ONE*TAQ* DNA POLYMERASE

ENZYMES & KITS FOR PCR

NEW ENGLAND BioLabs®

be INSPIRED
drive DISCOVERY
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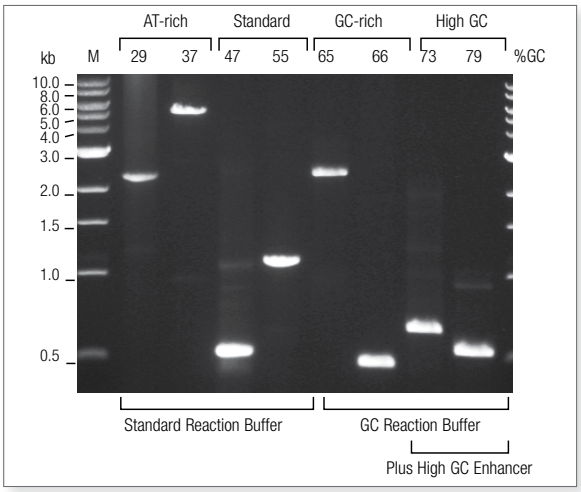
One*Taq* DNA Polymerase –

The *One* You've been waiting for!

Choose One*Taq* DNA Polymerase for all your amplification of standard, AT- and GC-rich templates, at a price-point that beats the competition. One*Taq* DNA Polymerase is an optimized blend of *Taq* and Deep Vent DNA polymerases for use with routine and difficult PCR experiments. The 3´– 5´ exonuclease activity of Deep Vent DNA Polymerase increases the fidelity and robust amplification of *Taq* DNA Polymerase. The One*Taq* Reaction Buffers and High GC Enhancer have been formulated for robust yields with minimal optimization, regardless of a template's GC content (see additional data on page 4).

Achieve robust amplification for standard, AT- and GC-rich templates with One*Taq* DNA Polymerase



Amplification of a selection of sequences with varying AT and GC content from human and C. elegans genomic DNA using OneTaq DNA Polymerase. GC content is indicated above gel. Marker M is the 1 kb DNA Ladder (NEB #N3232).

It's that easy to choose the right buffer for maximum performance:

One*Taq* DNA Polymerase is supplied with two 5× buffers (Standard and GC), as well as a High GC Enhancer solution to ensure maximum performance for routine, AT- or GC-rich amplicons.

Amplicon % GC content	Recommended default buffer	Optimization Notes
<50% GC	One*Taq* Standard Reaction Buffer	Adjust annealing temperature, primer/template concentration, etc., if needed.
50–65% GC	One*Taq* Standard Reaction Buffer	One*Taq* GC Reaction Buffer can be used to enhance performance of difficult amplicons.
>65% GC	One*Taq* GC Reaction Buffer	One*Taq* GC Reaction Buffer with 10–20% One*Taq* High GC Enhancer can be used to enhance performance of difficult amplicons.

Advantages:

- Exceptional performance in endpoint PCR across a wide range of templates (AT-rich, Standard, GC-rich)
- Robust yields with minimal optimization
- Convenient product formats (stand-alone enzyme, master mixes, and Quick-Load formats)

Details & Applications:

Details

Extension Rate . . . . . 1 kb/min
Amplicon Size. . . . . .≤ 6 kb
Fidelity . . . . . 2X Taq
Units/50 µl rxn . . . . . .1.25 units
Resulting Ends . . . . . .3´ A/Blunt
3`→5´ Exonuclease Activity . . . . . Yes
5´→3´ Exonuclease Activity . . . . . Yes
Supplied Buffer . . . . . .OneTaq Std Rxn Buffer, ...OneTaq GC Rxn Buffer
Supplied Enhancer . . . . OneTaq High GC Enhancer

Product Formats

Hot Start Available . . . . . Yes
- Activation Required . . . . . .No
Master Mix Available . . . . . Yes
Direct Gel-loading Available . . . . . Yes
PCR Kit Available . . . . . .No

