

Modern equipment for your research

ABI Prism 7900 (Applied Biosystems)

- Optimized TaqMan QPCR assays
- TaqMan Low-Density-Arrays or PCR plates
- TaqMan SNP genotyping

CEQ 8000 Capillary Sequencer (BeckmanCoulter)

- Gene sequencing for mutation and SNP detection
- Fragment analysis (STR, chimeric analysis)
- Gene expression profiling (GeXP)

Geniom RT Analyzer and Biochips (Febit Biomed)

- microRNA profiling (human, other species)
- Whole genome analysis
- Customized biochips for pathogen typing

Bio-Plex 100 (Bio-Rad)

- Cytokine profiling by multiplex-ELISA
- Phosphorylation status evaluation by multiplex-ELISA
- MicroRNA profiling by FlexmiR technology
- Gene expression profiling

DSX ELISA Pipetting Robot (Dynex)

- Automated processing of single parameter ELISA

Surgical Pathology Laboratory Equipment (Leica)

- Tissue embedding and paraffin block preparation
- Rotary microtome for paraffin sections
- Autostainer for histological stains
- Cryostat for cryo sections
- Light and fluorescence microscope
- Digital imaging analysis system

Gene expression analyses

(Applied Biosystems, BeckmanCoulter)

Whole genome array (Febit)

SNP Genotyping by QPCR and Sequencing

(Applied Biosystems, BeckmanCoulter)

MicroRNA profiling

(Applied Biosystems, FEBIT, Luminex)

Molecular Virology

Cytokine profiling and phospho-proteins

(Biorad, Invitrogen)

Histology

Immunohistochemistry

Customer Diagnostics

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Innovative Diagnostics

IKDT Innovative Diagnostics as one of the first service providers in Europe offers the prompt access to two innovative technologies – GENIOM Biochips (febit biomed, Heidelberg, Germany) and Taqman Low-Density-Arrays (Applied Biosystems, Darmstadt, Germany) for gene expression studies or microRNA profiling. Applying bead-based multiplexing technology (Luminex, Austin, USA) our service portfolio includes additionally multiplex measurement of cytokine and immunological profiles, microRNA sets and transcriptome panels by test systems from different suppliers for research projects, clinical trials or molecular diagnostics.

miRNA profiling and whole genome analysis by GENIOM biochips (febit biomed, Heidelberg)

GENIOM biochips are a flexible platform for design of general chip layouts (whole genome arrays, microRNA profiling) and customized set-ups for individual research approaches like microbial typing (bacteria, fungi) or for combined analysis of two or more species (human, mouse, virus) in one sample. The GENIOM biochips contain 8 arrays with up to 15.000 probes. Currently available are pre-designed probes for gene expression analysis and microRNA profiling of more than 20 species which can be placed on customized biochips. IKDT is able to measure your GENIOM biochips by its own GENIOM RT Analyzer and in-house adapted labeling protocols.



Fig. GENIOM RT Analyzer and chip (Source: febit biomed)

Semi-quantitative identification of miRNA profiles

microRNAs (micros = greek, small) are short ribonucleic acid molecules, that have an important role in the complex network of gene regulation especially in gene silencing. They specifically bind messenger RNA and control the gene expression through regulating mRNA stability and translation. Today more than 1000 different human miRNA sequences are known. The miRNA profiling biochip always contains all published human miRNAs from the newest version of the Sanger mirbase database. 8 individual samples can be examined in parallel on one biochip. Therefore the miRNAs will be directly labeled and analyzed without amplification.

Transcriptome analysis by whole genome microarrays

RNA expression profiling plays a fundamental role in clinical research as well as in other research fields such as developmental biology, stem cell research, virology or microbiology. GENIOM biochips for whole genome analysis of your samples will be performed in IKDT by fully automated microarray processing.

TaqMan Low-Density-Arrays (TLDA) for microRNA profiling, SNP screening and gene expression analysis

IKDT Innovative Diagnostics is offering its service on performing gene expression studies and microRNA profiling by validated TaqMan QPCR assays or TaqMan QPCR Low-Density-Arrays on Micro-Fluidic-Cards (Applied Biosystems) for simultaneous detection of up to 384 genes or microRNAs in a single sample, including RNA isolation, preamplification technologies and final evaluation of expression data.



