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MDC Berlin



MDC
MAX DELBRÜCK CENTER
FOR MOLECULAR MEDICINE
BERLIN-BUCH
MEMBER OF THE
HELMHOLTZ ASSOCIATION

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Strong together

The Max Delbrück Center for Molecular Medicine (MDC) is a member of the Helmholtz Association, Germany's largest scientific research organization. The Helmholtz Association is a community of 18 publicly funded research centres, which are legally independent entities. Together they employ almost 34,000 of staff and have a total annual budget of approximately €3.4 billion (2012). These centres can be viewed as national labs, which operate and manage unique large-scale facilities and scientific infrastructure, and perform world-class research in strategic programmes in the six scientific core fields: Energy, Earth and Environment, Health, Key Technologies, Structure of Matter, Aeronautics, Space and Transport.



www.helmholtz.de

Who we are: Key facts and numbers

MDC research covers a diverse interdisciplinary spectrum of biomedical sciences, integrating basic and clinical research. Starting from gene and protein families, our researchers focus on (patho-) physiological processes relevant to most debilitating illnesses, including cancer, diseases of the nervous system, and cardiovascular & metabolic diseases. With regard to the quality of published papers, the MDC is ranked as the best German research institution (Excellence Rate Report, SCImago Research Group, 2011) and is 14th among the top 20 life science institutes worldwide in the field of molecular biology/genetics (Thomson Reuters, 2010).



- **more than 60 basic science and clinical research groups**
- **more than 1,500 staff from more than 55 countries, including approx. 1,000 scientific staff**
- **approx. €90 million annual budget**
- **shared 2nd DFG-funding ranking place nationwide (German Research Foundation *Förderatlas 2012*)**
- **ERC: 5 starting and 4 advanced grants**
- **EMBO: 7 members, 2 YIP awards**
- **3 Leibniz prize-winners, 5 German Cancer Award laureates**

Areas of special emphasis at the MDC

The Max Delbrück Center for Molecular Medicine carries out basic biomedical research, with the aim to improve our understanding of the causes of diseases at the molecular level, in order to better diagnose, treat and prevent them. The MDC research programme is centred on main four research areas:

Cardiovascular and Metabolic Diseases

Cancer

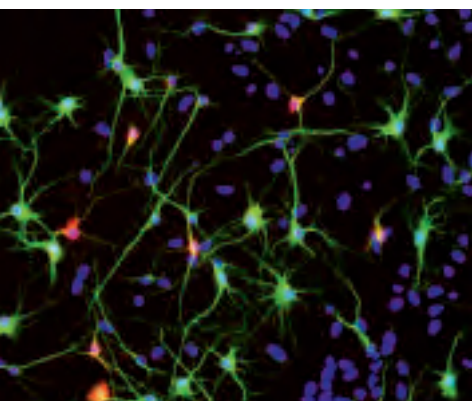
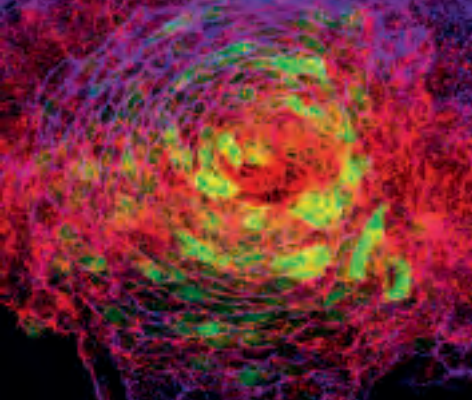
Diseases of the Nervous System

Medical Systems Biology

The recently established and rapidly growing **Berlin Institute of Medical Systems Biology (BIMSB)** constitutes a major expansion of the MDC's current scientific programme,

focusing on post-transcriptional regulation of the genome and its impact on health and disease. It combines high-throughput technologies, scientific expertise in proteome and metabolome analysis and bioinformatics in a set-up that is unique in Germany.

The mission upon which the MDC was founded two decades ago is to translate findings from basic biological research into the field of medicine, i.e. bringing science-from bench to bedside. As a joint initiative of the MDC and the Charité Universitätsmedizin, the **Experimental and Clinical Research Center (ECRC)** offers a unique framework for patient-oriented research and clinical studies in a research-driven environment and excellent career development opportunities in translational medical research.

