

# RANGER DNA Polymerase and Mix

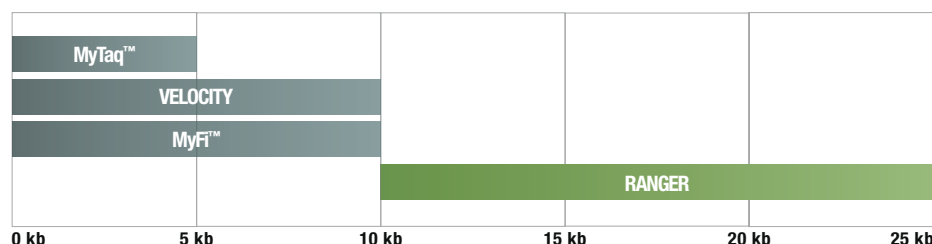
Going Further for PCR

- **Efficient:** specifically developed to give reliable amplification of fragments between 10 kb and 25 kb in length
- **Specific:** incorporates an antibody-mediated hot-start enzyme blend that remains completely inactive during PCR set-up to prevent non-specific amplification
- **Fast:** rapid enzyme activation and highly efficient amplification support reduced time to results
- **Flexible:** ideal for amplifying a broad range of large fragments even from complex targets, including human genomic DNA
- **Accurate:** possesses 3' – 5' proofreading exonuclease activity for increased fidelity, thereby enabling cloning of long PCR products

## A unique blend of high-performance hot-start MyTaq™ HS DNA Polymerase and a proprietary proofreading enzyme, specifically developed for long PCR applications

RANGER is an easy-to-use, high-performance enzyme blend, specifically developed to amplify fragments up to 25 kb in length. RANGER contains a unique combination of a highly-efficient DNA polymerases and novel buffer system that deliver the improved efficiency necessary for reliable amplification of longer amplicons (Fig. 1).

RANGER is an antibody-mediated hot-start enzyme blend that eliminates non-specific amplification during reaction set-up. The inactivated enzymes do not possess polymerase activity, thereby preventing the non-specific amplification, such as primer-dimer formation, that often hinder long PCR reactions from the start.



**Fig. 1 Recommendations for specific polymerases**

MyTaq is designed for amplification of targets up to 5 kb, VELOCITY and MyFi for targets up to 10 kb and RANGER for targets up to 25 kb in length.

## APPLICATIONS

RANGER is ideal for all Long PCR applications, including sequencing, mapping of chromosomal translocation breakpoints and other structural variations:

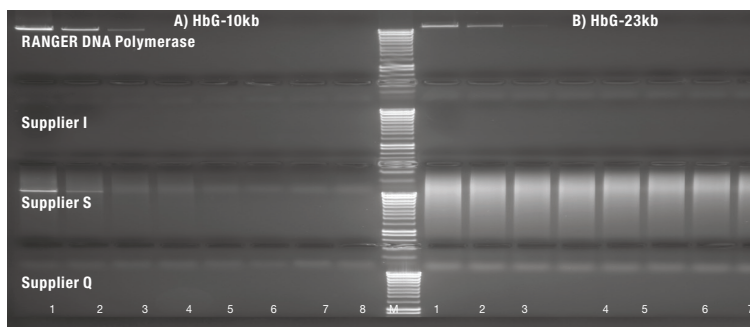
- Long PCR
- TA cloning

## AMPLIFICATION OF COMPLEX TEMPLATES

RANGER DNA Polymerase includes a novel buffer system containing dNTPs,  $MgCl_2$  and enhancers at optimal concentrations, which deliver increased processivity, sensitivity and specificity, thereby enabling successful amplification of long human genomic DNA fragments (Fig.2). This minimizes the requirements for PCR optimization, in turn reducing time to results and inconvenience of performing unnecessary repeats.

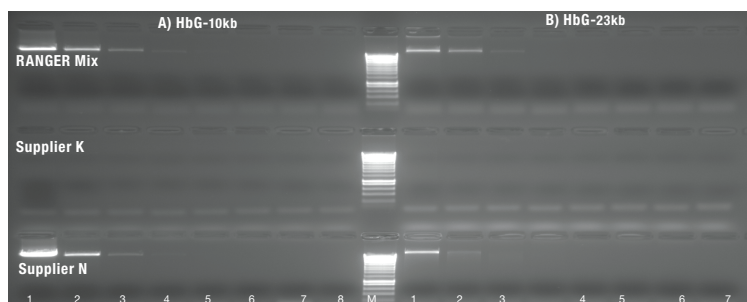
## MASTERMIX

RANGER Mix is an all-in-one mastermix containing dNTPs,  $MgCl_2$  and enhancers at optimal concentrations, minimizing the requirement for PCR optimization and driving greater sensitivity (Fig. 3). RANGER Mix also improves reproducibility and minimizes the requirement for assay repeats, by reducing the number of pipetting steps, and therefore the risk of manual error, during reaction set-up.



**Fig. 2 Amplification of complex DNA greater than 10 kb**

Using a 5-fold serial dilution of human genomic DNA (5 ng - 6 pg, lanes 1 – 8 respectively, HyperLadder 1 kb (M)), a 10 kb fragment A) and a 23 kb fragment B) of human  $\beta$ -globin (*HbG*) gene, was amplified using RANGER DNA Polymerase and polymerases from other suppliers according to the manufacturers' protocols. The results illustrate that RANGER DNA Polymerase can be used to amplify a 23 kb product from human genomic DNA, unlike other long PCR enzymes tested.



**Fig. 3 Efficiency and sensitivity of RANGER Mix**

Using a 5-fold serial dilution of human genomic DNA (5 ng - 6 pg, lanes 1 – 8 respectively, HyperLadder 1 kb (M)), a 10 kb fragment A) and a 23 kb fragment B) of human  $\beta$ -globin (*HbG*) gene, was amplified using RANGER Mix and high-fidelity hot-start DNA mixes from supplier K and supplier N, according to the manufacturers' protocols. The results illustrate that RANGER Mix is more sensitive than mixes from other suppliers, particularly with larger fragments.

## Ordering Information

“ I was really impressed with how well the RANGER Mix worked on my long-range application for screening ES cell colonies and I will be switching over to this immediately. ”

University of Leicester, UK

| RANGER DNA Polymerase and Mix | Size          | Cat. #    |
|-------------------------------|---------------|-----------|
| RANGER DNA Polymerase         | 250 Units     | BIO-21121 |
|                               | 500 Units     | BIO-21122 |
| RANGER Mix                    | 500 reactions | BIO-25052 |

### Nous contacter

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