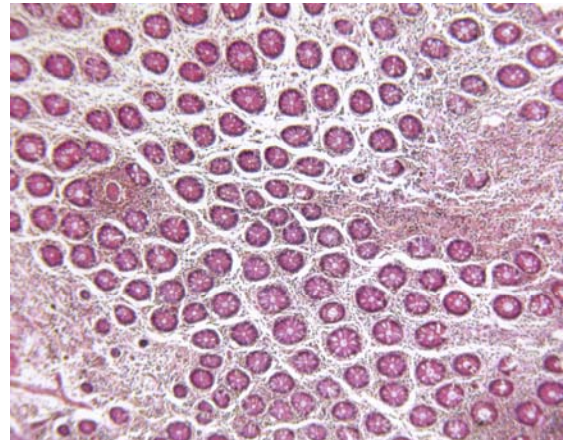


BIOMARKER DISCOVERY CENTER HEIDELBERG



EXCELLENCE CLUSTER

The Biomarker Discovery Center Heidelberg (bdc) was initiated by febit biomed GmbH as part of the Biotech Excellence Cluster Rhine Neckar (BioRN). As one of the top 5 high tech clusters in Germany, the BioRN was recently granted 40 million Euros in funding by the BMBF. The Center is a novel platform for innovative genomic biomarker discovery and validation studies based on cutting-edge molecular profiling and Next Generation Sequencing technologies.

Integrating the medical expertise of clinical researchers and the technological advances provided by febit enables scientific and clinical institutions to perform large scale biomarker studies and benefit from the collective knowledge.

BIOMARKER DISCOVERY AND VALIDATION

The bdc facilitates the accomplishment of clinical case-control studies with established biomarker testing methods routinely applied to any disease of interest.

With the discovery of biomarkers and the development of predictive or diagnostic signatures these studies have the potential to provide the basis for early diagnostic testing, detection and assessment of disease progression.

This is essential for successful disease management, especially in tumor patients, where timely therapeutic interventions are extremely critical.

bdc studies currently focus on targeted high-throughput next generation sequencing as well as on miRNA based Biomarker signature studies. These studies are based on febit's technology and services for successful biomarker discovery, screening approaches and validation processes.

With the established Geniom microRNA Biochips and as an official ABI service provider offering next generation sequencing on the ABI SOLiD platform as well as quantitative RT-PCR on the TaqMan system, febit is the ideal partner for your biomarker study.

Diseases currently covered by bdc studies include:

Lung cancer	Pancreatic cancer
Prostate cancer	Melanoma
Ovarian cancer	Wilms tumor
Multiple Sclerosis	Heart disease
Pancreatitis	Sarcoidosis
Periodontitis	Glioma
COPD	Psoriasis

STUDIES

Recent developments in genomic research and in the field of non-coding RNAs such as microRNAs offer new approaches to disease screening based on genetic biomarkers. bdc supported case-control studies examining genomic as well as transcriptional changes in patients compared to healthy probands enable the development of diagnostic biomarker signatures. The goal of this joint screening program is to detect human diseases such as cancer at an early stage and optimize treatment with personalized patient care.

miRNA-BASED BIOMARKERS A NOVEL CLASS OF BIOMARKERS

The role of miRNAs in pathogenesis and the power to associate expression changes with disease states underscores their value as molecular biomarkers.

miRNA biomarker profiling based on high-throughput technologies like febit's microfluidic microarrays enables highly sensitive analysis from limited clinical sample material, such as blood or other body fluids.

The bdc offers full support to set up comprehensive miRNA studies including study design, experimental workflow and biostatistical analysis of the results.

BioRN GRANT PROJECT:

The goal of the federal grant project 'miRNA-based Tumor Signatures (BMC-05)' is the identification and validation of promising miRNA and non-coding RNA biomarkers. Established by the scientific basis in pancreas and prostate cancers, glioma, as well as gastrointestinal tumors, this project aims at the development of effective miRNA-based tumor signatures.

THE bdc EXPERTISE

- Disease screening based on genomic biomarkers (RNA & DNA Biomarkers)
- Cutting-edge technologies
 - tNGS Sequencing
 - miRNA Profiling
- Large scale genomic studies
- Technological dexterity
- Medical diagnostic experience

TARGETED HT SEQUENCING DNA CAPTURE FOR NGS

Targeted high-throughput sequencing is based on HybSelect, febit's microarray-based sequence capture strategy for highly efficient enrichment of genomic target regions.

Combining HybSelect with ABI's SOLiD NGS System in one streamlined, targeted NGS pipeline represents a powerful facility to resequence large genomic regions in hundreds of samples quickly and economically.

BioRN GRANT PROJECT:

For the project 'High-Throughput Molecular Profiling (BMC-03)' the presented tNGS platform is applied in combination with barcoding technology. Molecular barcodes allow parallel processing as well as the confident identification and tracking of samples; dramatically increasing throughput while reducing cost per sample and patient.

Aided by a federal grant, these bdc projects are subject to the guidelines of the German Ministry of Education and Research

PUBLICATIONS

Peer reviewed journal articles

miRNAs in lung cancer - Studying complex fingerprints in patient's blood cells by microarray experiments

A. Keller, P. Leidinger, A. Borries, A. Wendschlag, F. Wucherpfennig, M. Scheffler, H. Huwer, H.-P. Lenhof and E. Meese
BMC Cancer 2009, 9:353doi:10.1186/1471-2407-9-353

A dictionary on microRNAs and their putative target pathways

C. Backes, E. Meese, H.-P. Lenhof and A. Keller
Nucleic Acids Research 2010, 1-11, doi:10.1093/nar/gkq167

Multiple Sclerosis: MicroRNA Expression Profiles Accurately Differentiate Patients with Relapsing-Remitting Disease from Healthy Controls

A. Keller, P. Leidinger, J. Lange, A. Borries, H. Schroers, M. Scheffler, H.-P. Lenhof, K. Ruprecht, E. Meese
PLoS ONE, October 2009, Volume 4, Issue 10, e7440

Invited journal articles

miRNA Biomarkers From Blood – A Promising Approach for Minimally Invasive Diagnostic Testing

J. Lange, P. Leidinger, T. Oehler, A. Keller, E. Meese
Geburtsh. Frauenheilk. 2010; 70: 137–141

microRNA-Profil als Diagnosemethode

A. Keller, H.-P. Lenhof, I. Amarantos, A. Bauer, N. Giese, J. Hoheisel, P. Leidinger, E. Meese
Laborwelt, 11. Jahrgang, Nr. 1/2010, 33

PARTNERS / NETWORKING

The bdc expertise is built on expert networks, advanced technology and the consolidated knowledge.

New bdc partners and study initiations beyond the existing federal grant projects are highly welcome!

INTERESTED IN A COLLABORATION?

PLEASE INQUIRE!