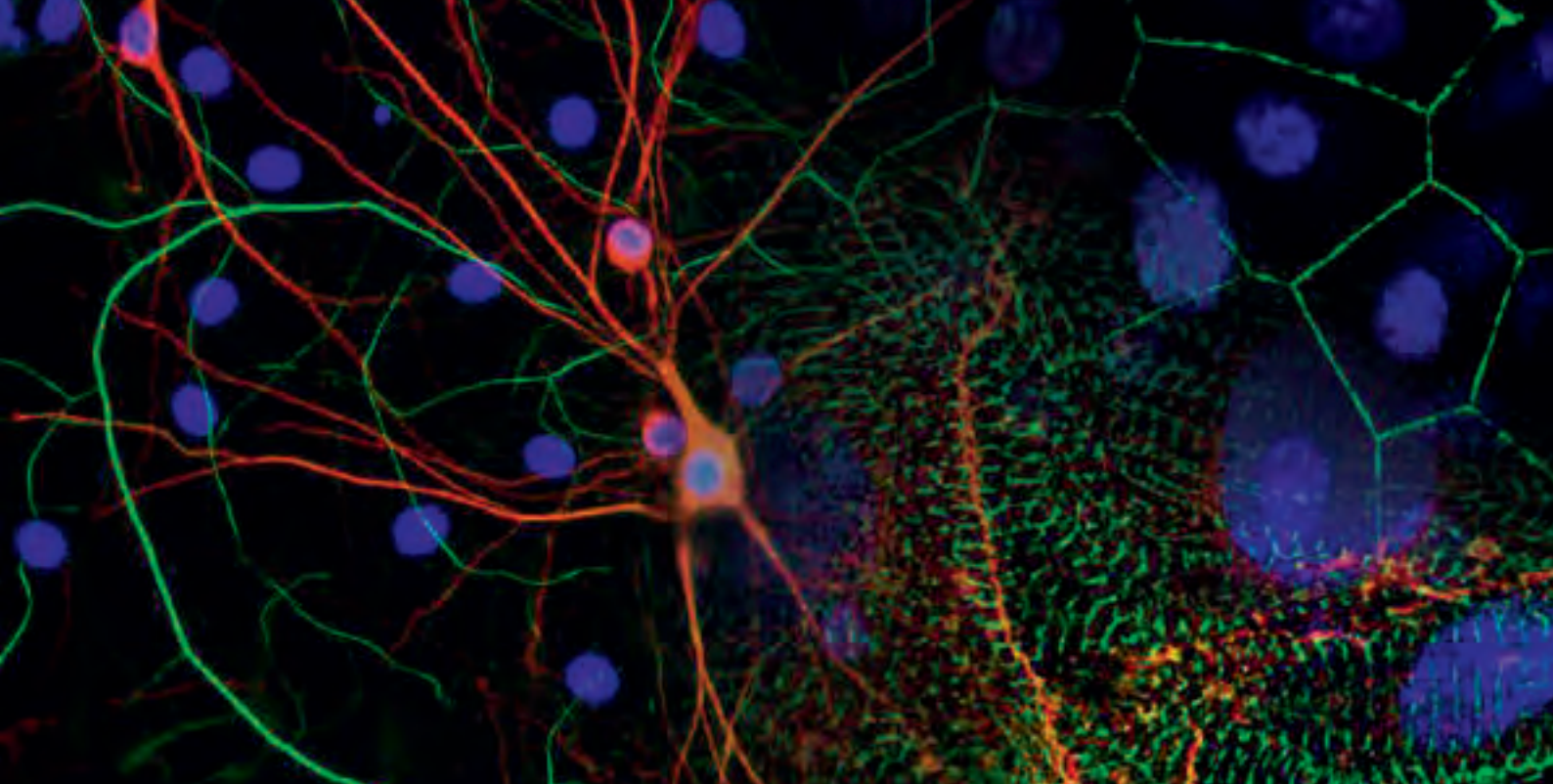



State of the art technology platforms on campus



The German Chancellor Angela Merkel visits the Berlin Institute for Medical System Biology at the MDC and starts the brand new single-molecule real-time sequencer (produced by Pacific Biosciences), currently the most modern technology for genomics analysis.

