German Center for Lung Research

Deutsches Zentrum für Lungenforschung - DZL

Board of Directors:

Werner Seeger
Oliver Eickelberg
Marcus Mall
Klaus Rabe
Tobias Welte
The German Centers of Health Research


6 German Centers of Health Research form the core of the program

200 Mio € p.a. for the Centers, funded by the Federal Ministry for Education and Research (BMBF) (90%) and the host States (10%); long term „institutions“ envisioned

2009:
- German Center for Diabetes Research (DZD)
- German Center for Neurodegenerative Diseases (DZNE)

2011:
- German Center for Cardiovascular Research (DZHK)
- German Center for Infection (DZI)
- German Consortium for Translational Cancer Research (DKTK)
- German Center for Lung Research (DZL)
German Centers of Health Research

- Deutsches Zentrum für Herz-Kreislauf-Forschung (DZHK)
- Deutsches Zentrum für Infektionsforschung (DZIF)
- Deutsches Zentrum für Lungenforschung (DZL)
- Deutsches Konsortium für Translationale Krebsforschung (DKTK)
- Deutsches Zentrum für Diabetesforschung (DZD)
- Deutsches Zentrum für Neurodegenerative Erkrankungen (DZNE)
DZL Sites - Directors and Coordinators

- **ARCN**
  - Klaus Rabe, Jörn Bullwinkel
- **BREATHE**
  - Tobias Welte, Annegret Zurawski
- **UGMLC**
  - Werner Seeger, Sylvia Weissmann
- **TLRC-H**
  - Marcus Mall, Birgit Teucher
- **CPC-M**
  - Oliver Eickelberg, Antje Brand

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- **DZL CENTRAL**
  - Werner Seeger, Megan Grether, Sabine Baumgarten
- **DZL Financial Administration**
  - Nikolaus Blum, Stefan Echinger

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MHH, Bad Pyrmont, February 08th, 2013
Mission Statement of the DZL

Translational Research to Combat Widespread Lung Diseases
DZL: Focus on Translational Research

Translational Research: “Practice not Promise”

“Research Pentagon”

Internationally Renowned Expertise

MHH, Bad Pyrmont, February 08th, 2013
Most cited authors in Europe: 6/30 = DZL Faculty Members
Most cited papers: 3/5 = DZL based

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DZL: Focus on Translational Research

Translational Research: “Practice not Promise”

“Research Pentagon”

Internationally Renowned Expertise

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Disease Areas in Focus of the DZL

• Asthma and Allergy (AA)
• Chronic Obstructive Lung Disease/Emphysema (COPD)
• Cystic Fibrosis (CF)
• Pneumonia and Acute Lung Injury (ALI)
• Diffuse Parenchymal Lung Disease (DPLD)
• Pulmonary Hypertension (PH)
• Endstage Lung Disease (ELD)
• Lung Cancer (LC)
Unifying Scientific Concept
DZL Research Focus

Generation
Regeneration
Repair

- Stem/progenitor cells
- Signaling in morphogenesis
- Role in pathological remodeling
- Explicitation for reverse remodeling and regeneration

Inflammation
Resolution
non-infectious
infectious

- Initiation, spatial control and termination of inflammatory sequelae
- Control of mucus hypersecretion, goblet cell metaplasia and airway liquid homeostasis
- Harnessing for anti-inflammatory, anti-obstructive and resolution promoting therapy and tissue repair

Hyperproliferation
benign
malignant

- Control of pulmonary cellularity and matrix homeostasis
- Dissection of cellular and molecular players driving benign and malignant hyperproliferation
- Identification of targets for innovative therapies

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Concerted Translational Strategy

Generation Regeneration Repair

Inflammation Resolution non-infectious infectious

Hyperproliferation benign malignant

Disease cohorts, epidemiology, health care
„Deep phenotyping“, clinical pilot trials, phase II/III trials, exploitation and implementation
Biobanking, human repositories, biomarker studies
Preclinical trials and pulmonary pharmacotherapy
Pathophysiology and disease models
Developmental and system biology
Functional genomic and cellular phenotypes (incl. stem cells)
Molecular signatures and target structures
Disease Area:
Asthma and Allergy (AA)

• **Coordinators:**
  - H. Fehrenbach, E. von Mutius

• **Contributing Partner Sites:**
  - ARCN, BREATH, UGMLC, TLRC-H, CPC-M
AA - Research Strategy

