Details

Biological and Medical Research Center; Genomics & Transcriptomics Laboratory (BMFZ-GTL)

The Genomics & Transcriptomics Laboratory (GTL) is operated by the Biological And Medical Research Center (BMFZ), a central scientific facility of the Heinrich-Heine-University Düsseldorf. The GTL is available as a cooperation partner in the field of nucleic acid analysis and also conducts independent research. The GTL can cooperate with internal and external academic research groups and support them in genome and transcriptome analyses. For this purpose, the GTL uses various large-scale instruments for the analysis of DNA and RNA (see listing of scientific instruments). Since 2010, the GTL has been working with a quality management system. The certification according to DIN EN/ISO 9001:2015 (certificate registration no. 01 100 101390) is valid for RNA and DNA quality control (QC), Sanger sequencing, DNA fragment analysis and 'Next Generation Sequencing' (NGS): 'short-read' and 'long-read' technologies, including single cell transcriptome analyses.

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To website

Host Institution

Heinrich-Heine-Universität Düsseldorf (HHUD)
Universitätsstr. 1
40225 Düsseldorf
Nordrhein-Westfalen
Deutschland
https://www.hhu.de/
Universitätsklinikum Düsseldorf (UKD)
Moorenstr. 5
40255 Düsseldorf
Nordrhein-Westfalen
Deutschland
https://www.uniklinik-duesseldorf.de/

Scientific Domain

Primary Subjects:
- Biology
- Medicine

Secondary Subjects:

Category

Genomic, Transcriptomic, Proteomics and Metabolomics Facilities

Scientific Services

The GTL supports internal and external work groups designing sophisticated nucleic acid analyses. The GTL advises on the selection of suitable methods and platforms for the analysis of DNA and RNA. For the analysis of DNA, a central sequencing service based on Sanger sequencing is offered. In addition, subgenomic or genome-wide DNA analyses of simple and more complex samples are carried out using high-throughput DNA sequencing technologies (NGS; Next Generation Sequencing). Global transcriptome analyses are also carried out with the help of NGS-based RNA-Seq methods on short-read and long-read NGS sequencing platforms. The GTL also offers 'single cell' transcriptome and 'spatial transcriptomics' analysis and 'optical mapping' analyses for the detection of large structural variants. Since 2018, the GTL has been part of the West German Genome Center (WGGC) as an NGS production site.

Scientific Equipment

- SeqStudio Flex Genetic Analyzer: Sanger Sequencer
- Illumina MiSeq: NGS short-read system
- Illumina NextSeq2000: NGS short-read system
- Revio and PacBio Sequel-2/2e: NGS long-read system
- ONT GridION and ONT PromethION: NGS long-read system
- Fragment Analyzer Systems (e.g. Femto Pulse): QC of HMW DNA/RNA
- 10X Genomics Chromium: Single cell analysis
- 10X Genomics Chromium iX: Single cell transkriptom analysis
- BD Rhapsody: Single cell transkriptom analysis
- Bionano Saphyr: Optical mapping
- Covaris M220: DNA shearing
- Pippin HT: DNA/RNA size selection
- Megaruptor 2/3: DNA/RNA fragmentation

Keywords

- nucleic acid analysis
- Sanger sequencing service
- NGS short-read sequencing
- NGS long-read sequencing
- whole genome sequencing
- targeted (re-)sequencing
- small / mRNA-Seq and 3' expression analysis
- whole transcriptome sequencing
- PacBio HiFi/CCS sequencing
- ISO-Seq / Mas-Seq analysis
- 16S Microbiom analysis
- differential gene expression analysis
- single cell transcriptome analysis
- spatial transcriptomics analysis
- optical genome mapping analysis

Networks

NGS competence center - West German Genome Center (WGGC)
https://wggc.de

Cluster of Excellence on Plant Sciences (CEPLAS)
https://www.ceplas.eu/en/home/

Users per annum

Internal Users: 300
External Users in total: 32
External Users: 30
External Users in the EU: 2
External Users outside of EU: