

Product Profile

QIAseq 1-Step Amplicon Library Kit

For fast and efficient library construction for targeted resequencing on Illumina® platforms

Next-generation sequencing (NGS) enables the high-throughput parallel analysis of massive numbers of DNA molecules, and has been employed by researchers in fields such as developmental biology, metagenomics, ecology, cancer and stem cell research. Targeted resequencing, where selected regions of the genome are enriched prior to library preparation by either hybrid capture or highly multiplexed PCR, allows researchers to avoid sequencing genome regions of limited interest or utility and focus on target pathways or actionable mutations. Save time with targeted resequencing and amplicon sequencing applications by taking advantage of the fastest library prep solution on the market – the QIAseq 1-Step Amplicon Library Kit (Figure 1). By combining end-repair and ligation, this new kit offers a fast and efficient 30-minute procedure allowing you to prepare high-quality, artifact-free libraries from any gene panel or PCR amplicon input, ready for use on any Illumina® platform!

Benefits of the QIAseq 1-Step Amplicon Library Kit:

- One-tube, benchtop library prep from PCR products in just 30 minutes
- Maximum convenience with automatable, one-reaction, room-temperature setup
- High-quality, artifact-free libraries, ready for use on any Illumina NGS platform
- Compatible with any gene panel or PCR product, accepts down to 1 ng input DNA
- Reduction in contamination potential and handling errors due to single-use adapter plates



Figure 1. The QIAseq 1-Step Amplicon Library Kit is available in 12- and 96-reaction formats.

From amplicon to high-quality, NGS-ready library in just 30 minutes

Traditional NGS library prep can be laborious, taking anything from 2 to 3 hours to accomplish. The QIAseq 1-Step Amplicon Library Kit offers a faster, more efficient alternative, allowing reliable NGS library prep from pools of PCR fragments from gene panels or multiplexed PCR. ▷

Utilizing a novel, combined end-repair/ligation reaction, the kit streamlines the entire NGS library preparation process to just 30 minutes (Figure 2). It incorporates a one-tube reaction that saves you time, allowing you to focus on sequencing and data analysis. The entire procedure can be performed at room temperature, enabling automation on instruments lacking a thermo-block. The one-tube protocol eliminates the need for transferring reagents, increasing efficiency and more effectively capturing insert amplicons, while also reducing the risk of contamination or sample mix-up, which can occur with manual processing. The procedure is optionally PCR-free to avoid introducing sequence duplicates or PCR-bias, and generates high-quality libraries optimized for sequencing on any Illumina sequencing instrument from a range of input materials.

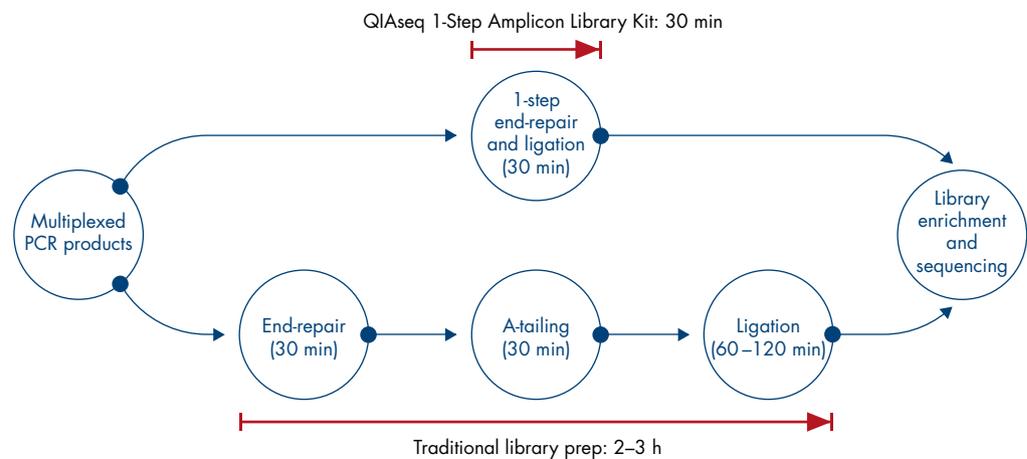


Figure 2. The QIAseq 1-Step Amplicon Library kit offers substantial time savings over standard targeted resequencing library preparations.

The fastest, most efficient library prep for amplicon sequencing

The QIAseq 1-Step Amplicon Library Kit is designed to reliably and efficiently convert PCR amplicons from target enrichment panels or other multiplexed PCR products into sequencer-ready libraries for NGS. This one-step, one-tube reaction requires minimal hands-on time and no liquid transfers, improving efficiency by eliminating sample loss during transfer between tubes. The simple one-step procedure, combined with optional benchtop incubation, makes the procedure highly amenable to automation. Additionally, by eliminating multiple reactions, chances of pipetting errors or sample mix-ups, as is the case with manual processing, are eliminated, leading to higher confidence in each library.