Candidate-based Approach
- Models: Cells, Tissues, Animals
- Novel Targets
- Phase I/II Clinical Trials

Molecular & Cellular Mechanisms

Systematic Approach
- Deep Phenotyping
- Biomarkers Biomonitoring

Clinical Cohort
AA – Major Research Goals

• Design phenotype-specific (individualized) therapies
• Identify novel phenotypic targets and biomarkers for diagnosis, prognosis, monitoring and therapy
• Characterize selected asthma phenotypes using high-throughput platforms for deep phenotyping (genome, transcriptome, proteome, lipidome, microbiome)
• Establish a clinical cohort of well-characterized asthma patients to be investigated over time
• Evaluate candidate targets/biomarkers in novel (transgenic) fly, mouse, monkey models of distinct asthma phenotypes
• Identify phenotypic key factors in cellular and molecular pathomechanisms of distinct asthma phenotypes

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Disease Area: Chronic Obstructive Lung Disease/Emphysema (COPD)

• **Coordinators:**
  – K.F. Rabe, C. Vogelmeier

• **Contributing Partner Sites:**
  – ARCN, BREATH, UGMLC, TLRC-H, CPC-M
# COPD Research Strategy

## Focus

| Clinical studies          | Novel therapeutic targets  
|                          | Patient related outcomes 
<table>
<thead>
<tr>
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| Cohorts                   | Structure/function relationships  
|                          | Activity                   
|                          | Innovative diagnostic approaches  
|                          | Biomarkers                 
|                          | Phenotyping                |
| Models                    | Genetic/epigenetic regulation  
|                          | Structural lung cells      
|                          | Neurons                    
|                          | Innate/adaptive immune system  
|                          | Remodeling                 
|                          | Repair/regeneration         |
COPD – Major Research Goals

• To improve healthcare delivery, to develop appropriate targeted interventions and to define frameworks for an objective outcome evaluation.

• To perform investigator initiated and/or industry sponsored early clinical trials e.g. regarding endobronchial application techniques of therapeutic drugs and interventional endoscopic management.

• To develop and/or utilize several cohorts for a better understanding of respiratory health and COPD prevalence in Germany, the natural course in early stages and the consequences of the disease.

• To establish the measurement of physical activity as a relevant COPD endpoint.

• To identify biomarker candidates and fingerprints that can be further assessed and validated.

• To elucidate molecular mechanisms of remodelling, regeneration and repair in COPD animal models and patient tissues and to validate candidate genes as targets for novel therapeutic strategies.

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Disease Area: Cystic Fibrosis (CF)

- **Coordinators:**
  - M. Mall, B. Tümmler

- **Contributing Partner Sites:**
  - BREATH, UGMLC, TLRC-H

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CF Research Strategy

Clinical Studies
Early surveillance and therapeutic intervention in CF lung disease
CF infant cohort diagnosed by newborn screening (registry, biobank)
Longitudinal monitoring and early phase clinical trials
**CF airways microbiome**
Mechanisms of chronic polymicrobial infection
Culture-independent characterization of CF microbiome (NGS)

Basic studies
- CF modifier genes and epigenetic programming
- Informative patient cohorts
- Preclinical evaluation of novel therapeutic strategies
- Animal models and primary airway cells

Translational studies
- CFTR function outcomes
  - nPD, ICM, protein analyses
  - Airway morphology and function outcomes
  - Pulmonary MRI, MCC

Therapeutic strategies

Outcome measures

CF Airway

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CF – Major Research Goals

• Establish a CF infant cohort for studies of early CF lung disease and clinical evaluation of novel preventive/early therapeutic interventions
• Elucidate the CF airways microbiome to test new paradigms of polymicrobial infection
• Develop and standardize sensitive outcome measures for CFTR and airway function for upcoming CFTR potentiator and corrector trials
• Establish and provide a pipeline for rapid preclinical evaluation of novel therapeutic strategies
• Elucidate epigenetic programming in CF
• Identify and validate CF modifiers in patient cohorts and animal models
Disease Area: Pneumonia - Acute Lung Injury/ARDS (ALI)

- **Coordinators:**
  - J. Lohmeyer, T. Welte

- **Contributing Partner Sites:**
  - ARCN, BREATH, UGMLC, TLRC-H, CPC-M
ALI Research Strategy
ALI – Major Research Goals