Applications

Routine PCR . . . . . Yes
SNP Detection. . . . . Yes
T/A, U/A Cloning . . . . . Yes
Colony PCR. . . . . Yes
High-Fidelity PCR. . . . . .No

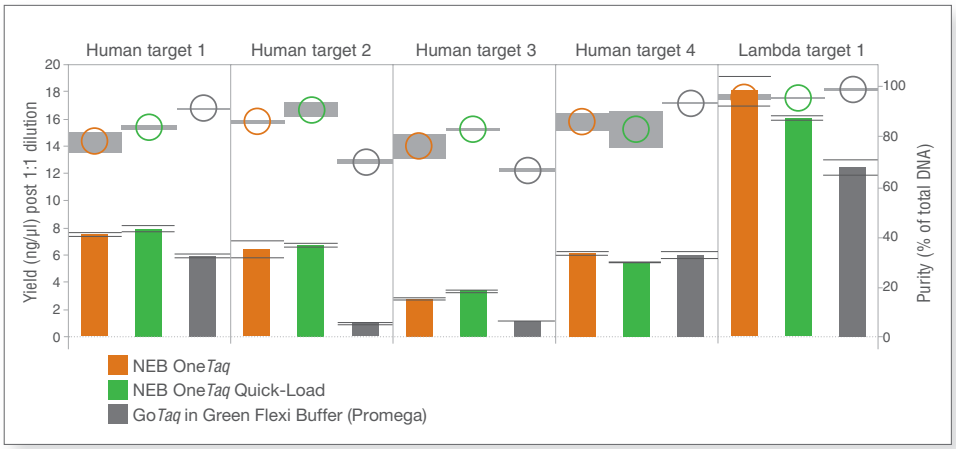
For more information please visit
www.neb.com/onetaq

One*Taq* Quick-Load DNA Polymerase

– optimal for "Standard" PCR and direct gel-loading

For direct and fast agarose gel-loading after "standard" PCRs such as genotyping or colony-PCR etc., One*Taq* DNA Polymerase is also available in a Quick-Load format. It is supplied with a density and tracking dye containing 5× One*Taq* Quick-Load Reaction Buffer for direct gel loading in addition to the regular "colorless" 5× One*Taq* Reaction Buffer.

Convenient direct gel-loading feature of One*Taq* Quick-Load DNA Polymerase is not compromising on performance



Amplification of a variety of DNA targets demonstrates strong performance of the OneTaq Quick-Load DNA Polymerase. Product yield (bars, left axis) and purity (circles, right axis) were calculated via microfluidic analysis from triplicate reactions after 30 cycles of PCR. Standard deviation is indicated by error bars (yield) or shaded bands (purity). GoTaq was cycled according to manufacturer's recommendations.

Use your One*Taq* PCR products in Sanger sequencing?

The dye in One*Taq* Quick-Load 2X Master Mix Buffer doesn't interfere with Sanger sequencing. Prepare your samples with the fast and easy Exo-Cip Rapid PCR Cleanup Kit (#E1050) and proceed directly to Sanger sequencing.

Convenient Master Mix Formulations

– faster set-up, less pipetting, less errors & contaminations

One*Taq* and One*Taq* Hot Start DNA Polymerases are also available in convenient Master Mix and Quick-Load Master Mix formats. Master mix formulations include dNTPs, $MgCl_2$ and other buffers and stabilizers. The Quick-Load Master Mix formats allow for direct gel-loading. One*Taq* Master Mix formulations are optimally suited for faster reaction set-up with less pipetting steps – they increase the reliability of each PCR and reduce the risk of contamination.

One*Taq* 2X Master Mixes	Art.-Nr.	convenient	gel-loading
with Standard Buffer	M0482S/L	•	
One*Taq* Quick-Load 2× Master Mix with Standard Buffer	M0486S/L/X	•	•

One*Taq* Hot Start 2X Master Mixes	Art.-Nr.	convenient	gel-loading
with Standard Buffer	M0484S/L	•	
with GC Buffer	M0485S/L	•	
One*Taq* Hot Start Quick-Load 2× Master Mix with Standard Buffer	M0488S/L	•	•
One*Taq* Hot Start Quick-Load 2× Master Mix with GC Buffer	M0489S/L	•	•

Robust PCR results you can trust!