Generate artifact-free libraries from PCR products in a single tube at room temperature

The QIAseq 1-Step Amplicon Library procedure involves a one-tube, room-temperature reaction that is easy to automate on most modern liquid-handling platforms. Simply mix the purified PCR products with the 1-step buffer and enzyme mix, and incubate at 25°C or at room temperature for 30 minutes to generate the library. After library preparation, SPRI beads are used to remove any adapter-adapter products and excess adapter in the reaction, leaving ready-to-sequence library.

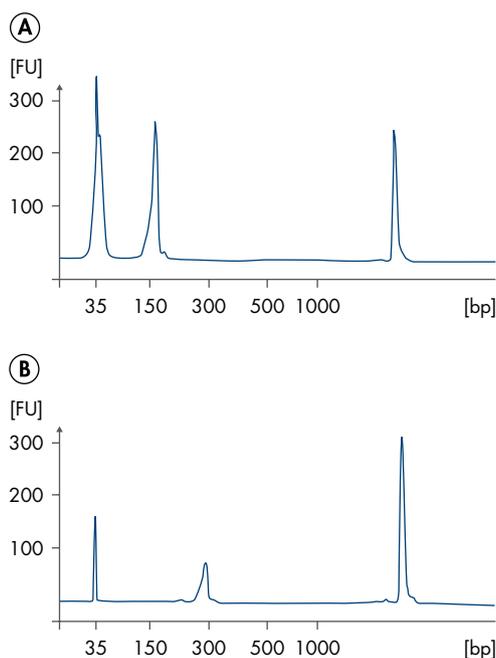


Figure 3. Typical results. In this experiment, the QIAGEN GeneRead DNaseq V2 Human Comprehensive Cancer Panel (cat. no. 181901) was used to generate PCR products **A** from a reference DNA sample. **B** A library was prepared from 25 ng of purified PCR product using the QIAseq 1-Step Amplicon Library Kit. Only 4 amplification cycles after library preparation were applied. Note that libraries display an appropriate size-shift and are free from adapter-adapter products (~125 bp).

Efficient library construction from a broad range of gene panels and PCR amplicon inputs

The QIAseq 1-Step Amplicon Library Kit is compatible with GeneRead™ DNaseq Target Panels V2, commercially available panels from other suppliers, custom gene panels and custom multiplex PCR assays using reagents from QIAGEN or other suppliers. The kit contains reagents for optional library amplification for use with low amounts of input material (>1 ng; 10–100 ng is recommended), allowing the kit to be paired with a wide variety of targeted resequencing panels, even if the amount of DNA produced by the panel of choice is low. With high-yield panels or PCR reactions (>500 ng), PCR enrichment of the completed libraries is not necessary, and purified libraries can be directly sequenced without any additional steps. This can reduce the workflow time further, and eliminates PCR duplicates introduced during library enrichment, increasing library complexity and maximizing usable data generated with each NGS run.

A streamlined solution to meet your library prep needs

The QIAseq 1-Step Amplicon Library Kit provides an efficient, streamlined, single-reaction solution for amplicon and gene panel sequencing on any Illumina platform. The kit relies on a novel, 30-minute, concurrent one-tube end-repair and ligation reaction that eliminates the need for liquid transfers, cutting handling time and reducing the potential for sample misidentification. The included single-use adapters further reduce contamination issues, and the protocol can be optionally carried out at room temperature, making it highly amenable to automation. The kit contains high-performance reagents for library amplification and has been tested at extremely low amounts of input material, but can be completely PCR-free if sufficient material is available, reducing PCR bias and cutting down protocol time even further. Typical libraries have excellent sequencing metrics, minimal adapter-adapter ligation product and specificity and accurately reflect the evenness and sensitivity of the input products.

Ordering Information

Product	Contents	Cat. no.
QIAseq 1-Step Amplicon Library Kit (12)	For 12 reactions: 1-Step Amplicon Enzyme Mix, 4x 1-Step Amplicon Buffer, Primer Mix Illumina Library Amp, HiFi PCR Master Mix, RNase-Free Water	180412
QIAseq 1-Step Amplicon Library Kit (96)	For 96 reactions: 1-Step Amplicon Enzyme Mix, 4x 1-Step Amplicon Buffer, Adapter Plate 96-plex Illumina, Primer Mix Illumina Library Amp, HiFi PCR Master Mix, RNase-Free Water	180415

For up-to-date licensing information and product-specific disclaimers, see the respective QIAGEN kit handbook or user manual. QIAGEN kit handbooks and user manuals are available at www.qiagen.com or can be requested from QIAGEN Technical Services or your local distributor.

Visit www.qiagen.com/QIAseq-1Step-Amplicon for more information!

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