- Genetic/epigenetic/transcriptomic/proteomic/miRNA signatures as biomarkers for individualized ALI treatment
- Preclinical/clinical development of local-progenitor/stem cell-based ALI repair strategies
- Novel protein-based immunisation strategies and non-antibiotic targets for ALI prevention and treatment
- Preclinical evaluation of targeted and spatially/temporally restricted interventions to attenuate lung injury preserving host defense and repair capacity
- Cell-specific in-vivo and in-vitro dissection of lung immune responses during infection
- Lung cell-specific role of pattern (microbes, damage) recognition receptors (PRR)
Disease Area: Diffuse Parenchymal Lung Disease (DPLD)

• Coordinators:
  – O. Eickelberg, A. Günther

• Contributing Partner Sites:
  – BREATH, UGMLC, TLRC-H, CPC-M
DPLD Research Strategy

**Strategic activities**
- Patient cohorts, Biobank, Biomarkers
- Animal models, Health economics
  - CPC-M, UGMLC, BREATHE

**Stem cells and regenerative therapies**
- BASC, Fibrocytes, MSC, AEC II
  - UGMLC, CPC-M, BREATHE

**Respiratory infections**
- BREATH, UGMLC, CPC-M

**Developmental signaling pathways**
- CPC-M, UGMLC

**Trigger mechanisms and epithelial apoptosis**
- BREATH, UGMLC, CPC-M

**Cellular plasticity**
- EMT and fibroblast activation
  - Dendritic and mast cells activation
  - BREATH, UGMLC, CPC-M

**Injury** → **Fibrosis**
DPLD – Major Research Goals

- **Strategic activities:**
  Cohorts, biobanks, biomarkers, predictive animal models, health economics

- **Trigger mechanisms:**
  ER- and lysosomal stress; alveolar type II cell apoptosis and autophagy

- **Developmental signaling pathways:**
  Wnt, Notch, and FGF signaling

- **Cellular plasticity and crosstalk:**
  EMT, fibroblast activation and migration, dendritic and mast cells

- **Second hits:**
  Respiratory infections

- **Stem/progenitor cells:**
  MSC, iPS, BASC, alveolar type II cells, circulating fibrocytes

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Disease Area: Pulmonary Hypertension (PH)

- **Coordinators:**
  - H.A. Ghofrani, R.T. Schermuly

- **Contributing Partner Sites:**
  - ARCN, BREATH, UGMLC, CPC-M
PH - Research Strategy

Work program
- Hypoxia, ROS signaling, Ca-channels
  - NADPH oxidases, Mitochondria
  - TRPC-, Orai-channels
  - UGMLC, CPC-M
- Animal models of nonPAH-PH
  - COPD-PH (cigarette smoke, elastase)
  - IPF-PH (bleomycin, HPS-mice)
  - CTEPH (microspheres, beads)
  - LHF-PH (aortic banding)
  - ARCN, CPC-M, UGMLC
- Abnormal proliferation
  - TGF-β, BMP
  - TK/Growth factors (PDGF, GDF15)
  - Imatinib, Sunitinib, Sorafenib
  - Transcription factors/microRNAs
  - Antagonists
  - BREATH, CPC-M, UGMLC
- Dysregulation of vascular tone
  - NO-gS GC-cGMP-PDE axis
  - Sildenafil, Riociguat
  - BREATH, UGMLC
- Regenerative medicine
  - Loss of precapillary vessels
  - Endothelial progenitor cells (EPC)
  - BREATH, UGMLC
- Right heart centered therapy
  - Impairment of function and structure in PAH
  - Heart development and
  - Pulmonary Artery Banding in mice
  - BREATH, UGMLC
- Biomarkers
  - Genomics, Proteomics, SILAC
  - Validation in PAH, nonPAH-PH
  - GDF15, sFLT, mRNAs, Ang-1/2
  - BREATH, UGMLC

Vascular obstruction

Healthy → Clinical trials
- Tki, sGC, PDEI, Antagonists, EPC...
  - ARCN, BREATH, CPC-M, UGMLC

Disease

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PH – Major Research Goals

- **Translation** into proof-of-concept and larger scale **clinical trials**, to improve long-term outcome and allow for **individualization** of therapeutic strategies.

- Fostering **regenerative treatment strategies**, including endothelial progenitor cell-based revascularization of the lung.

- Development and refinement of tailored **anti-remodeling** and **reverse-remodeling strategies**.