– unparalled robustness on all tested tempates!

While One*Taq* DNA Polymerase works perfectly well on AT-rich DNA (see page 2), it's the challenging templates that unveil the true performance and quality of any PCR polymerase. Therefore, One*Taq* DNA Polymerase and its Hot Start counterpart have been stringently and systematically tested under selected demanding conditions. In the figure below, we demonstrate some examples of the convincing performance of One*Taq* on GC-rich templates.

Choose One*Taq* DNA Polymerase for all your templates regardless of GC-content to benefit from the unrivaled robustness and reliability, so you can always trust your results!

Recommendation:

- Use One*Taq* DNA Polymerase for all your templates
- Benefit from unrivaled reliability and performance
- Obtain PCR results you can really trust
- Choose the One*Taq* format (e.g. convenient Master Mix) that suits you best
- Benefit from our low and fair prices

Better than the competition: *A large, dark green dot represents the highest yield and purity.*

Polymerase	Additives	GC% 55	65	66	67	78	79
One*Taq*® DNA Polymerase (NEB)	None*						
One*Taq* HotStart DNA Polymerase (NEB)	None*						
AmpliTaq Gold™ 360 DNA Polymerase (Thermo Fisher)	None						
	360 GC Enhancer						
DreamTaq™ Hot Start DNA Polymerase (Thermo Fisher)	(Not provided)						
FastStart™ Taq DNA Polymerase (Roche)	None						
	GC-RICH solution						
GoTaq® G2 Hot Start Polymerase (Promega)	(Not provided)						
GoTaq Hot Start Polymerase (Promega)	(Not provided)						
HotStarTaq® DNA Polymerase (Qiagen)	Q-Solution						
	None						
HotStarTaq Plus DNA Polymerase (Qiagen)	Q-Solution						
	None						
iTaq™ DNA polymerase (Bio-Rad)	(Not provided)						
JumpStart™ Taq DNA Polymerase (Sigma)	None						
Platinum™ II Taq Hot-Start DNA Polymerase (Thermo Fisher)	Platinum GC Enhancer						
	None						
Platinum Taq DNA Polymerse High Fidelity (Thermo Fisher)	(Not provided)						
Platinum Taq DNA Polymerase (Thermo Fisher)	None						
	KB Extender						
Ex Taq DNA Polymerase, hot-start version (TaKaRa)	(Not provided)						
Titanium® Taq DNA Polymerase (TaKaRa)	(Not provided)						

* One*Taq* products are supplied with One*Taq* Standard Reaction Buffer and One*Taq* GC Reaction Buffer. The GC reaction buffer was used to amplify the targets shown in the table. For other products, amplification reactions were conducted both with and without GC enhancers (if provided).

Amplification of a selection of high GC human genomic DNA targets demonstrates OneTaq performance. All polymerases were cycled according to manufacturer's recommendations, including the use of additives to enhance the amplification of targets with high GC content. Yield (dot size) and purity (color) of reaction product were quantified from triplicate reactions on a Perkin Elmer LabChip. A large, dark green dot represents the highest yield and purity.

One*Taq* Hot Start DNA Polymerase

– room temperature reaction setup with no activation step

NEB's One*Taq* Hot Start utilizes aptamer technology. This unique modified oligonucleotide binds to the polymerase through non-covalent interactions, blocking polymerase activity at temperatures below 45°C. The polymerase is activated during normal cycling conditions, allowing reactions to be set up at room temperature. One*Taq* Hot Start DNA Polymerase does not require a separate high temperature incubation step to activate the enzyme. This ultimately shortens reaction times and increases ease of use.