Fig. Micro-Fluidic-Card (Source: Applied Biosystems®)

Advantage of TaqMan Low-Density-Arrays for Gene expression studies

- Optimized TaqMan QPCR systems for quantification of gene expression (currently available more than 4.000.000 systems)
- Sets for different species (human, mouse, rats, C. elegans)
- fast, precise, reliable

Quantitative measurement of microRNA profiles with Taqman Low-Density-Arrays

The TaqMan Array Human MicroRNA Card Set is a two card set containing a total of 384 microRNA assays per card. The set enables accurate quantitation of 754 human microRNAs in less than 5 hours. Confirmation of regulated microRNAs can be performed by individual TaqMan microRNA assays (more than 900 systems for human).



Fig. ABI Prism 7900 and screenshot of TLDA analysis

SNP genotyping by TaqMan QPCR assays

Applying optimized TaqMan SNP Genotyping Assays (Applied Biosystems) we will be able to detect specifically SNPs in your purified genomic DNA. Today are 4.5 million pre-designed TaqMan SNP assays available for most of all published SNPs in human and other species. This is an ideal method for validating and screening a low to medium number of SNP markers or few SNPs in a large number of samples.

Gene sequencing and fingerprinting for SNP screening and fragment analysis

Capillary electrophoresis for genetic analysis allows the direct read out of genomic sequence for mutation and SNP detection.

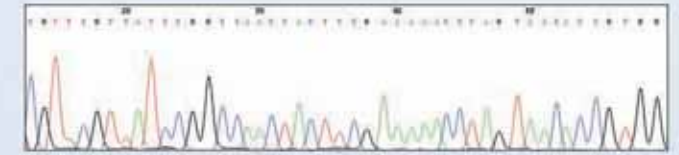


Fig. Sequence fragment Cocksackievirus

Extending the full power of this technology IKDT Innovative Diagnostics is offering additionally fingerprinting analysis for authentication and quality control of your cell lines and biological samples for your biomedical research. Adapted fragment analysis protocols can be used for gene expression studies, pathogen typing and search for genetic alterations.

Multiplex technology for protein or microRNA profiling

IKDT Innovative Diagnostics open you the direct access to Luminex's xMAP Technology. It is a bead-based multiplexing technology which allows to measure multiple parameters in one sample quickly, cost-effectively and accurately. Colored microspheres can be coupled with proteins, antibodies or nucleic acids and used in different biomedical applications.

Cytokine expression and phosphor-protein detection in patient plasma or sera

Immune response induced by injury, inflammation or infectious agents is managed by a complex network of cytokines and chemokine. Measurement of cytokine profiles is offered by conventional, single parameter ELISA or Multiplex-ELISA for various scientific questions. Upto 57 human chemokines and cytokines in one sample could be measured quantitatively by bead-based multiplex-ELISA.

Multiplexing is a optimal tool for fast evaluation of the phosphorylation status of phosphoproteins and target proteins for analysis of signaling pathways in lysates derived from cell culture or tissue samples.

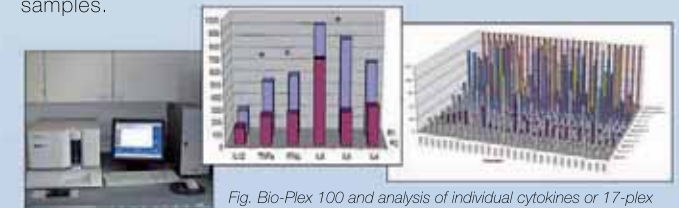


Fig. Bio-Plex 100 and analysis of individual cytokines or 17-plex

MicroRNA profiling by FlexmiR

The FlexmiR v2 multiplex microRNA assay (Luminex) is an easy-to-use, highly sensitive and specific method for microRNA detection and quantitation based on xMAP technology. Panels of upto 50 customer selected microRNAs could be detected in parallel in one sample within in 4-5 hours. MicroRNA profiling is possible in total RNA isolated from tissue, blood cells or sera.