Product Specification Sheet

Full Genome

16S

16S-V4 Microbial Profiling

Identification, quantitation and comparison of microbial populations (Taxonomic classification of complex mixtures)

Certain environmental or human samples such as soil, water, or gut samples contain a complex mixture of cells. Profiling microbial populations from such environments requires employing a high accuracy method to differentiate between various types of cells. The fourth hypervariable domain (V4) of the 16S ribosomal RNA gene is a region of the prokaryotic ribosome that is most commonly used for microbial profiling. This region is selectively amplified, preventing contamination from eukaryotic hosts. Because of its hypervariability the region provides genus- and species-specific signatures that are used for the microbial diversity analysis.
GenomeScan's scientists have designed an optimized library preparation method leading to a higher yield than other kits available in the market.

Input material

Purified genomic DNA
- Validated input: ≥10 pg / sample
- Minimum volume: 15 µl / sample
- Quality: Column or bead purified DNA

Sequencing on Illumina NovaSeq 6000 (PE 150)
- Standard read depth 200K PE150 reads / sample
- Unique dual indexed sequencing adaptors

Deliverables
- **TAT: 2-3 weeks after successful sample QC**
- FastQ files via secured electronic transfer
- Quality score Q30 ≥80% for PE150 reads
- Optional data analysis with comprehensive report

Laboratory workflow


Sample delivery


Sample Entry QC


Library Preparation
Library QC
Sequencing Run

Data QC


Sample Report

ACCREDITED
ISO/IEC 17025
L518 By RvA

Committed to your project

Data quality guarantee
Sequence quality control is an essential tool in our workflow. We track, identify and exclude potential errors that could impact the interpretation of your results.

Hundreds of samples in parallel
By using unique dual-indexed sequencing adaptors, we are able to analyze hundreds of samples in parallel making this very reliable, powerfull and cost-effective tool for microbial profiling.

Publication ready results
We deliver comprehensive, consistent and transparent NGS information. Furthermore, we offer different visualization options to help present your results and/or comply with publisher's policies.

Data analysis options

In order to provide you easily comprehensible and ready-to-publish results, our workflow covers several steps that lead to insightful data visualizations (see below). Sequential steps include data trimming and preparation for alignment to the NCBI reference database to determine the characteristics and relative abundancies of different microbial populations.
The output is subsequently used for clustering and the computation of diversity metrics.
Our data analysis report provides multiple visualization possibilities. A comprehensive list of all detected microorganisms, their taxonomic rank, genome size, and the number of reads used for classifications are all displayed in an informative table.

Furthermore, hierarchical clustering, Principal Component Analysis, heat maps and krona-plots make visualizing sample compositions not only insightful, but also aesthetically pleasing.

Biological Insights

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

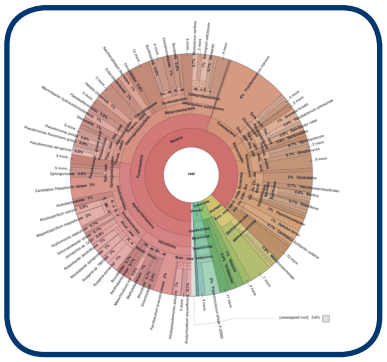
- Taxonomic classification in complex mixtures
- Detailed overview of the prokaryotic composition to family, genus or species level
- Clustering of samples based on similarity of microorganism abundance
- Identification of metagenomic biomarkers
- Determination of statistically significant differences in sample composition between pre-defined groups

More than sequencing

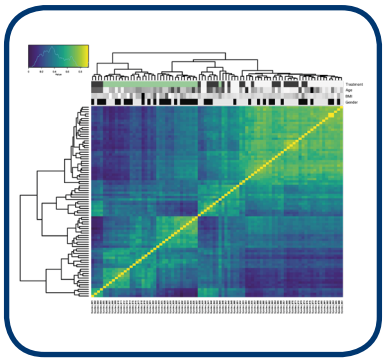
Bioinformatics can be performed allowing more in-depth mining of your dataset. We generate reports that optimally address your research question.

About GenomeScan

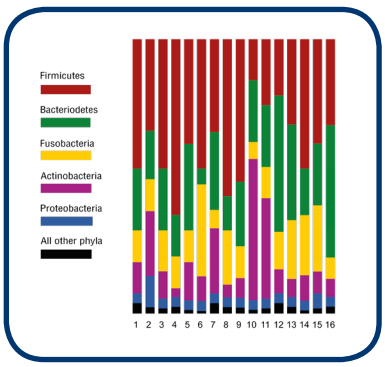
As an ISO-accredited leading Dutch Next Generation Sequencing service provider, GenomeScan develops customizable NGS solutions for pharmaceutical and biotech companies, health care providers and academic institutions. By providing new tools to analyze genetic disorders quicker, affordably and effectively,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



Krona plot for biodiversity



Heatmap



Relative abundance

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