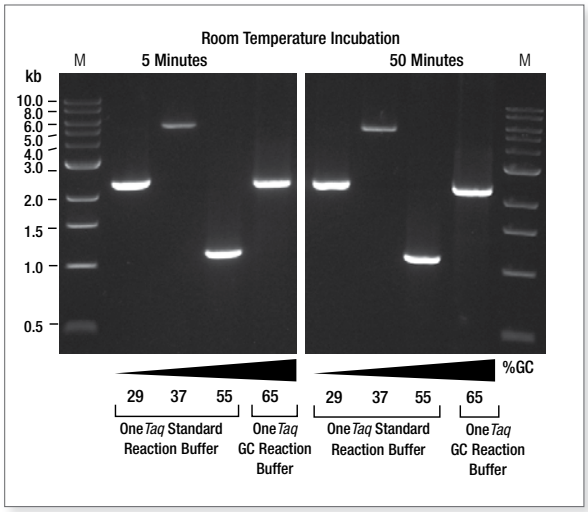
Advantages:

- Allows room temperature reaction setup
- Does not require a separate activation step
- Compatible with standard *Taq* protocols

Recommended time for enzyme activation of commercially available Hot Start *Taq* products

Manufacturer	Enzyme	Activation Step*	Hot Start Form
Applied BioSystems (Thermo)	Ampli*Taq* Gold 360	10`, 95°C	Modified
Invitrogen (Thermo)	Platinum *Taq*	30"–2', 94°C	Ab
Promega	Go*Taq* Hot Start	2', 94–95°C	Ab
Qiagen	HotStar*Taq*	15', 95°C	Modified
Roche	FastStart *Taq*	4', 95°C	Modified
Sigma	JumpStart *Taq*	1', 94°C	Ab
Thermo Fisher	Thermo-Start *Taq*	15', 95°C	Modified
NEB	One*Taq*	None	Aptamer

** May include initial denaturation step*



Extended room temperature incubation does not affect performance or specificity of One*Taq* Hot Start DNA Polymerase

Amplification of a selection of sequences with varying GC content from human and C.elegans genomic DNA using OneTaq Hot Start DNA Polymerase. The presence or absence of an extended room temperature incubation does not affect performance. GC content is indicated above gel. Marker M is the 1 kb DNA Ladder (#N3232).

Get your free sample now!

Experience the advantages and request your **free sample** here!
www.neb.com/onetaq

Ordering information

PRODUCTS	NEB #	SIZE
One*Taq* DNA Polymerase	M0480S/L/X	200/1,000/ 5,000 units
One*Taq* Quick-Load DNA Polymerase	M0509S/L/X	100/500/ 2,500 units
One*Taq* 2X Master Mix with Standard Buffer	M0482S/L	100/500 rxns
One*Taq* Quick-Load 2× Master Mix with Standard Buffer	M0486S/L/X	100/500/ 2,500 rxns
One*Taq* Hot Start DNA Polymerase	M0481S/L/X	200/1,000/ 5,000 units
One*Taq* Hot Start 2× Master Mix with Standard Buffer	M0484S/L	100/500 rxns
One*Taq* Hot Start 2× Master Mix with GC Buffer	M0485S/L	100/500 rxns
One*Taq* Hot Start Quick-Load 2× Master Mix with Standard Buffer	M0488S/L	100/500 rxns
One*Taq* Hot Start Quick-Load 2× Master Mix with GC Buffer	M0489S/L	100/500 rxns
One*Taq* RT-PCR Kit	E5310S	30 rxns
One*Taq* One-Step RT-PCR Kit	E5315S	30 rxns

Please ask for larger packing sizes or quantities: info.de@neb.com. Purchase of this product provides the purchaser with a non-exclusive license to use OneTaq DNA Polymerase products for research purposes only.

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PCR Fidelity Estimator

For help with estimating the percentage of correct DNA copies, try **PCRFidelityEstimator.neb.com**

PCR Selector

For help with choosing the best polymerase for your PCR, try **PCRselector.neb.com**

Tm Calculator

For help with calculating annealing temperatures, choose our Tm Calculator at **TmCalculator.neb.com**

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