

AmpliSeq™ for Illumina Transcriptome Human Gene Expression Panel

A targeted panel for simultaneous analysis of the expression levels of > 20,000 human RefSeq genes.

Highlights

- Fast Gene Expression Profiling**
 Prepare libraries in 6 hours with < 1.5 hours hands-on time; results available in < 2 days
- Low-Quality, Low-Quantity Sample Input**
 Obtain high-quality data even when starting with minimal input from FPE tissues
- RNA-to-Analysis Solution**
 Take advantage of a comprehensive workflow that spans library preparation, sequencing, and analysis

Introduction

The AmpliSeq for Illumina Transcriptome Human Gene Expression Panel is a targeted resequencing assay for quantitating gene expression (Table 1). Starting with as little as 1 ng total RNA (10 ng recommended), the AmpliSeq for Illumina Transcriptome Human Gene Expression Panel yields sensitive, accurate results for gene expression studies even from low-quality or limited quantity samples, including formalin-fixed, paraffin-embedded (FFPE) tissues.

The Transcriptome Human Gene Expression Panel is part of a comprehensive workflow that includes AmpliSeq for Illumina PCR-based library preparation, Illumina sequencing by synthesis (SBS) chemistry and next-generation sequencing (NGS) technology, and automated analysis. Taking advantage of this streamlined workflow, researchers can focus their studies on RNA coding regions, decreasing input requirements while obtaining high-sensitivity, accurate results.

Relevant Gene Coverage

The AmpliSeq for Illumina Transcriptome Human Gene Expression Panel delivers comprehensive coverage of RNA coding sequences. The single-pool, single-tube panel includes > 20,000 amplicons designed against the NCBI37/hg19 reference genome, covering > 95% of RefSeq genes. This ready-to-use panel saves researchers the time and effort of identifying targets, designing amplicons, and optimizing performance.

Table 1: AmpliSeq for Illumina Transcriptome Human Gene Expression Panel At A Glance

| Parameter | Specification |
|------------------------|--|
| No. of Genes | > 20,000 (> 95% of human RefSeq gene database) |
| Cumulative Target Size | 2.2 Mb |
| Variant Types | Differential gene expression, gene fusions |
| Amplicon Size | 104 bp on average |
| No. of Amplicons | 20,802 |
| Input RNA Requirement | 1–100 ng (10 ng recommended) |
| No. of Pools per Panel | 1 |
| Supported Sample Types | FFPE tissue, blood |
| Percent Aligned Reads | > 80% |
| Total Assay Time | 6 hours ^a |
| Hands-On Time | < 1.5 hours |
| RNA-to-Data Time | 2.5 days |

a. Time represents library preparation only and does not include library quantification, normalization, or pooling
 Data on file at Illumina, Inc. 2017

Simple, Streamlined Workflow

The AmpliSeq for Illumina Transcriptome Human Gene Expression Panel enables simultaneous expression profiling of > 20,000 distinct human genes in a single pool. It is part of a comprehensive solution that offers streamlined content, easy-to-perform library preparation, push-button sequencing systems, and simplified data analysis.

Library preparation begins with the conversion of total RNA to cDNA, followed by a straightforward, PCR-based protocol that can be completed in as little as 6 hours, with < 1.5 hours hands-on time. Resulting libraries can be normalized, pooled, and then loaded on to a flow cell for sequencing. Prepared libraries are sequenced using proven SBS chemistry on an Illumina sequencing system (Table 2).

Resulting data can be analyzed locally with Local Run Manager or easily streamed into BaseSpace™ Sequence Hub. Local Run Manager and BaseSpace Sequence Hub can access the RNA Amplicon analysis workflow for gene expression profiling.



Learn more about Illumina informatics at www.illumina.com/products/by-brand/ampliseq/informatics.html

Table 2: Illumina Sequencing Systems Recommended for Use with the AmpliSeq for Illumina Transcriptome Human Gene Expression Panel

| Instrument | Samples per Run | Run Time |
|-------------------------------|-----------------|----------|
| MiniSeq™ System (high output) | 3 | 24 hours |
| MiSeq™ System (v3 chemistry) | 3 | 32 hours |
| NextSeq System (mid output) | 12 | 26 hours |
| NextSeq System (high output) | 40 | 29 hours |



Learn more about Illumina sequencing systems at www.illumina.com/systems

Accurate Data

The AmpliSeq for Illumina Transcriptome Human Gene Expression Panel enables researchers to analyze differential gene expression across the transcriptome. To demonstrate assay reproducibility, RNA isolated from brain tissue was analyzed in replicate using the Transcriptome panel and the NextSeq™ System. Results show a high concordance ($R^2 = 0.98$) between the two samples (Figure 1).

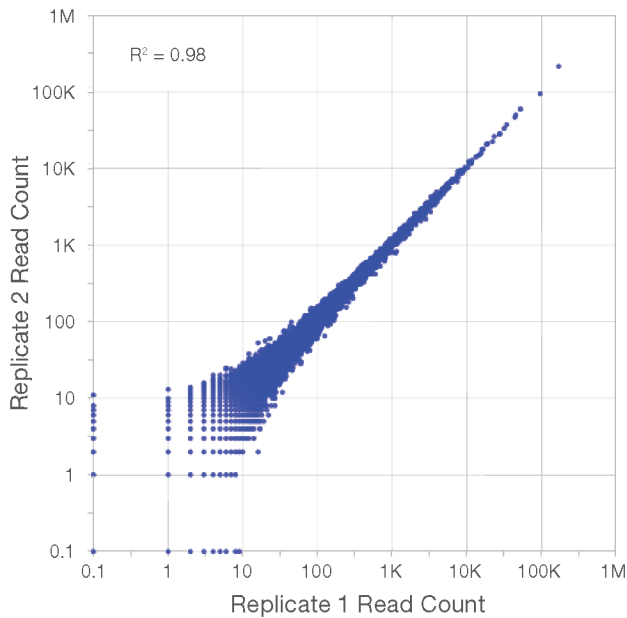


Figure 1: High Concordance Between Replicates—Libraries were prepared using RNA isolated from brain tissue and the AmpliSeq for Illumina Transcriptome Gene Expression Panel and sequenced on the NextSeq System. A reproducibility plot shows high correlation between two replicates of the same RNA sample. R^2 is a statistical measurement of data correlation.

Learn More

To learn more about the AmpliSeq for Illumina Transcriptome Human Gene Expression Panel, visit www.illumina.com/products/by-type/sequencing-kits/library-prep-kits/ampliseq-transcriptome-gene-expression-panel.html

To learn more about the AmpliSeq for Illumina targeted resequencing solution, read the overview at www.illumina.com/content/dam/illumina-marketing/documents/products/datasheets/ampliseq-for-illumina-targeted-resequencing-solution-data-sheet-770-2017-022.pdf

Ordering Information

Order AmpliSeq for Illumina products online at www.illumina.com

| Product | Catalog No. |
|--|-------------|
| AmpliSeq for Illumina Transcriptome Human Gene Expression Panel (24 reactions) | 20019170 |
| AmpliSeq for Illumina Library PLUS (24 reactions) | 20019101 |
| AmpliSeq for Illumina Library PLUS (96 reactions) | 20019102 |
| AmpliSeq for Illumina Library PLUS (384 reactions) | 20019103 |
| AmpliSeq for Illumina CD Indexes Set A (96 indexes, 96 samples) | 20019105 |
| AmpliSeq for Illumina cDNA Synthesis (96 reactions) | 20022654 |