LEXOGEN

Enabling complete transcriptome sequencing

052PF130V0102

NEW

Small RNA-Seq Library Prep Kit for Illumina

- Gel-free user-friendly workflow
- Ready-to-sequence libraries in less than 5 hours
- Wide input range from 50 pg - 1,000 ng RNA
- Optimized for low RNA content samples such as plasma, serum, and urine
- i7 indices included allowing multiplexing of up to 96 samples

Introduction

Ever since small RNA (sRNA) was found to play key functional roles in the regulation of gene expression, researchers have taken special interest in the group of non-coding small RNAs such as microRNA (miRNA) and small interfering RNA (siRNA). Lexogen's Small RNA-Seq Library Prep Kit offers a streamlined procedure for generating Illumina ready-to-sequence libraries from small RNA in less than 5 hours. The kit can be used for inputs from 100 ng - 1,000 ng of cellular total RNA or 50 pg - 1,000 ng enriched small RNA including low RNA content samples such as plasma, serum, and urine. All the molecular reagents required to generate small RNA libraries including adapters, primers, enzyme mixes, and buffers are provided. The kit also uses a column-based module for rapid purification of nucleic acid products generated during the protocol. Multiplexing of libraries can be carried out using up to 96 external i7 indices included in the kit. Libraries are compatible with both single-end and paired-end sequencing. For small RNA-Seq libraries in general short read lengths (SR50) are sufficient.

By combining the new Small RNA-Seq Kit with the SPLIT RNA Extraction Kit, Lexogen offers a complete solution for small RNA-Seq library preparation, from enrichment of small RNA using SPLIT through to ready-to-sequence libraries generated using the Small RNA-Seq Kit.

Workflow

The Small RNA-Seq kit is based on adapter ligation to the 3' and 5' ends of total or enriched small RNA. Library generation starts with 3' adapter ligation to the input RNA (total RNA, enriched small RNA, plasma RNA, serum RNA, urine RNA, or exosomal RNA). Excess 3' adapter is then removed by column purification. This is followed by 5' adapter ligation. The input RNA, flanked by 5' and 3' adapters, is then converted into cDNA. The library amplification is performed to add the complete adapter sequences required for cluster generation and to produce sufficient material for quality control and sequencing. External i7 indices are added during this step to enable multiplexing of libraries for sequencing. The library product is then purified to remove PCR components that interfere with quantification, and concentrated. In most cases, particularly when the input RNA is enriched in microRNA, the prepared library can be used directly for analysis on Illumina sequencers. Alternatively, an additional magnetic bead-based purification can be applied, either to remove linker-linker artifacts or to separate the small RNA library from the total RNA library. This eliminates the need for tedious gel purification, which is commonly required for small RNA-Seq library preparation protocols. For the magnetic bead-based purification we recommend using the bundled version with Lexogen's Purification Module with Magnetic Beads (Cat. No. 058). Final library quantification can be performed with standard protocols, e.g., microcapillary electrophoresis or qPCR.

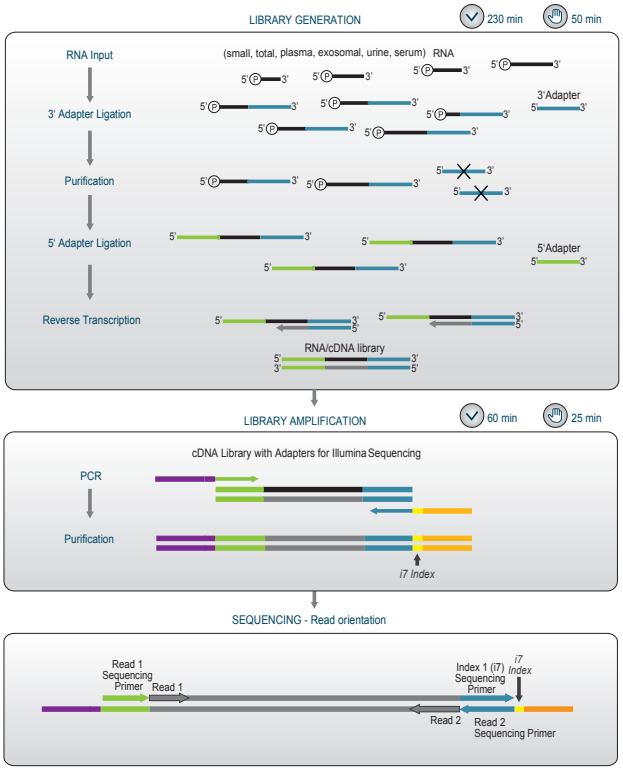

Figure 1 | Schematic overview of the Small RNA-Seq Library Prep workflow.

Ordering Information

Catalog Numbers:
008 (SPLIT RNA Extraction Kit)
022 (Purification Module with Magnetic Beads)
052 (Small RNA-Seq Library Prep Kit for Illumina)
054 (Gel Extraction Module)
058 (Small RNA-Seq Library Prep Kit for Illumina including Purification Module with Magnetic Beads)

Find more about the Small RNA-Seq Kit at www.lexogen.com
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