- **Characterization** of phenotypic commonalities and differences between patients with **different forms of PH**, utilizing large scaled comprehensive **databases**.

- **Identification** and characterization of **key molecular and cellular players** driving maladaptive **vascular remodeling** in different forms of PH.

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Disease Area: Endstage Lung Disease (ELD)

- **Coordinators:**
  - A. Haverich, R. Voswinckel

- **Contributing Partner Sites:**
  - BREATH, UGMLC, CPC-M
ELD – Major Research Goals

• **Transplantation:** Refine transplantation towards optimized long term function by avoiding acute (five years) and chronic rejection (10 years)

• **ECMO:** Optimizing ECMO therapy via improved membrane surface and cannulation techniques (five years) towards fully implantable (biofunctionalized) lungs (10 years)

• **Regeneration:** Regeneration of the diseased lung by cell therapy (5-10 years) towards tissue engineering of the entire organ (beyond 10 years)

• **Ex vivo lung perfusion:** Autotransplantation of the lung after ex vivo treatment during ECMO support of the recipient (5-10 years)

• **Education:** Establishment of a Postgraduate School of Extra-Corporeal Circulation for training of health care personnel and physicians

• **Healthcare Management:** Comparative healthcare assessment including quality of life and cost analyses for various disease subsets and after replacement therapies
Disease Area: Lung Cancer (LC)

• **Coordinators:**
  - U. Klingmüller, M. Thomas

• **Contributing Partner Sites:**
  - ARCN, BREATH, TLRC-H, CPC-M
LC – Research Strategy

Risk Factors → Lung Cancer Progression → Prevention

Diagnosis

Therapy

LC-1 Risk

LC-2 Transition

LC-3 Early Spread

LC-4 Recurrence

LC-5 Resistance

Clinical Cohort

Molecular Profiling

Epigenetics

Imaging

Systems Biology

Clinical Trials

Novel Preventive Strategies

Novel Diagnostics

Novel Therapeutics

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LC – Major Research Goals

• Knowledge based optimization of an early clinical trial pipeline
  - Validation of treatment efficacy
  - Development of predictive diagnostics and individualized treatment regimes

• Development of sequential biomaterial acquisition in clinical cohorts
  - Assessment of alterations indicative for tumour progression and therapy resistance

• Identification of dynamic properties promoting early spread, therapy resistance and recurrence
  - Prediction of targets for intervention and impact of novel compounds

• Establishment of biomarkers for lung cancer risk and transition
  - Improvement of risk prediction and prevention
  - Early detection of malignant transition

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Platforms of the DZL

- Biobanking
- Imaging
- Clinical Trial Board
- French-German Lung School
- Exploitation
- Lung Information Service
Biobanking

• Implementation of a DZL biobanking portal
  - Connected to „Technology and Methods Platform for Network Research in Medicine“ (TMF e.V.) and „Biobanking and Biomolecular Resources Research Infrastructure“ (BBMRI) catalogues
  - Comprehensive overview on existing biomaterials, kind and storage location and contact address, consent level, existing ethics votes and phenotyping data

• Harmonisation of operating procedures and policies
  - Informed consent, procurement, collection, labelling, registration, processing, storage, tracking, retrieval, transfer, use and destruction

• Harmonisation of phenotyping tools
  - Central, non-disease related module plus disease-specific extension modules
  - Link to or integration of radiographic and digitalized pathological data
Imaging: Radiology + Microscopy

- To ensure quality, comparability and translation of results between partner sites as well as preclinical, translational and clinical studies and trials
- Guidance and coordination of projects involving imaging
- Stratification of multiplex, whole range of resolution imaging to serve novel endpoints
- Central administration, standardization, policies and QM
  - Comprehensive ethical and legal framework
  - Implementation of rules for good scientific practice
- Core to share, offer and disseminate imaging technology
- Training in imaging as part of the Lung School
Clinical Trial Board

• Excellence-based selection process for co-funding of clinical trials starting in 2013

• Investigators submit trial synopsis to the Clinical Trial Board
  Study protocol and rational, risk-benefit evaluation, statistical analysis plan and power calculation, information on additional funding, advice from competent authorities, IP and feasibility assessment

• First selection of best applications by the Managing Board 1/2013
# Clinical Trial Board - Funded Studies