- Next Generation Sequencing
- Micro-Arrays
- Quantitative Mass Spectrometry
- Targeted Proteomics
- Integrative Proteomics & Metabolomics
- Bioinformatics & Mathematical Modelling
- Transgenics
- In vivo* Mouse Phenotyping
- Preparative Flowcytometry
- Confocal & Two Photon Microscopy
- Electron Microscopy
- Ultrahigh Field MR Imaging & Spectroscopy
- Protein Sample Production
- NMR
- Small Molecule Screening Unit
- Genome-Wide RNA-Interference



A vibrant outdoor scene featuring a well-maintained green lawn. In the foreground, a large, colorful flower bed is filled with various blooms in shades of yellow, purple, pink, and white. A wooden fence runs across the middle ground, separating the lawn from a wooded area. Behind the fence, there are several large, leafy trees and a small wooden play structure. The overall atmosphere is bright and natural.

We have a child day-care facility and guest-houses directly on campus. Furthermore, the MDC Welcome Centre assists new-coming scientists with all formalities (e.g. visas, employment law, health insurance, taxes, etc.).

MDC post-docs

There are about 200 post-doctoral researchers (and more than 350 PhD students) pursuing their research career at the MDC. About one third come from abroad, representing a vibrant community of more than 55 nationalities. There are a number of possibilities of joining the MDC as a post-doc, such as

- MDC post-doc fellowship programme (1 year)

- The Helmholtz Postdoc Programme (up to 3 years)

www.helmholtz.de/en/working_at_helmholtz/postdoktoranden/helmholtz_postdoc_programm/

- Humboldt Research Fellowship for Postdoctoral Researchers (up to 2 years)

www.humboldt-foundation.de/web/humboldt-fellowship-postdoc.html

- EMBO short- or long-term fellowships:

www.embo.org/programmes/fellowships.html

- Human Frontier Science Program: www.hfsp.org/funding/postdoctoral-fellowships

For current open positions please visit our web-site:

www.mdc-berlin.de/en/jobs/index.php



Gaining independence

The MDC offers special programmes for talented scientists who would like to gain independence early in their career:

MDC Delbrück Fellowships for post-docs (3 + 2 years)

MDC Cécile Vogt Fellowships for female post-docs (4 + 2 years)

Both programmes provide post-docs with independent funding to build up their own scientific programme within a mentoring host group at the MDC.

Our scientists are supported with career development activities, including the Career Pathways series of talks and regular courses on funding, CV writing, etc. In addition, our female post-docs can participate in the 18-month MDC Mentoring programme or the Helmholtz-wide Mentoring Programme “Taking the Lead”.



Oktay I. Kaplan

Helmholtz Postdoctoral Fellow &
EMBO Postdoctoral Fellow since 2012

PhD (2011) from the UCD,
Dublin, Ireland



I've joined the group of Baris Tursun at the BIMS B to study the mechanism of direct in vivo cell type conversion in Caenorhabditis elegans. I enjoy the excellent scientific infrastructure and social atmosphere at the MDC, with a friendly warm and welcoming environment for international researchers like myself. In addition to strong scientific reasons, there is a positive practical benefit of coming to Berlin, since living expenses here are quite modest – it is probably the cheapest European capital city to live in, but at the same time definitely one of the most exciting ones!

Kate Poole

MDC Cécile Vogt Fellow since 2012

PhD (2002) from the University of Adelaide,
Australia



I became a member of Gary Lewin's group at the MDC as a postdoctoral scientist and have benefited from a number of Career Development initiatives at the institute, e.g. I was a participant in the MDC Mentoring programme. Now I am starting to establish my research independence as a Cécile Vogt Fellow.

Jan Bieschke

MDC Delbrück Fellow 2006-2011

Since January 2012 Assistant Professor,
Washington University in St. Louis

PhD (2000) from the University of Göttingen, Germany



The MDC Delbrück fellowship enabled me to apply for my own grants while still being a part of the world-class research team, enjoying an interdisciplinary environment with an excellent research infrastructure. I have definitely learned a lot about leading a group and mentoring students, which is giving me a head start in my independent research career.



MDC junior research groups

About a third of the MDC labs are led by junior group leaders. If you aspire to start an independent research group, join the MDC by applying to one of the following programmes:

Helmholtz Young Investigators Groups (5 years)

www.helmholtz.de/en/working_at_helmholtz/postdoktoranden/helmholtz_young_investigators_groups/

Alexander von Humboldt Foundation Sofja Kovalevskaja Award (5 years)

www.humboldt-foundation.de/web/kovalevskaja-award.html

DFG Emmy Noether Programme (5 years)

www.dfg.de/en/research_funding/programmes/individual/emmy_noether/in_brief/index.html



Frank Rosenbauer

Helmholtz Young Investigator Group at the MDC, 2005 – 2011

Since 2011 – Professor and department director at the Institute of Molecular Tumor Biology (IMTB), University of Münster, Germany

In addition to the start-up funding provided by these schemes, the MDC offers follow-up funding for up to 4 years (subject to successful evaluation). Moreover, all MDC group leaders have access to MDC intramural funding programmes, such as 3-year fully-funded positions for PhD students admitted to the International PhD Programme, 1-year postdoctoral fellowships, funding for technology transfer projects, etc.

