



Research in Germany - Cardiovascular Research -



Cardiovascular research in Germany is primarily conducted at universities but also at non-university research institutes. The Deutsche Forschungsgemeinschaft (DFG, German Research Foundation) is a major funding organisation to support cardiovascular research. Important German research organisations such as the Fraunhofer Society (applied research), the Leibniz Association (basic and applied research) and the Max Planck Society (basic research) maintain own research institutes with a major focus on cardiovascular research. Some cardiovascular research institutes and programmes are funded directly by the federal and state governments. There exist also private and public foundations that support cardiovascular research in Germany, for example the Alexander von Humboldt Foundation (AvH). Graduate training is provided at universities and non-university research institutions in cooperation with universities. Here, besides the DFG also the Helmholtz Association (research on grand challenges) and the Max Planck Society offer graduate training programmes in or strongly related to cardiovascular research. There also exist PhD programmes and PhD funding by the state governments, the German Academic Exchange Service (DAAD) and foundations.

COORDINATED RESEARCH PROGRAMMES FUNDED BY DFG

Collaborative Research Centres (CRC) (Sonderforschungsbereiche; SFB)

- established at a single university (standard CRC) or by multiple nearly equal partners (Transregio variation, up to 3 sites)
- present outstanding research programmes, crossing the boundaries of disciplines, institutes, departments and faculties
- research programme must correspond to and strengthen the research profile of host university(ies)
- may also incorporate projects at further (research) institutions (both academic and commercial, inside or outside Germany)
- funded by the DFG for a period of up to 12 years (3 four-year periods)

The following CRCs are currently funded in cardiovascular research:

- "Endothelial Signalling and Vascular Repair" (CRC 834), funded since 2009
speaker: Ingrid Fleming, Frankfurt
contact: www.sfb834.de
- "Modular Unity in Heart Failure" (CRC 1002), funded since 2012
speaker: Gerd Hasenfuß, Göttingen
contact: sfb1002.med.uni-goettingen.de
- "Master Switches in Cardiac Ischemia" (CRC 1116), funded since 2014
speaker: Jens W. Fischer, Düsseldorf
contact: www.sfb1116.hhu.de
- "Atherosclerosis – Mechanisms and Networks of Novel Therapeutic Targets" (CRC 1123), funded since 2014
speaker: Christian Weber, Munich
contact: www.sfb1123.med.uni-muenchen.de
- "Pulmonary Hypertension and Cor Pulmonale" (CRC 1213), funded since 2016
speaker: Norbert Weillmann, Gießen
contact: www.uni-giessen.de/fbz/fb11/forschung/schwerpunkte/sfb/SFB1213
- "Vascular Control of Organ Function" (CRC 1366), funded since 2019
speaker: Hellmut G. Augustin, Heidelberg
contact: www.sfb1366.de
- "Heterocellular Nature of Cardiac Lesions: Identities, Interactions, Implications" (CRC 1425), funded since 2020
speaker: Peter Kohl, Freiburg
contact: www.sfb1425.uni-freiburg.de

Collaborative Research Centres/Transregios (TRR) (SFB/Transregio; TRR)

The following CRC/Transregios are currently funded in cardiovascular research:

- "Mechanisms of Cardiovascular Complications in Chronic Kidney Disease" (TRR 219), funded since 2018
speaker: Joachim Jankowski, Aachen; partner universities/institutions in Aachen, Saarbrücken
contact: www.sfb-trr219.de
- "Aortic Diseases" (TRR 259), funded since 2019
speaker: Georg Nickenig, Bonn; partner universities/institutions in Bonn, Düsseldorf, Cologne
contact: www.trr259.uni-bonn.de/en
- "Non-Coding RNA in the Cardiovascular System" (TRR 267), funded since 2019
speaker: Stefan Engelhardt, Munich; partner universities/institutions in Munich, Frankfurt
contact: https://gepris.dfg.de/gepris/projekt/403584255

Clinical Research Units (KFO) (Klinische Forschergruppen; KFO)

- specific medium-term research projects whose anticipated findings would not be able to be achieved within the scope of the individual grants programme but only by a coordinated effort
- proposals can be submitted to the DFG at any time, decision is made in a two-step process
- funded by the DFG up to 8 years (2 four-year periods)