<table>
<thead>
<tr>
<th>Coordinating Investigator(s)</th>
<th>Study Title</th>
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<tbody>
<tr>
<td>Marcus A. Mall</td>
<td>Rondomized, double, controlled pilot study on safety of hypertonic saline as preventative inhalation therapy in newborn patients with cystic fibrosis</td>
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<tr>
<td>Michael Thomas, Rudolf M. Huber</td>
<td>Comprehensive characterization of Non Small Cell Lung Cancer (NSCLC) by integrated clinical and molecular analysis</td>
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<td>Robert Voswinckel, Claus Vogelmeier</td>
<td>Clinical validation of the iNOS – EMAPII axis as biomarkers, predictors and novel targets in COPD</td>
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<td>Claus Vogelmeier</td>
<td>Clinical study to investigate safety, tolerability, efficacy, pharmacokinetics and pharmacodynamics of multiple doses of the human GATA-3-specific DNAzyme solution SB010 in patients with moderate to severe COPD – A randomised, double-blind, parallel, multicentre, pilot study</td>
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</table>
French-German Lung School

- Initiative selected by the French and German Ministries for Research
- General application accepted - detailed application to be filed
- Umbrella programme to include French (INSERM) and German (DZL centers) graduate students and early post-docs engaged in lung research: winter and summer schools organized by the CPC-M for the DZL
- Tandem projects of „post-doc couples“ working mutually on a topic in both an INSERN and a DZL lab (5 post-doc couples financed) – lab space exchange part of the program
- Start envisioned in 2013
Core Facilities at the Various DZL Sites

- Genetics
- Transcriptomics/Epigenetics/microRNA
- Lipidomics/Metabolomics/Proteomics
- Microbiome
- Phase I/IIa Trial Centre
- GLP Animal Facility
- Lung Stem Cell and Transfection Unit
- Aerosol Technology and inhalation chambers
- Systems Biology
- Animal Models in all Disease Areas
UGMLC: University of Giessen and Marburg Lung Center

- Director/Coordinator
  - Werner Seeger, Sylvia Weissmann
- UGMLC Sites
  - University Giessen, University Marburg, Max-Planck Institute for Heart and Lung Research BN
- Faculty Members: 55
- Disease Area Involvement
  - AA, COPD, ALI, DPLD, PH, ELD
- Platform Leadership
  - Central Management, Biobanking
- Specific Profile, Assets
  - Excellence Cluster ECCPS, LOEWE Center UGMLC, two Collaborative Research Centers in (SFB) Lung Research, two DFG/BMBF financed Clinical Research Units

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DZL Sites - Directors and Coordinators

- **ARCN**
  - Klaus Rabe, Jörn Bullwinkel
- **BREATHE**
  - Tobias Welte, Annegret Zurawski
- **UGMLC**
  - Werner Seeger, Sylvia Weissmann
- **TLRC-H**
  - Marcus Mall, Birgit Teucher
- **CPC-M**
  - Oliver Eickelberg, Antje Brand
- **DZL CENTRAL**
  - Werner Seeger, Megan Grether, Sabine Baumgarten
- **DZL Financial Administration**
  - Nikolaus Blum, Stefan Echinger

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ARCN: Airway Research Center North

- **Director/Coordinator**
  - Klaus F. Rabe/Jörn Bullwinkel

- **ARCN Sites**
  - University Lübeck, University Kiel, Research Center Borstel, LungenClinic Grosshansdorf

- **Faculty Members:** 24

- **Disease Area Involvement**
  - AA, COPD, LC, ALI, PH

- **Platform Leadership**
  - Imaging

- **Specific Profile, Assets**
  - Expertise in Clinical Studies, Animal Models and Imaging; Association with DFG Cluster of Excellence „Inflammation at Interfaces“ and Biobank popGen

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BREATH

- **Director/Coordinator**
  - Tobias Welte, Annegret Zurawski

- **BREATH Sites**
  - Medizinische Hochschule Hannover, Hannover University
  - Fraunhofer Institute of Toxikology and Experimental Medicine

- **Faculty Members:** 34

- **Disease Area Involvement**
  - AA, CF, COPD, ALI, DPLD, PH, ELD

- **Platform Leadership**
  - Clinical Trials

- **Specific Profile, Assets**
  - Clinical Research Center for Phase I and early Phase II Trials

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TLRC-H: Translational Lung Research Center Heidelberg

