ArcticZymes Technologies

AZtaq™ DNA Polymerase

AZtaq DNA Polymerase is a high-quality DNA polymerase, originating from *Thermus aquaticus*. Being highly thermostable, AZtaq is ideal for use in polymerase chain reaction (PCR) applications.

The enzyme catalyses the synthesis of a complementary DNA strand using a primed DNA or cDNA strand as template. It possesses 5'-3' exonuclease activity while lacking 3'-5' proofreading activity.

AZtaq is compatible with the use of dUTP, enabling highly efficient removal of carry-over contamination with Cod UNG.

Excellent qPCR performance

Compatible with dUTP

Thermostable

AZtaq demonstrates excellent performance in qPCR

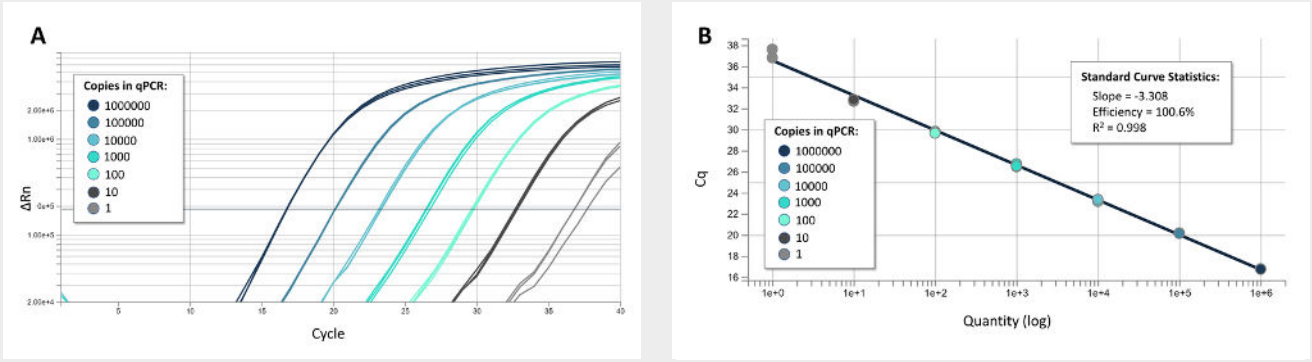

Fig. 1. AZtaq shows excellent performance and sensitivity in qPCR.

A serial dilution of M13KO7 DNA was used as template for qPCR amplification using specific primers together with a fluorescently labelled hydrolysis probe detecting the M13v1.1 target. Data showing amplification plots (A) and standard curve (B) for the qPCR reactions containing from 1 000 000 down to 1 copy of M13v1.1 target DNA, in triplicate measurements.

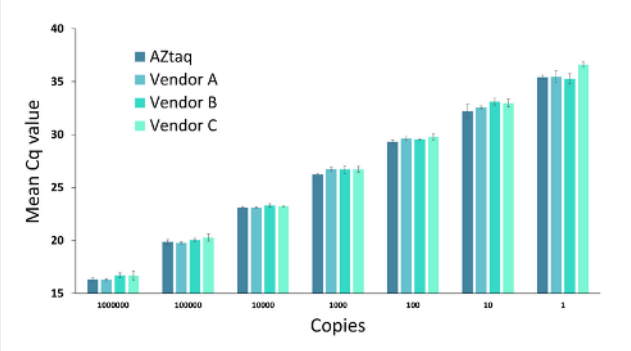

Fig 2. AZtaq demonstrates equal performance compared to commonly used DNA polymerases

A serial dilution of M13KO7 DNA was used as template for qPCR amplification using specific primers together with a fluorescently labelled hydrolysis probe detecting the M13v1.1 target. Performance of AZtaq was compared against commercially available *Taq* DNA polymerases from three different vendors (termed A, B and C). Data showing mean cycle of quantification (Cq) for qPCR reactions containing from 1 000 000 down to 1 copy of M13v1.1 target DNA, in triplicate measurements. Error bars represent the standard deviation of replicates (n=3). All tested polymerases showed similar amplification efficiency in qPCR (data not shown).

Properties

Source	Recombinantly produced in *E. coli*.
Size	95.1 kDa
Storage and stability	AZtaq is stable at -20°C for up to 1 year in the supplied storage buffer. Additional data on stability is available on request.
Inactivation	NA

Properties

Unit definition	One unit (U) is defined as the amount of enzyme that will incorporate 10 nmol of dNTP into acid insoluble material in 30 min at 72°C. The enzyme is assayed in 20 mM Tris-HCl pH 8.8, 55 mM KCl, 2 mM $MgCl_2$, 0.02 mg/ml BSA, 15 nM primed M13mp18 ssDNA, 0.8 mM dNTPs (0.2 mM each), 1.888 µM 3H-dTTP.

Quality control

dsDNA endonuclease activity	20 U AZtaq was incubated with a supercoiled plasmid (1 µg) for 4 hours at 37°C. Agarose gel electrophoresis did not reveal any transformation of closed circular DNA to nicked DNA.
ssDNA endonuclease activity	20 U AZtaq was incubated with M13 ssDNA (0.5 µg) for 4 hours at 37°C. Agarose gel electrophoresis did not reveal any visible signs of ssDNA degradation.
dsDNA exonuclease activity	20 U AZtaq was incubated with 3H-dATP labelled dsDNA (0.5 µg, 500 bp) for 4 hrs at 37°C. Acid soluble radioactivity from labelled DNA was not significantly over blank test for either substrate.
RNase activity	20 U AZtaq was incubated with a 2 kb RNA transcript (1 µg) for 4 hours at 37°C. Agarose gel electrophoresis did not reveal any visible signs of RNA degradation.
***E. coli* gDNA**	5 U AZtaq was analysed in a probe-based qPCR assay detecting the 23S ribosomal RNA gene in *E. coli*. Less than 3 copies of *E. coli* gDNA were detected.
Functional test	5 U AZtaq was used in a qPCR assay amplifying a serial dilution of down to < 3 copies of *E. coli* gDNA using specific primers detecting the 23S ribosomal RNA gene. Successful amplification was observed for all dilutions. The resulting standard curve showed at least 90 - 110 % efficiency, indicating efficient doubling of specific template product per cycle.

Ordering information

	Article no.	Pack Size	Concentration
AZtaq™ DNA Polymerase	73100-201	500 U	5 U/µl
	73100-110	5000 U	>50 U/µl
	73100-100	Custom	Custom

Your OEM Partner to deliver novel solutions for genomics and proteomics.

Quality

ArcticZymes is dedicated to the quality of its products and is certified according to ISO 13485. ArcticZymes offers the convenience of providing standard bulk enzymes as off the shelf products. In addition, ArcticZymes offers enzymes in customised formats. For additional information, please contact us.

Contact information

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Additional Information

We are pleased to provide additional data and information relating to AZtaq on request.
For more information about our enzymes and services, please visit our website www.arcticzymes.com.