Campus Berlin-Buch

The MDC is located at the Campus Berlin Buch, in the green belt of the greater Berlin area. It takes half-an-hour on the city-train, S-Bahn, to get to Buch from the city centre, and many MDC scientists ride to work by bike.

The Campus Berlin Buch is a modern science, health and biotechnology park with a clear focus on biomedicine, where more than 2200 people work. It provides a unique environment for scientific exchange and research collaboration, facilitated by the close proximity of two research institutes, the MDC and the FMP (the Leibniz-Institut für Molekulare Pharmakologie), university clinics and more than 50 biotechnology companies. The Campus, with its sculpture park, exhibitions and a small museum, is also a place of artistic creativity, inspiration and synergy between science and art. It is easy to make new friends or chill out after a long week over a beer at the regular Friday after-work “Beer session”.



Living in Berlin

Berlin is a dynamic and vibrant city located in the heart of Europe. As the capital city of Germany with a population of 3.5 million, including approx. a 0.5 million foreign nationals, Berlin is Germany's largest city. Exceedingly open and tolerant, the tremendous creative spirit drives both culture and science.

Frequent and radical changes through Berlin's turbulent and noticeably present history have transformed the face of the city many times over. But despite this, the city has succeeded in becoming a thriving metropolis. Extraordinary wealth of cultural opportunities – art, music, theatre, cinema – attracts increasing numbers of visitors, making Berlin one of the most popular destinations in Europe. It boasts a lively scene with lots of pubs, clubs, restaurants and cafés. Densely urban areas co-exist with large green spaces, nature reserves, lakes and rivers all within the city boundaries, offering a truly metropolitan lifestyle in an unusually pleasant and relaxing atmosphere.

www.berlin.de/international/index.en.php

www.berlin-sciences.com/en/berlin-sciences-navigator



- **4 universities**
- **7 universities of applied sciences**
- **4 art colleges**
- **23 state-recognised private universities**
- **70 non-university research institutions**
- **20 research establishments affiliated with federal and state ministries**

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Germany

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For inquiries regarding the MDC fellowship schemes:

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For enquiries regarding the Helmholtz Junior Groups:

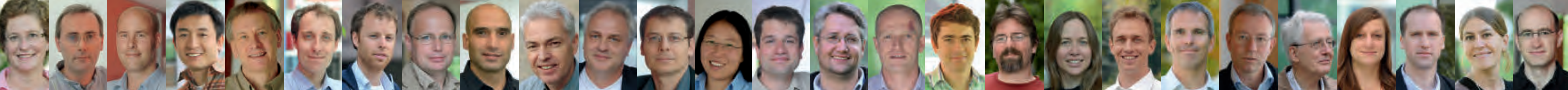
Dr Cornelia Maurer
maurer@mdc-berlin.de

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research groups
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research groups

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Cardiovascular & Metabolic Diseases

