DB-1277 DB AptaTaq DNA Polymerase

General description

DB AptaTaq DNA Polymerase is a hot-start version of the *Taq* DNA Polymerase with an aptamer inhibitor. The aptamer allows the PCR reaction to be prepared at ambient temperature without cooling the mixture, as the polymerase activity is completely inhibited at the temperature below 40 °C. Under normal cycling conditions, the aptamer is released, and polymerase activity is not influenced at temperature at or above 55 °C. This inhibition is reversible, and the annealing temperature should thus be at 55 °C or higher.

DB AptaTaq DNA polymerase is recombinantly expressed (in *E. coli*) highly thermostable DNA Polymerase from the thermophilic bacterium *Thermus aquaticus*. The enzyme catalyzes primer-initiated synthesis of the complementary DNA strand in the 5' → 3' direction and has 5' → 3' exonuclease activity, which is required for quantitative PCR with hydrolysis probes (e.g. TaqMan™ probes). *Taq* DNA Polymerase does not have 3' → 5' exonuclease (proofreading) activity, but exhibits deoxynucleotidyl transferase activity, which results in the addition of extra adenine (A) at the 3'-end of the PCR product. This extra adenine on the PCR products can be used for T/A-cloning.

DB AptaTaq DNA Polymerase is supplied with a complete reaction buffer, PCR Buffer A (5X), which contains all necessary components including enhancers, stabilizers, and optimal concentration of KCl, $MgCl_2$ and dNTPs. No other components need to be added to run a PCR reaction.

If you are looking for ready-to-use PCR mixes, please visit https://www.dianabiotech.com/db-pcr-mixes/. You will find information on our PCR mixes optimized for different applications, including mixes suitable for direct PCR from various cell types and biological matrices, mixes compatible with TaqMan™ probes, mixes with SYBR™ Green I dye or mixes for direct loading of the PCR product onto a gel.

Applications and Features

The use DB AptaTaq DNA Polymerase is designed for research studies and is recommended for all common PCR applications using *Taq* DNA Polymerase, both in monoplex and multiplex PCR reactions.

- Suitable for end-point PCR as well as for quantitative real-time PCR.
- Suitable for PCR from cDNA, genomic DNA (also for genotyping), or plasmid DNA.
- Compatible with both hydrolysis probes (e.g. TaqMan™ probes) and SYBR™ Green I dye.
- Sensitive: detection of low copy number targets in monoplex or multiplex with TaqMan™ probes.
- Stable: preparation of reaction at the ambient temperature without the need for cooling.
- Two-component design: reduction of the pipetting steps and the risk of contamination. PCR Buffer A contains all necessary components (including KCl, $MgCl_2$ and dNTPs). You just mix the polymerase, PCR Buffer A, primer(s)/probe(s) and sample and you are ready to go.
- Creating of A-overhang for T/A cloning of the PCR product.
- Suitable for DNA labelling (e.g. α-32P dNTP, Biotin-dNTP, Fl-dNTP).
- Applicable for colony PCR – a rapid method for screening colonies of bacteria and yeast cells.
- Ideal for both routine and high-throughput PCR.
- Amplification of amplicons up to 5 kb.

Concentration: 5 U/µL

Specific activity: 80 000 U/mg

Unit definition

One unit is defined as the amount of enzyme, which catalyzes incorporation of 10 nmol dNTPs within 30 min at 72 °C into 250 nM fluorophore-quencher dual-labelled extendable DNA molecular beacon.

Kit Components

Kit component	REF code	Volume (µL)			Storage temperature	Cap colour + label
		0.1 kU	0.5 kU	2.5 kU		
AptaTaq DNA Polymerase	RF06710	20	100	5 x 100	-18 °C to -25 °C	Apta Taq
PCR Buffer A (5X)	RF07989	1 x 1 000	2 x 1 000	10 x 1 000	≤ -18 °C	5x

Storage buffer: 20 mM Tris pH 8.0, 100 mM KCl, 0.1 mM EDTA pH 8.0, 1 mM DTT, 0.5 % Igepal, 0.5 % Tween 20, 50 % v/v glycerol

Quality Control

For each lot, the activity of the enzyme is tested. The purity using SDS-PAGE is at least 90 %.

Each lot is assayed for the presence of RNase, DNase, and endonuclease activity.

The presence of *E. coli* genomic DNA (gDNA) is tested. The amount of *E. coli* gDNA is below one copy per one unit of enzyme. This DNA polymerase is thus suitable for applications where *E. coli* gDNA may interfere (as bacterial rDNA amplification). However, a weak positive signal for *E. coli* gDNA cannot be excluded.

Detection of a low copy number target with amplicon lengths of 100 and 2 000 bps in challenging matrix (viral transport medium) is tested.

Storage

Keep AptaTaq DNA Polymerase at -18 °C to -25 °C for long-term storage. We recommend using cooling block while working with the Polymerase.

PCR buffer A (5X) can be stored at ≤ -18 °C for long-term storage. Avoid more than 5 freeze/thaw cycles. If you intend to use the components more times, aliquot them after the first thawing.

Shelf life: 3 years

Shipment: Dry ice

Products

Catalogue No	Size
DB-1277-0.1kU	100 units
DB-1277-0.5kU	500 units
DB-1277-2.5kU	2 500 units

Disclaimer

For research use only.

It is the user´s responsibility to validate the specific use of the kit.

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