ExtremeTaq™ HiFi Mix

Catalog No.	Pack Size and Concentration	Components and Volume
AZ-1900	200 x 25 µl reactions, 2x	ExtremeTaq™ HiFi Mix - 2 x 1.25 mL
AZ-1901	1000 x 25 µl reactions, 2x	ExtremeTaq™ HiFi Mix - 10 x 1.25 mL
AZ-1902	2000 x 25 µl reactions, 2x	ExtremeTaq™ HiFi Mix - 20 x 1.25 mL

Description

ExtremeTaq™ HiFi Mix is an optimized 2x master-mix comprised of an enhanced Taq DNA Polymerase, optimized reaction buffer, $MgCl_2$, and ultra-pure dNTPs. This versatile master-mix is ideally suited to all routine end-point PCR applications and challenging DNA targets such as complex GC-rich DNA and low-copy number samples. The formulation contains Taq Polymerase, proprietary enhancers, hot-start antibodies, and a proof-reading component for trouble-free PCR reaction assembly and consistent performance.

- **Assay Flexibility and Accuracy**: With up to 10x the fidelity of Taq Polymerase, our ready-to-use 2x PCR mix provides robust hot-start PCR in a wide range of applications.
- **Robust Amplification**: Provides greater yields and specificity than other Taq master-mixes, even in low-copy number assays, long PCR up to 10 kb, and in the presence of common PCR inhibitors.
- **Convenience of Minimal Optimization**: ExtremeTaq™ HiFi Mix is designed and optimized for ease-of-use and broad compatibility with DNA templates of various lengths and complexity, without the need for $MgCl_2$ optimization.
- **Versatility** High-Performance amplification of DNA extracted from human, animal, plant, bacteria, C. elegans, soil and water.

Storage

ExtremeTaq™ HiFi Mix is shipped on blue ice and should be stored at –20°C upon receipt. Excessive freeze/thawing should be avoided.

Important Guidelines

ExtremeTaq™ HiFi Mix: The 2x mix is comprised of a high-fidelity DNA polymerase complex, 2 mM dNTPs, 6 mM $MgCl_2$, and PCR enhancers for maximum efficiency, sensitivity and success with difficult amplicons. We do not suggest the use of additional PCR enhancers.

Template: For complex genomic DNA, we suggest the use of 5 ng – 500 ng per reaction; For cDNA or plasmid DNA, please use < 100 ng per reaction.

Primers: Primers should have a predicted melting temperature of around 60°C, using default Primer 3 settings (http://frodo.wi.mit.edu/primer3/). The final primer concentration in the reaction should be between 0.2 µM and 0.6 µM.

Annealing: We strongly recommend performing a temperature gradient to determine the optimal annealing temperature. Alternatively, 58°C can be used as a starting point. The optimal annealing temperature is usually 2-5 °C below the lower Tm of the pair. Depending on the reaction, the annealing time can also be reduced to 5 seconds.

Extension: Optimal extension is achieved at 72°C. The optimal extension time is dependent on amplicon length and complexity. For low complexity template such as plasmid DNA, an extension time of 15 seconds is sufficient for amplicons under 1 kb. For amplification from eukaryotic genomic DNA or cDNA, 30 seconds per kb is recommended.

Reaction setup: Allow ExtremeTaq™ HiFi Mix to thaw and mix well by inversion. Centrifuge prior to use.

1. Prepare a PCR master mix based on following table:

Component	25 µl Reaction	Final Concentration/Notes
ExtremeTaq™ HiFi Mix	12.5 µl	1x
Forward Primer (10 µM)	1.0 µl	400 nM
Reverse Primer (10 µM)	1.0 µl	400 nM
Template DNA	<100 ng cDNA, <500 ng genomic DNA	variable
PCR-grade water	Up to 25 µl final volume	

* For alternative total reaction volumes (eg. 20 µl), scale all components proportionally to maintain final concentrations.

2. PCR cycling:

Cycles	Temperature & Time	Notes
1	95°C, 2 minutes	Initial Denaturation, enzyme activation
25 - 40	95°C, 15 seconds 60°C, 15 seconds 72°C, 30 seconds per kb	Denaturation Annealing* (determined by user) Extension*

* See Important Guidelines.

Quality Control

ExtremeTaq™ HiFi Mix is tested extensively for robust activity, processivity, efficiency, heat activation, sensitivity, absence of nuclease contamination and absence of nucleic acid contamination. ExtremeTaq™ HiFi Mix is manufactured under a comprehensive quality management system, following ISO 9001:2015 standards.

Limitations of Use

This product is intended for research purposes only and is not intended for any animal or human therapeutic use.

Technical Support

For Trouble-shooting and Technical Guidance, please contact us at tech@azuragenomics.com and provide PCR reaction conditions, cycling parameters, amplicon size, and screen grabs (gel images) if possible.