WATCHMAKER GENOMICS

EQUINOX LIBRARY AMPLIFICATION KITS

SETTING A NEW STANDARD IN NGS LIBRARY AMPLIFICATION

Equinox Library Amplification Kits deliver excellent fidelity, uniform sequence coverage, and high library complexity to specifically address the stringent demands of applications such as rare variant detection, circulating cell-free DNA (cfDNA) analysis, single-cell analysis, and hybridization capture. Kits contain a uniquely engineered, ultra-high-fidelity DNA polymerase in an optimized hot start PCR master mix formulated for high-efficiency, low-bias NGS library amplification.

KEY FEATURES & BENEFITS

- Ultra-high-fidelity amplification reduces misincorporation events by up to 40% to improve overall assay sensitivity
- Even coverage of unique molecular identifier (UMI) families enables robust error correction for rare mutation detection
- Effective hot start formulation inhibits both polymerase and 3' → 5' exonuclease activities, important for low-input applications and automated workflows
- Highly uniform sequence coverage optimizes sequencing economy
- Efficient library amplification from a wide range of inputs (0.1 pg – 500 ng) and GC content (15% to 85%)
- Compatibility with paramagnetic beads ensures robust performance in hybridization capture workflows

APPLICATIONS

- Low-frequency variant detection NGS assays, including those utilizing challenging samples such as FFPE and cfDNA
- Hybridization-capture workflows
- Single-cell analysis
- Whole-genome sequencing
- Amplicon sequencing
- RNA-Seq
- ChIP-Seq, ATAC-Seq, and associated epigenetic applications
- Illumina and non-Illumina sample preparation workflows

READ. WRITE. EDIT.

ULTRA-HIGH FIDELITY

Enables sensitive variant detection by reducing false variant calls, especially C>T substitutions, one of the most common mutation types in cancers.

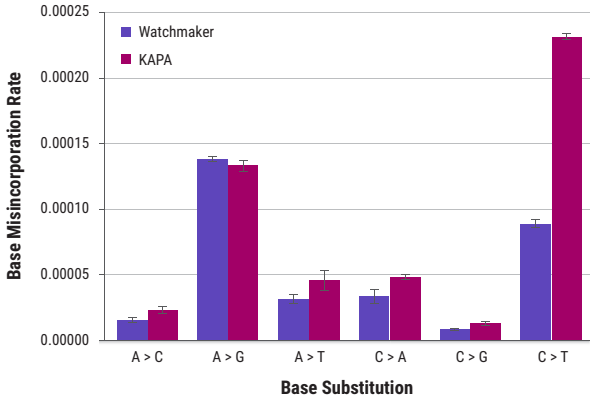

FIGURE 1. Up to 40% reduction in overall polymerase error rate. Error rates were measured after >9 million base incorporation events in three separate reactions, using a proprietary NGS-based assay. The Equinox Library Amplification Kit displayed a 40% reduction in overall polymerase error rate in comparison to KAPA HiFi HotStart ReadyMix.

HIGH-EFFICIENCY AMPLIFICATION

Limits the number of PCR cycles required, which minimizes associated bias and artifacts, even in high-yield demanding workflows such as hybridization capture.

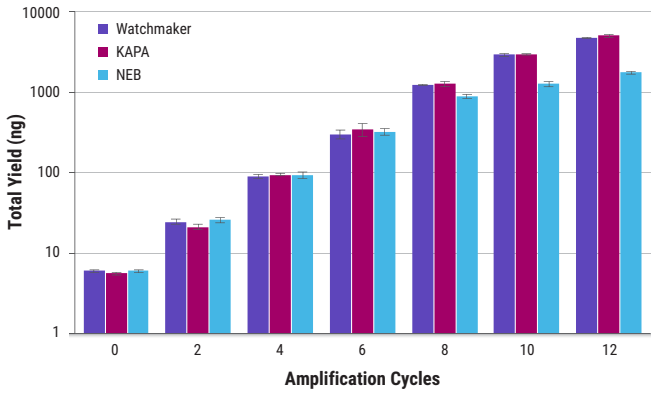

FIGURE 2. Highly efficient library amplification. Human whole-genome libraries (10 ng) were amplified in triplicate with the Equinox Library Amplification Kit, KAPA HiFi HotStart ReadyMix, and NEBNext Ultra II Q5 Master Mix. Yields were determined by qPCR-based library quantification at 2-cycle intervals.

EFFECTIVE HOT START FORMULATION

Inhibits both polymerase and 3' → 5' exonuclease activities to mitigate sample and primer degradation and facilitate automated library construction.

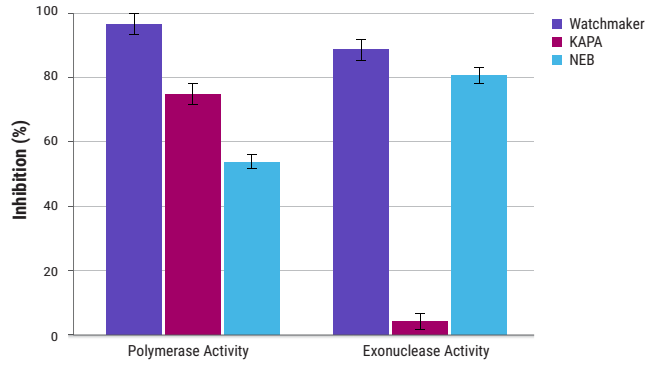

FIGURE 3. Improved hot start functionality. Polymerase and exonuclease activities of the Polymerase and exonuclease activities of the Equinox Library Amplification polymerase, KAPA HiFi HotStart DNA Polymerase and NEB Q5 DNA Polymerase were assessed by the detection of dNTP incorporation or dNMP release, respectively, after incubation at 25°C. Percent inhibition is reported relative to uninhibited formulations.

LOW-BIAS AMPLIFICATION

Ensures high coverage uniformity across complex genomes, even in the presence of paramagnetic beads, to optimize sequencing economy.

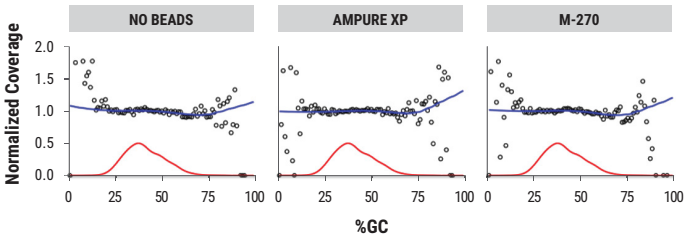

FIGURE 4. Highly uniform sequence coverage in the presence of paramagnetic beads. Human whole-genome libraries (0.04 pg) were amplified for 26 cycles with the Equinox Library Amplification Kit in the absence or presence of paragmagnetic beads: AMPure XP Reagent (100 µL slurry; relevant to reaction purification) and Dynabeads™ M-270 Streptavidin (500 µg; relevant to hybridization capture). Coverage plots were normalized to those for unamplified libraries. Blue lines represent locally weighted smoothed (LOESS) normalized coverage.

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WATCHMAKERGENOMICS.COM/EQUINOX

SALES@WATCHMAKERGENOMICS.COM

PRODUCT	24 RXN	96 RXN	384 RXN
Equinox Library Amplification Kit *includes P5/P7 Primer Mix (10X)*	7K0014-024	7K0014-096	7K0014-384
Equinox Library Amplification Kit *(w/o primers)*	7K0021-024	7K0021-096	7K0021-384

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