UNIVERSITÄT BIELEFELD

OMICS Core Facility – Next Generation Sequencing Unit (in development and expansion)

"Coming together is the beginning. Keeping together is progress. Working together is success."
– Henry Ford

Contact Information:
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Homepage; Publications

Team Omics CF NGS:

Anika Winkler	(Wet lab supervisor; single cell and spatial transcriptomics)
Julia Hassa	(Microbiome analysis; wet lab and bioinformatics)
Dr. Christian Rückert-Reed	(Bioinformatics)

Next Generation Sequencing (NGS) is a game-changing technology in bio, medical and biomedical research.

NGS enables researchers to target any DNA or RNA of interest with targeted and untargeted approaches and protocols for bulk, single cell and spatial analysis, providing invaluable information to answer your research questions.

The NGS unit at Bielefeld University boasts more than 20 years of experience in sequencing, contributing to hundreds of projects and publications and enabling key discoveries by researchers on- and off-site. The Omics CF NGS (in development) is based on this success and expanded the NGS infrastructure and portfolio of methods in the last two years at Bielefeld University.

Our NGS Team (Omics CF NGS and CeBiTec Technology Platform) operates an impressive line of sequencing platforms (Illumina and Oxford Nanopore Technologies), pipetting robots and analytical equipment. Beside routine applications, the team has extensive experience implementing novel protocols and in methodological development to suit your needs.

We are continuously expanding our portfolio of cutting-edge services to remain at the forefront of the technically possible to support your research.

For consultation and assistance in planning of sequencing experiments please contact me and my team at tobias.busche@uni.bielefeld.de and seq-team@cebitec.uni-bielefeld.de.

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SERVICES and TECHNOLOGIES

- High quality and cost-effective services
- Access to state-of-the-art technology
- Expertise in and advice on project strategy and analysis
- Individual solutions
- Consultations on NGS-related questions
- Support for the experimental design of NGS projects
- Quality control and quantification for DNA, RNA and sequencing libraries
- Library preparation including single cell techniques for diverse sequencing applications:
    - RNA sequencing (e.g. mRNA-, totalRNA-, 3'-mRNA-, 5'-mRNA-, miRNA, small RNA, direct RNA-Seq)
    - DNA sequencing (e.g. whole genome, metagenome, plasmid, whole exome, panel, amplicon, cfDNA, targeted seq via cas9 and adaptive sampling)
    - Epigenome (ChIP-Seq, Methyl-Seq, direct RNA and DNA sequencing)
- Short-read sequencing on Illumina MiSeq and NextSeq 2000 sequencers
- Long-read sequencing on Oxford Nanopore MinION, GridION and PromethION platforms
- Single-cell Technologies: 10X Genomics Chromium and Lexogen LUTHOR
- Spatial transcriptomics: 10X Genomics Visium and Nanostring GeoMx
- Differential gene expression analysis via Nanostring Ncounter
- Standardized bioinformatic analysis

The official portfolio above is limited to the most frequently requested services. If the required service or protocol is not listed, please contact us. We will find a customized solution for you.

Ordering and Turnaround time

Services are currently ordered per email to tobias.busche@uni.bielefeld.de and Seq-team@cebitec.uni-bielefeld.de or to the members of the NGS Unit you are already in contact with.

Each service project has to be registered by filling the Project-Form and receiving an individual ID – forms are sent out per email.

The specific ID assigned by the NGS-team to each project is used as a reference for further communication.

Generally, the projects are processed in the order of samples/ libraries reception.

Scheduling of sequencing library preparations for any platform depends on the current workload and equipment availability.

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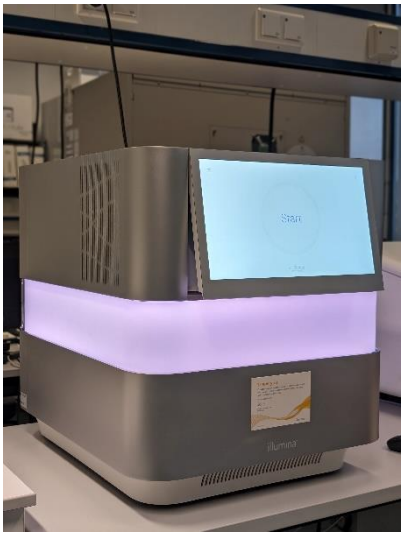
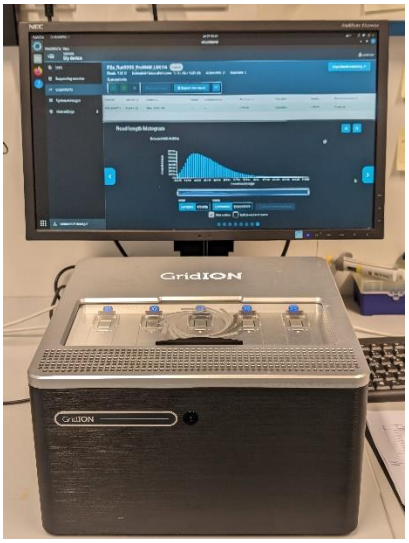
EQUIPMENT Sequencing devices

We are committed to offer our researchers the best suitable equipment to meet their sequencing needs. Currently, we apply different platforms covering a broad range of throughput, read length, flexibility and scalability options:

- Illumina NextSeq 2000, MiSeq
- Oxford Nanopore Technologies (ONT) MinION, GridION and PromethION



Illumina NextSeq 2000



ONT GridION

ONT PromethION2 solo

EQUIPMENT DNA and RNA quality control and quantification:

- Nanodrop
- Xpose
- Qubit
- Agilent Bioanalyzer
- Agilent TapeStation
- Agilent Fragment Analyzer

Further Equipment:

- 10X Genomics Chromium iX
- BioRad QX600 Droplet Digital PCR system
- Hamilton NGS STAR assay-ready workstation (automated library preparation system)
- NanoString nCounter
- NanoString GeoMX
- Roche Light Cycler Pro (IVDR- and RUO mode)