Biotium
Glowing Products for Science™

Cheetah™ Taq
for hot-starting PCR

September 27, 2010

Speed, Power, and More!
Cheetah™ Taq, a Chemically-modified Hot-start DNA Polymerase for PCR

- **Fast activation:** *Takes less than 2 minutes to activate, much faster than AmpliTaq® Gold and HotStar™ Taq.*
- **Excellent activity recovery:** *Better recoveries of both 5'-3'-polymerase and 5'-exonuclease activities following activation than AmpliTaq® Gold.*
- **Improved stability:** *Better stability than AmpliTaq® Gold during storage.*
- **pH compatibility:** *Can be activated at alkaline pH (8.5-9) for optimal Taq activity and more specific target amplification.*

Cheetah™ *Taq* is a chemically modified hot-start *Taq* DNA polymerase useful for preventing or minimizing nonspecific DNA amplification in PCR. Modified using a novel modifying reagent, Cheetah™ *Taq* represents a major improvement over AmpliTaq Gold and other similar chemically-modified hot-start enzymes by having a faster activation time, better shelf-life and alkaline activation condition optimal for both Taq activity and specific amplification. Under standard hot-start conditions (*i.e.*, 94 °C in pH 8-9 Tris), Cheetah™ *Taq* regains both the 5'-3' polymerase and 5'-exonuclease activities within two minutes. Cheetah™ *Taq* is also superior to antibody-based hot-start DNA polymerases due to its complete supression of enzyme activity at room temperature, near full recovery of enzyme activity following activation and lack of animal DNA contaminants. In addition, Cheetah™ *Taq* is also significantly more economical to manufacture than antibody-based hot-start enzymes.

Cheetah™ *Taq* is a patent-pending invention. We welcome you to explore licensing opportunities from us.

Cheetah™ Taq Is Ideal for Fast PCR

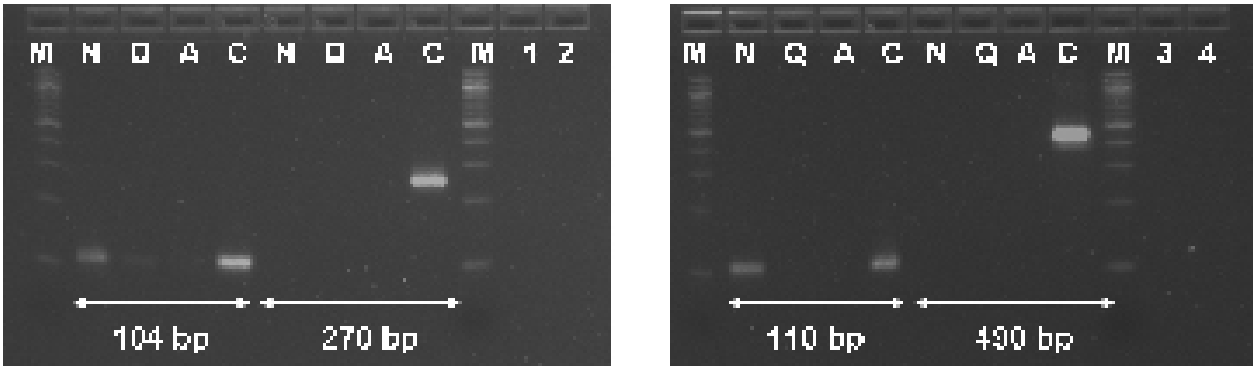

Figure 1. Comparison of PCR products in agarose gel among amplifications using different hot-start Taq DNA polymerases. PCR experiments were performed on four separate fragments of human genomic DNA (104 bp, 270 bp, 110 bp and 490 bp, respectively) using a fast PCR protocol with a 2- minute enzyme activation at 95 °C. Lanes N, Q and A are for enzymes from vendor N, vendor Q and vendor A, respectively. Lanes C are for Cheetah Taq. Lanes 1, 2, 3 and 4 are nontemplate controls (NTC) for Cheetah Taq in the amplifications of fragments 104 bp, 270 bp, 110 bp and 490 bp, respectively. The data show that under the activation condition only Cheetah Taq is capable of producing specific product with high efficiency for all four templates. The enzyme from vendor N produced weak bands for the small fragments (104 bp and 110 bp) but no band at all for the large fragments (270 bp and 490 bp). The enzymes from vendor Q and vendor A exhibited no or insignificant activity as shown by the absence of any band.

Cheetah™ Taq Can Be Activated at pH 8-9

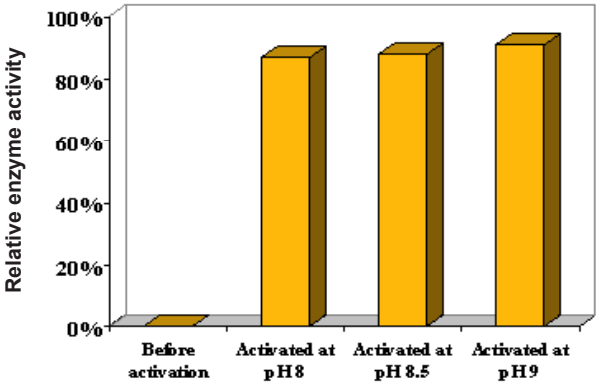

Figure 2. Relative enzyme activity of Cheetah™ Taq following activation at 94 °C in Tris buffer of pH 8.0, pH 8.5 and pH 9.0, respectively. Enzyme activity assays were performed in pH 8.0 Tris buffer at 60 °C. For comparison, the modified Taq without being activated was assayed under identical conditions. The data demonstrates that Cheetah™ Taq can be reliably activated within the pH range from 8 to 9.

Cheetah™ Taq Is Faster to Activate Than AmpliTaq Gold

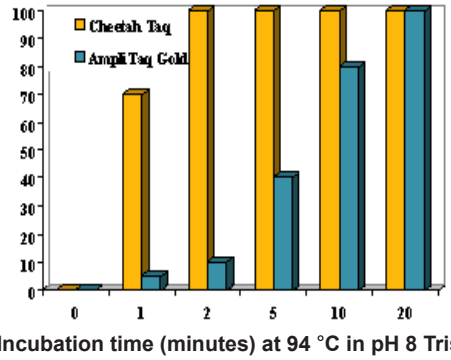

Figure 3. Relative activity of Cheetah™ Taq and AmpliTaq Gold following different incubation times. All incubations took place with 50 nM of the enzyme in 50 mM pH 8.0 Tris at 94 °C.

Table 1. Cheetah™ Taq Product

Cat.#	Product Name	Unit Size	Unit Price ($)
29050	Cheetah™ Hot-start Taq DNA Polymerase (Low DNA), 5 U/uL	500 units (100 uL)	210.00
		5 x 500 units (5 x 100 uL)	945.00
		25 x 500 units (25 x 100 uL)	4,200.00

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