Product Specification Sheet

Genome Scan

Gene Expression | Total Transcriptome | Ultra low input | Small RNA Sequencing | FFPE Tissue | Single Cell Sequencing

mRNA Gene-expression analysis

(mRNA expression based on poly-A selection)

Sequencing of all protein-coding genes

Through their poly-A tails, all messenger RNA (mRNA) can be captured and sequenced specifically for mRNA gene expression analysis. This provides an affordable approach to give insight into differential gene expression between groups of samples, such as various treatments, time-points, or disease versus control samples. RNA from different types of tissues and body fluids can be assessed. Specifically, for whole blood analysis, we offer globin reduction that removes the globin transcripts originating from erythrocytes from your samples. This reduces the sequencing capacity required for your sample with 30-40% and lowers affiliated costs.

Input material

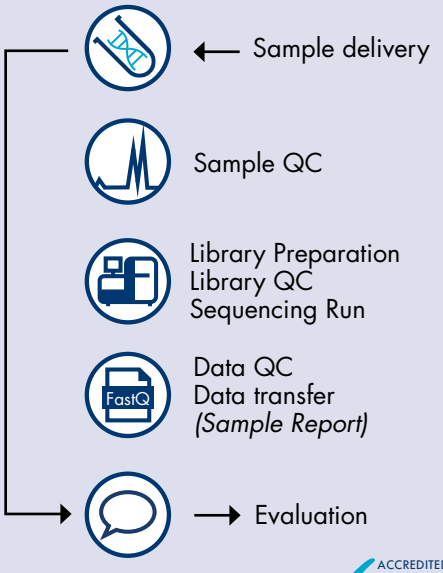
Validated for fresh tissues and biopsies, whole blood and cells.

Isolated Sample
- Optimal total RNA amount: ≥100 ng / sample
- Validated input range from: 30 ng
- Minimal volume of 15 µl / sample
- Quality: RIN ≥ 7 / RQN ≥ 6

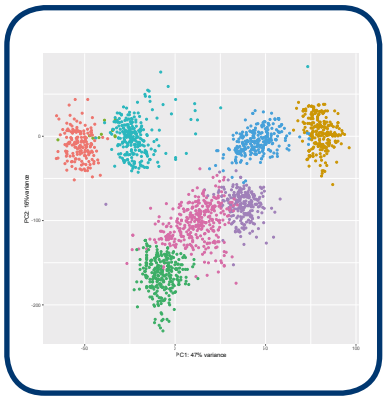
Sequencing on Illumina NovaSeq 6000 (PE 150)
- Standard read depth 20M / sample
- Unique Molecular Identifier tags

Deliverables
- FastQ files of poly-A containing transcripts
- Quality score (Q30) ≥ 80%
- **Data delivery 3 weeks after successful sample QC**

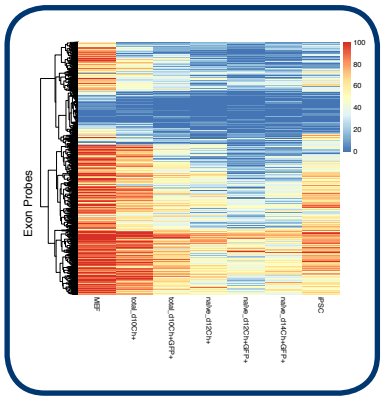
NGS Laboratory workflow



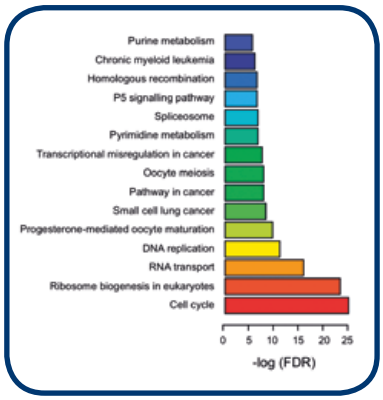
ACCREDITED ISO/IEC 17025 L518 By RvA



Principal components analysis



Heatmap



Pathway analysis

Committed to your project

Data quality guarantee

Depth of coverage, base quality and data quality are essential metrics to evaluate the quality of your NGS data. Our average score for 2018 was Q30 ≥ 90%.

Reads of unique transcripts

A known challenge of NGS sample prep is the formation of PCR duplicates (inversely related to the amount of sample input). Our RNA NGS service includes Unique Molecular Identifiers (UMIs) that ensure the ability to identify these PCR-artifacts and hence allow the read representation of truly unique transcripts.

Publication ready results

We have dedicated data-analysis pipelines to provide you with the output figures to best represent your data. For every option from microRNA's to long non-coding RNA's and from high-throughput screening methods to delicate single-cell sequencing.

Data analysis options

Our data analysis report provides multiple visualization options (see frame above) to make data easily comprehensible and useable for decision makers. The report summarizes the most relevant information, with additional technical details in appendices or individual sample reports. It is based on many years of experience working with customers and operating under a stringent quality system.
Robust industry-standard methods are used to determine gene expression levels and identify differentially expressed genes between biological conditions. Results can be viewed as summary table, individual gene lists, or heatmap. Read mappings can be visualized using many intuitive graphical user interfaces. Multiple levels of quality controls ensure read integrity and biological plausibility of the results.

Biological Insights

The biological insights that can be inferred from your data include:

- *de novo* transcriptome assembly
- Discovery of transcripts and variants
- Differential expression analysis of genes,transcript variants, and exons (alternative splicing)
- Analysis of gene fusions and trans-splicing events
- Gene regulatory networks, signaling pathways and networks, and gene enrichments
- Host/pathogen interactions or xenografts

Custom analysis

Custom bioinformatics can be performed allowing more in-depth mining of your data set. Functional gene information mining, gene enrichment set, gene ontologies may be additionally provided when required.

About GenomeScan

As an ISO-accredited leading Dutch Next Generation Sequencing service provider, GenomeScan develops customizable NGS solutions for pharmaceutical and biotech companies, health care providers and academic institutions. By providing new tools to analyze genetic disorders quicker, affordably and effectively, GenomeScan fosters innovation through partnership with medical centers and research laboratories.

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