- **Director/Coordinator**
  - Marcus A. Mall, Birgit Teucher

- **TLRC-H Partners**
  - University of Heidelberg, Heidelberg University Hospital, Thoraxklinik at Heidelberg University Hospital, German Cancer Research Center, European Molecular Biology Laboratory

- **Faculty Members:** 23 (including 2 DZL Junior Research Group Leaders)

- **Disease Area Involvement**
  - CF, COPD, LC, ALI

- **Platform Leadership**
  - Imaging, Biobanking

- **Specific Profile, Assets**
  Interdisciplinary disease-oriented research center with focus on chronic inflammatory and malignant airway diseases. Faculty with leading roles in collaborative BMBF, DFG and EU projects (CARPuD, AsCoNet, LungSys, LUCI Germany, CANCERALIA). Strength in animal models, lung imaging, systems biology and biobanking
CPC-M: Comprehensive Pneumology Center Munich

- **Director / Coordinator**
  Oliver Eickelberg / Antje Brand

- **CPC-M Sites**
  Helmholtz Zentrum München, Ludwig Maximilians University (LMU), LMU University Hospital, Asklepios Fachkliniken Gauting

- **Faculty Members:** 33

- **Disease Area Involvement**
  AA, COPD, CF, ALI, DPLD, PH, ELD, LC

- **Platform Leadership**
  DZL School, Exploitation

- **Specific Profile, Assets**
  Strong translational profile (separate CPC outpatient unit), SMAF – Small Animal Facility for (transgenic) animal models of chronic lung disease, faculty involved in 2 DFG excellence clusters (MAP, NIM), EU-COST network „Early origins of lung disease“, Helmholtz-INSERM cooperation, Large Birth/Epidemiological Cohorts, Cellular (Live) Imaging

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CAPNETZ Foundation

- CAPNETZ Foundation: German Competence Network for Community Acquired Pneumonia (CAP) is the largest prospective surveillance study on CAP worldwide
- > 10,000 CAP patients recruited to date
- As of January 2013 CAPNETZ is an associate partner of the DZL
- For more details and information, see CAPNETZ poster (on display during both poster sessions)
CAPNETZ LCCs and Recruitment since 2002

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As of 24.01.2013
# Stored Bio-samples

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Interdependencies
Interdependencies

School

Training and education

Exploitation

Clinical trials

Translation to patients

Imaging

Morphology and function

Disease Areas

Lung Information Service

Tissue procurement and banking

Biobank

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Interdependencies

DZHKG

DZL

DKTK

PH

LC

AA

ALI

DPLD

CF

COPD

DZIF

Vascular disease

Tumor pathogenesis

Host-pathogen interactions

Microbiology

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Site Specific Transfer Organisations

- Ascenion
- TransMIT
- DFKZ Technologietransfer
- Technologie Transfer Heidelberg, GmbH
- ------
- DZL Technology Transfer Consortium
Common Management Goals and Governance

- (Uniform) Site Specific Governance
- DZL Governance
Uniform Site Specific Governance

Supervisory Board
Representatives from partner institutions

Executive Board
Coordinator/Vice Coordinator(s)

Steering Committee
composed of Executive Board members and elected Faculty members

Disease Area 1  Disease Area 2  Disease Area 3  Disease Area 4  Disease Area 5  Disease Area 6  Platform 1  Platform 2  DZL School

Cooperative Disease Programs  Platforms

Partner Site Faculty

DZL Partner Site

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DZL Governance

- **Executive Board DZL**: Directors, Scientific Officer
- **Executive Board at each DZL Site**: Director, Vice-Directors, Coordinator
- **Subcommittees for Disease Areas and Platforms**
- **General Assembly of DZL e.V.** (*Mitgliederversammlung*)
- **International Advisory Board**
- **Supervisory Board**
DZL International Advisory Board

- Peter Barnes, London, UK
- Rachel Chambers, London, UK
- Jeffrey Drazen, Boston, USA
- Stuart Elborn, Belfast, UK
- Mark Gladwin, Pittsburgh, USA
- Marlene Rabinovitch, Palo Alto, USA
- Susan Shurin, Bethesda, USA
- Stephen Spiro, London, UK
- Peter Suter, Geneva, Switzerland
- Jacob Sznajder, Chicago, USA
DZL: Added Value through Integrated Approach

• **Common Mission Statement**  
  *Translational research to combat widespread lung diseases*

