantitative PCR analysis with high and low RNase standards. Test sample must show less RNase activity than the limit of detection $9.7 \times 10^{-3}$ ng/ $\mu$ L RNase.	Passed
Nicking Activity	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

QA / QC Representative:



J. Rahnenführer

Date: 15<sup>th</sup> March 2024

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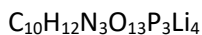
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	<b>Certificate of Analysis</b>	COA No: CA_XBN-0007
		Version: 10

<b>dCTP 100mM</b>  Suitable for Research and further Manufacturing Use	Catalog No:	BIO-39049
	Lot No:	DS405-B126170
	Storage Conditions:	-20°C
	Component Lot No:	DC-224203A
	Expiry date:	April 2026

### Quality Control Parameters

2'-deoxycytidine-5'-triphosphate



MW = 490.891 g /mol

Certified <1% deoxynucleoside monophosphates and deoxynucleoside diphosphates

Characteristics	Specification	Result
Concentration (at $\lambda_{\text{max}}$ , pH 7.0, $\epsilon = 9.1 \text{ E} \times \text{mmol}^{-1} \times \text{cm}^{-1}$ )	100 mM $\pm$ 5%	101 mM
pH of Solution(at 20°C)	7.5 – 8.0	7.53 @ 22°C
$\lambda_{\text{max}}$ (at pH 7.0)	272 $\pm$ 1 nm	272 nm
A250/A260	0.82 $\pm$ 0.03	0.80
A280/A260	0.98 $\pm$ 0.03	0.96
Purity dCTP (HPLC Area % at $\lambda_{\text{max}}$ )	$\geq$ 99%	>99.9 %
dNDP + dNMP (HPLC Area % at $\lambda_{\text{max}}$ )	<1%	Passed
Appearance	Clear colourless solution	Passed

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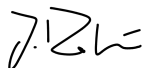
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	<b>Certificate of Analysis</b>	COA No: CA_XBN-0007
		Version: 10

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 <i>E. coli</i> and mouse genomic DNA checked. Test sample must amplify in line with a reference sample.	Passed
DNase	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 $2.5 \times 10^{-3}$ U DNase.	Passed
RNase	Quantitative PCR analysis with high and low RNase standards. Test sample must show less RNase activity than the limit of detection $9.7 \times 10^{-3}$ ng/μL RNase.	Passed
Nicking Activity	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

QA / QC Representative:



J. Rahnenführer

Date: 15<sup>th</sup> March 2024

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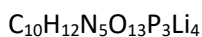
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	<b>Certificate of Analysis</b>	COA No: CA_XBN-0008
		Version: 10

<b>dGTP 100mM</b>  Suitable for Research and further Manufacturing Use	Catalog No:	BIO-39049
	Lot No:	DS405-B126170
	Storage Conditions:	-20°C
	Component Lot No:	DG-224103A
	Expiry date:	April 2026

### Quality Control Parameters

2'-deoxyguanosine-5'-triphosphate



MW = 530.916 g /mol

Certified <1% deoxynucleoside monophosphates and deoxynucleoside diphosphates

Characteristics	Specification	Result
Concentration (at $\lambda_{\text{max}}$ , pH 7.0, $\epsilon = 13.7 \text{ E} \times \text{mmol}^{-1} \times \text{cm}^{-1}$ )	100 mM $\pm$ 5%	101.6 mM
pH of Solution(at 20°C)	7.5 – 8.0	7.55 @ 19.5°C
$\lambda_{\text{max}}$ (at pH 7.0)	252 $\pm$ 1 nm	252.5 nm
A250/A260	1.16 $\pm$ 0.05	1.18
A280/A260	0.66 $\pm$ 0.03	0.67
dNTP (HPLC Area % at $\lambda_{\text{max}}$ )	$\geq$ 99%	99.9%
dNDP + dNMP (HPLC Area % at $\lambda_{\text{max}}$ )	<1%	Passed
Appearance	Clear colourless solution	Passed

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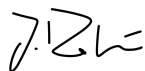
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	<b>Certificate of Analysis</b>	COA No: CA_XBN-0008
		Version: 10

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 <i>E. coli</i> and mouse genomic DNA checked. Test sample must amplify in line with a reference sample.	Passed
DNase	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 $2.5 \times 10^{-3}$ U DNase.	Passed
RNase	Quantitative PCR analysis with high and low RNase standards. Test sample must show less RNase activity than the limit of detection $9.7 \times 10^{-3}$ ng/ $\mu$ L RNase.	Passed
Nicking Activity	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

QA / QC Representative:



J. Rahnenführer

Date: 15<sup>th</sup> March 2024

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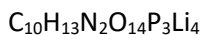
Tel: +49 (0)3371 60222 00  
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	<b>Certificate of Analysis</b>	COA No: CA_XBN-0009
		Version: 10

<b>dTTP 100mM</b>  Suitable for Research and further Manufacturing Use	Catalog No:	BIO-39049
	Lot No:	DS405-B126170
	Storage Conditions:	-20°C
	Component Lot No:	DT-224103A
	Expiry date:	April 2026

### Quality Control Parameters

2'-deoxythymidine-5'-triphosphate



MW = 505.903 g /mol

Certified <1% deoxynucleoside monophosphates and deoxynucleoside diphosphates

Characteristics	Specification	Result
Concentration (at $\lambda_{\text{max}}$ , pH 7.0, $\epsilon = 9.5 \text{ E} \times \text{mmol}^{-1} \times \text{cm}^{-1}$ )	100 mM $\pm$ 5%	102.96 nM
pH of Solution(at 20°C)	7.5 – 8.0	7.60 @ 22°C
$\lambda_{\text{max}}$ (at pH 7.0)	267 $\pm$ 1 nm	267 nm
A250/A260	0.65 $\pm$ 0.03	0.64
A280/A260	0.73 $\pm$ 0.02	0.72
Purity dTTP (HPLC Area % at $\lambda_{\text{max}}$ )	$\geq$ 99%	>99.9 %
dNDP + dNMP (HPLC Area % at $\lambda_{\text{max}}$ )	<1%	Passed
Appearance	Clear colourless solution	Passed

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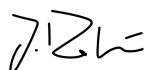
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	<b>Certificate of Analysis</b>	COA No: CA_XBN-0009
		Version: 10

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 <i>E. coli</i> and mouse genomic DNA checked. Test sample must amplify in line with a reference sample.	Passed
DNase	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 $2.5 \times 10^{-3}$ U DNase.	Passed
RNase	Quantitative PCR analysis with high and low RNase standards. Test sample must show less RNase activity than the limit of detection $9.7 \times 10^{-3}$ ng/ $\mu$ L RNase.	Passed
Nicking Activity	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

QA / QC Representative:



J. Rahnenführer

Date: 15<sup>th</sup> March 2024

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