Coordinator: Norbert Hübner

Basic Cardiovascular Function

Neuromuscular & Cardiovascular Cell Biology

Michael Gotthardt

Angiogenesis & Cardiovascular Pathology

Ferdinand le Noble

Molecular Muscle Physiology

Ingo L. Morano

Anchored Signaling

Walther Rosenthal, Enno Klussmann

Developmental Biology & Pathophysiology of the Kidney

Kai M. Schmidt-Ott

Zebrafish Cardiovascular Developmental Genetics

Salim Seyfried

Molecular & Cellular Basis of Embryonic Development

Francesca M. Spagnoli

Molecular Cardiovascular Research

Thomas E. Willnow

Mathematical Modeling of Cellular Systems

Jana Wolf

Genetics & Pathophysiology of Cardiovascular Diseases

Michael Bader

Cardiovascular Hormones

Michael Bader

Medical Genomics & Genetics of Cardiovascular & Metabolic Disease

Norbert Hübner

Mobile DNA

Zsuzsanna Izsvák

Molecular Genetics of Allergic Diseases

Young-Ae Lee

Experimental Ultrahigh Field Magnetic Resonance

Thoralf Niendorf

Electrochemical Signaling in Development & Disease

Daniela Panáková

Cell Signaling & Mass Spectrometry

Matthias Selbach

Cardiovascular Molecular Genetics

Ludwig Thierfelder

Metabolism as Risk-factor

Ludwig Thierfelder

Regenerative Medicine for Metabolic Diseases

Malgorzata Borowiak

Molecular Epidemiology

Tobias Pischon

microRNAs & Molecular Mechanisms of Metabolic Diseases

Matthew Poy

Molecular Genetics of Metabolic & Reproductive Disorders

Mathias Treier

Cancer Research

Coordinator: Claus Scheidereit

Signaling Pathways, Cell & Tumor Biology

Coordinator: Claus Scheidereit

Computational Biology & Data Mining

Miguel A. Andrade-Navarro

Signals Provided by Wnt/ β -catenin & Met/Gab1/Shp2 in Development & Cancer

Walter Birchmeier

Folding Sensors of the Endoplasmic Reticulum

Christian Hirsch (Delbrück Fellow)

Cell Differentiation & Tumorigenesis

Achim Leutz

Spatio-temporal Control of Rho GTPase Signaling

Oliver Rocks

Chromosomal Domains & Gene Expression

Harald Saumweber

Signal Transduction in Tumor Cells

Claus Scheidereit

Surgical Oncology

Peter M. Schlag

Cancer Genetics & Cellular Stress Responses

Clemens A. Schmitt

Stem Cell & Macrophage Biology

Michael Sieweke (MDC-INSERM group)

Intracellular Proteolysis

Thomas Sommer

Structural & Functional Genomics

Oliver Daumke

Structure & Membrane Interaction of G proteins

Oliver Daumke

Macromolecular Structure & Interaction

Udo Heinemann

Tumor Immunology

Coordinator: Carmen Birchmeier

Signalling Pathways & Mechanisms in the Nervous System

Coordinator: Carmen Birchmeier

Developmental Biology/Signal Transduction

Carmen Birchmeier

Molecular Neurobiology of Cell-surface Channels & Receptors

Ines Ibañez-Tallon

Physiology & Pathology of Ion Transport

Thomas J. Jentsch

Molecular Physiology of Somatic Sensation

Gary R. Lewin

RNA Editing & Hyperexcitability Disorders

Jochen C. Meier

Proteomics & Molecular Mechanisms of Neurodegenerative Diseases

Erich Wanker

Cellular Sensing of the Physical Environment

Kathryn Poole (Cécile Vogt Fellow)

Neural Circuits and Behavior

James Poulet

Developmental Neurobiology

Fritz G. Rathjen

Signaling & Transport Processes

Björn C. Schroeder

Temperature Detection & Thermoregulation

Jan E. Siemens

Pathophysiological Mechanisms of Neurological & Psychiatric Disorders

Christoph Dieterich

Integrative Metabolomics & Proteomics Platform

Stefan Kempa

RNA Biology & Post-transcriptional Regulation

Markus Landthaler

Signaling Dynamics in Single Cells

Alexander Loewer

Computational Analysis & Modeling of Post-Transcriptional Regulatory Mechanisms

Benedikt Obermayer (Delbrück Fellow)

Computational Regulatory Genomics

Uwe Ohler

Epigenetic Regulation & Chromatin Architecture

Ana Pombo

Systems Biology of Gene Regulatory Elements

Nikolaus Rajewsky

Gene Regulation & Cell Fate Decision in *C. elegans*

Baris Tursun

Systems Biology of Neural Tissue Differentiation

Robert Zinzen

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Nephrology & Inflammatory Vascular Diseases

Ralph Kettritz

Genetics, Nephrology, Hypertension & Vascular Injury

Friedrich C. Luft

Hypertension-Induced End-Organ Damage

Dominik N. Müller/Ralf Dechend

Cardiovascular Genetics

Silke Rickert-Sperling

Cardiac Magnetic Resonance Imaging

Jeanette Schulz-Menger

Endocrinology, Diabetes & Nutrition

Joachim Spranger

Muscle Research Unit, Clinical Research Group & MyoGrad

Simone Spuler

Credits for photos: David Ausserhofer; Y. A. Lee; Steffen Jänicke; D. Panáková; Peter Himsel; M. Sieweke; Jean-Marie Huron; M. Chekulaeva; B. Obermayer; J. Spranger; private photos

For more information please download the MDC Research Report: http://mdc-berlin.de/en/research/research_report/index.html