Currently the following Clinical Research Unit in or strongly related to cardiovascular research is funded:

- "Advanced Cardiac and Pulmonary Failure: Mechanical Unloading and Repair" (KFO 311), funded since 2016
speaker: Johann Bauersachs, Hannover
contact: www.kfo311.de

GERMAN CENTRES FOR HEALTH RESEARCH

- Deutsches Zentrum für Herz-Kreislauf-Forschung e.V. – German Centre for Cardiovascular Research
location: Berlin
contact: https://dzhk.de

SOCIETIES AND ASSOCIATIONS

- German Cardiac Society – Deutsche Gesellschaft für Kardiologie – Herz- und Kreislaufforschung e.V. (DGK)
contact: https://dgk.org
- Deutsche Gesellschaft für Angiologie – Gesellschaft für Gefäßmedizin e.V.
contact: www.dga-gefuesmedizin.de
- Deutsche Gesellschaft für Innere Medizin e.V.
contact: www.dgim.de
- Gesellschaft für Thrombose- und Hämostaseforschung e.V.
https://gth-online.org
- Deutsche Gesellschaft für Stammzellforschung e.V.
https://stammzellforschung.com

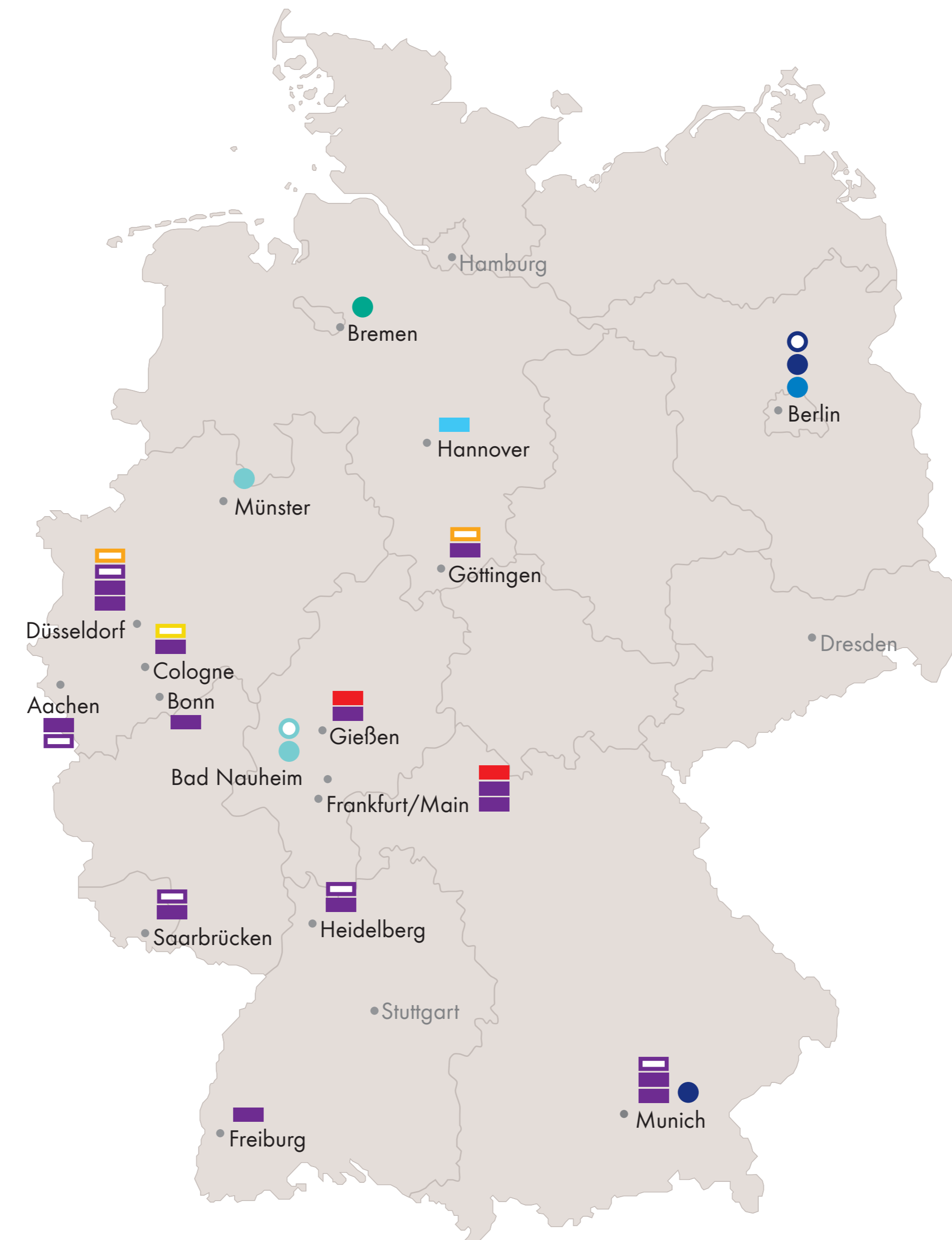
CLUSTERS OF EXCELLENCE

Clusters of Excellence (EXC) (Exzellenzcluster; EXC)

- launched by the German government in order to boost excellent research through additional funds
- project-based funding in internationally competitive fields of research at universities or university consortia
- often include doctoral training programmes
- DFG is responsible for developing and implementing this funding line

The following cluster has a strong focus in cardiovascular research:

- "Cardio-Pulmonary Institute (CPI)" (EXC 2026), funded since 2018
speaker: Stefanie Dimmel, Frankfurt; partner university in Gießen
contact: www.cpi-online.de



GRADUATE TRAINING FUNDED BY DFG

Research Training Groups (RTG) (Graduiertenkollegs; GRK)

- established at universities
- may have foreign partner(s) – International Research Training Groups
- promote young researchers: doctoral training within the framework of a focused research programme and a structured training strategy
- encourage early scientific independence
- high demand for this funding programme, since it permits doctoral students to work on a family of related thesis topics, thereby encouraging fruitful discussions and collaboration between them