• **Complementary Disease Focus**  
  Airway - Lung Parenchyma - Vasculature  
  Paediatric - Adult

• **Complementary Expertise**  
  Basic Science - Disease-orientated - Patient-orientated – Epidemiological Research

• **Complementary Institutional Background**  
  Helmholtz - Max Planck - Leibniz – Fraunhofer - University Hospitals – Pneumology Centres

• **Bundling of Resources**  
  Knowledge - Technologies - Biobanks - Patient cohorts

• **Synergies in Technologies**  
  Molecular Tools - Animal Models - Imaging & Biobank - Clinical Trials & Epidemiology

• **Synergies in Budgetary Focus**  
  Investment in shared technologies - Coherent development strategy

• **Incentives for Cooperation**  
  Largely cooperative disease programmes - Clinical trial funds – Exchange programmes
## DZL Budget

<table>
<thead>
<tr>
<th>Year</th>
<th>DZL total [million Euro]</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011 (11/12)</td>
<td>3.33</td>
</tr>
<tr>
<td>2012</td>
<td>12.04</td>
</tr>
<tr>
<td>2013</td>
<td>14.15</td>
</tr>
<tr>
<td>2014</td>
<td>19.25</td>
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<tr>
<td>2015</td>
<td>24.56</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>73.3</strong></td>
</tr>
</tbody>
</table>
## DZL Budget

### DZL funding per site [million Euro]

<table>
<thead>
<tr>
<th>Year</th>
<th>ARCN</th>
<th>BREATH</th>
<th>UGMLC</th>
<th>TLRC-H</th>
<th>CPC-M</th>
<th>other</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>0.531</td>
<td>0.592</td>
<td>0.944</td>
<td>0.611</td>
<td>0.605</td>
<td>0.050</td>
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<tr>
<td>2012</td>
<td>1.682</td>
<td>1.958</td>
<td>3.836</td>
<td>2.578</td>
<td>1.613</td>
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<tr>
<td>2013</td>
<td>2.309</td>
<td>2.673</td>
<td>3.009</td>
<td>2.706</td>
<td>2.274</td>
<td>1.200</td>
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<tr>
<td>2014</td>
<td>3.195</td>
<td>3.675</td>
<td>3.772</td>
<td>3.785</td>
<td>3.081</td>
<td>1.775</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>11.896</strong></td>
<td><strong>13.610</strong></td>
<td><strong>16.421</strong></td>
<td><strong>14.632</strong></td>
<td><strong>11.524</strong></td>
<td><strong>5.250</strong></td>
</tr>
</tbody>
</table>

Other: Administration, Clinical Trials, CAPNETZ
## DZL Budget

### UGMLC, Partner JLU Giessen [Euro]

<table>
<thead>
<tr>
<th>Year</th>
<th>Equipment</th>
<th>Personnel</th>
<th>Consumables</th>
<th>other</th>
<th>total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012 a</td>
<td>704,570</td>
<td>1,008,424</td>
<td>699,205</td>
<td>18,056</td>
<td>2,430,255</td>
</tr>
<tr>
<td>2012 b</td>
<td>2,032,114</td>
<td>238,045</td>
<td>142,040</td>
<td>18,056</td>
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</tr>
<tr>
<td>2013</td>
<td>0</td>
<td>1,428,844</td>
<td>514,342</td>
<td>18,056</td>
<td>1,961,242</td>
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<tr>
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<td>0</td>
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<td>2,418,989</td>
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<tr>
<td>2015</td>
<td>0</td>
<td>2,280,802</td>
<td>919,965</td>
<td>18,056</td>
<td>3,218,823</td>
</tr>
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UGMLC/Giessen funding from other sources: >8 million Euro in 2012

Original Application: total equipment envisioned 2,176,500 €
DZL Budget

According to the DZL e.V. charter (§ 6, (6)), the Mitgliederversammlung (general assembly of DZL e.V.) has to:

„...8. decide on substantial deviations from the evaluated budget plan after previous statement of the Scientific Advisory Board...“
DZL Budget

Major Equipment

Disease Area ALI
Fluorescence Assisted Cell-picking System 670,000

Disease Area DPLD/PH
FMT/CT 585,000

Biobank
Setup of enlarged facility 600,000

Platforms Imaging and Systems Biology 400,000
# DZL Budget

**UGMLC, Partner JLU Giessen [Euro]**

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