- supported by the DFG for up to 9 years (2 four-and-a-half-year periods)

Currently the following RTG in or strongly related to cardiovascular research is funded:

- "Inflammatory and Cellular Stress Signaling: Switches to Vascular Dysfunction" (RTG 2407), funded since 2018
speaker: Stephan Baldus, Cologne
contact: https://kardiologie.uk-koeln.de/forschung/dfg-fundiert-crc-graduate-program/

International Research Training Groups (IRTG) (Internationale Graduiertenkollegs; IRTG)

Currently the following IRTGs in or strongly related to cardiovascular research are funded:

- "Phosphorylation- and Redox-mediated Signalling Mechanisms in the Failing Heart" (IRTG 1816), funded since 2013
speaker: Dörthe M. Katschinski, Göttingen; partner university/institution in London (England)
contact: www.grk1816.med.uni-goettingen.de
- "Intra- and Interorgan Communication of the Cardiovascular System" (IRTG 1902), funded since 2013
speaker: Axel Gödecke, Düsseldorf; partner university/institution in Charlottesville (USA)
contact: www.irtg1902.hhu.de

Integrated Research Training Groups within CRC/Transregios

- structured doctoral training for scientific coworkers within CRC/Transregio projects

The following groups are currently funded in cardiovascular research:

- Integrated Research Training Group within "Mechanisms of Cardiovascular Complications in Chronic Kidney Disease" (TRR 219), funded since 2018
speaker: Joachim Jankowski, Aachen; partner universities/institutions in Aachen, Saarbrücken
contact: www.sfb-trr219.de/training
- Integrated Research Training Group within "Master Switches in Cardiac Ischemia" (CRC 1116), funded since 2018
speaker: Axel Gödecke, Düsseldorf
contact: www.sfb1116.hhu.de/de/graduate-school.html
- Integrated Research Training Group within "Atherosclerosis – Mechanisms and Networks of Novel Therapeutic Targets" (CRC 1123), funded since 2018
speaker: Sabine Steffens, Munich
contact: www.sfb1123.med.uni-muenchen.de/graduate-program
- "School of Angioscience" within "Vascular Control of Organ Function" (CRC 1366), funded since 2018
speaker: Jörg Heineke, Heidelberg
contact: www.sfb1366.de/graduate-school

GRADUATE TRAINING AT NON-UNIVERSITY RESEARCH INSTITUTIONS

International Max Planck Research Schools (IMPRS)

- doctoral training at Max Planck Institutes in close collaboration with universities under excellent research conditions
- IMPRS for Heart and Lung Research
speaker: Stefan Offermanns, Bad Nauheim
contact: https://imprs.mpi-hlr.de

Helmholtz Graduate Schools

- funded by the Helmholtz Association and partner institutions to provide training and conduct research on specific topics in small teams
- MDC Graduate School
speaker: Michaela Herzig, Berlin
contact: www.mdc-berlin.de/graduate-school

RESEARCH AT NON-UNIVERSITY RESEARCH INSTITUTIONS

Fraunhofer Institutes

Fraunhofer Society is one of the world's leading organisations for applied research with an annual research budget of 2.8 billion euros, 74 institutes and more than 28,000 employees. Fraunhofer's R&D portfolio covers a wide range of fields, including health, security, communications, transport, energy and the environment.

- Fraunhofer Institute for Digital Medicine (MEVIS)
location: Bremen
contact: www.mevis.fraunhofer.de

Leibniz Institutes

The Leibniz Association is an umbrella organisation of 95 research institutes. The annual budget amounts to 1.9 billion euros. Some 11,500 researchers – approximately 25% of them from abroad – work on a widely diverse range of subjects, including the humanities and social sciences, economics, spatial and life sciences, mathematics, natural and engineering sciences and environmental research.

- Leibniz-Forschungsinstitut für Molekulare Pharmakologie (FMP)
location: Berlin
contact: www.leibniz-fmp.de

Max Planck Institutes

The Max Planck Society for the Advancement of Science is one of Germany's largest independent non-profit research organisations. A combined total of more than 15,300 researchers, postdoctoral/junior researchers and visiting researchers at 86 Max Planck Institutes conduct basic research in the natural sciences, life sciences, social sciences and humanities.

- Max Planck Institute for Molecular Biomedicine
location: Münster
contact: www.mpi-muenster.mpg.de
- Max Planck Institute for Heart and Lung Research
location: Bad Nauheim
contact: www.mpi-hlr.de

Helmholtz Centres

The Helmholtz Association contributes to solving major challenges facing society, science and industry with world-level research in six areas: energy, earth and environment, health, key technologies, structure of matter and aeronautics, space and transport. With more than 40,000 employees in 19 research centres and an annual budget of approximately 4.8 billion euros, the Helmholtz Association is Germany's largest scientific organisation.

- Max Delbrück Center for Molecular Medicine in the Helmholtz Association (MDC)
location: Berlin
contact: www.mdc-berlin.de
- Deutsches Forschungszentrum für Gesundheit und Umwelt
location: München
contact: www.helmholtz-muenchen.de

DFG

The Deutsche Forschungsgemeinschaft (DFG, German Research Foundation) is the central self-governing research funding organisation in Germany. It serves all branches of science and the humanities by funding research projects at universities and other research institutions. The DFG promotes excellence and quality by selecting the best research projects on a competitive basis and actively encourages international research cooperation. It is particularly dedicated to the promotion of young researchers and to gender equality in science and academia. It also advises legislatures and government agencies on scientific matters. In organisational terms, the DFG is an association under private law that receives the large majority of its funds from Germany's Federal (69%) and state (29%) governments. In 2019 the DFG's annual budget was 3.3 billion euros.

In 2019, the DFG's annual budget for medicine reached 725.4 mio. euros (2016: 662.7 mio. euros). Individual grants still form the basis of DFG's funding of medicine aside the displayed coordinated programmes. They are awarded to established and junior researchers (starting at the post-doc level) to support individual or joint projects as well as to post-docs as support for their positions, as fellowships for research stays abroad, or even to build up their own first research group.

Sources: DFG Annual Report 2019, websites Fraunhofer Society, Leibniz Association, Max Planck Society, Helmholtz Association © DFG, August 2020

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