Website address:
https://www.gesundheitsindustrie-bw.de/en/article/press-release/heidelberg-collaborative-research-centre-molecular-circuits-heart-disease-secures-second-funding-period

Heidelberg Collaborative Research Centre "Molecular Circuits of Heart Disease" secures second funding period

The Collaborative Research Centre (CRC) 1550 "Molecular Circuits of Heart Disease" at Heidelberg University is entering its second funding period. The German Research Foundation (DFG) has approved approximately EUR 17.4 million in funding for the next four years. The spokesperson is Johannes Backs, Professor of Experimental Cardiology at the Heidelberg Faculty of Medicine.

Coordinated by the Heidelberg Faculty of Medicine the Collaborative Research Centre (CRC) 1550 *"Molecular Circuits of Heart Disease"* is entering its second funding period. The German Research Foundation (DFG) has approved funding of around EUR 17.4 million for the next four years to teams from Heidelberg, Mannheim and Göttingen. Johannes Backs, Professor of Experimental Cardiology at the Heidelberg Faculty of Medicine and Director of the Institute for Experimental Cardiology at Heidelberg University Hospital, serves as spokesperson. The aim of the CRC is to decipher the molecular circuits that lead to heart disease and, based on these insights, to develop tailored therapeutic approaches.

"The extension of Collaborative Research Centre 1550 significantly enhances the international visibility of our Faculty and reinforces our strategic focus on cardiovascular medicine. The CRC brings together cutting-edge research and digital technologies to develop innovative, tailored therapies for complex heart diseases. At the same time, CRC 1550 supports the training of the next generation of scientists and medical professionals. The close collaboration among various research groups, the integration of new disciplines within CRC 1550 - such as engineering sciences - and the strong networking within the Innovation Campus Health + Life Science Alliance enable the targeted translation of research findings and their effective transfer into clinical practice. On behalf of the Medical Faculty of Heidelberg, I extend my sincere congratulations to the applicants on the successful renewal of the CRC 1550" says Professor Dr Michael Boutros, Dean of the Heidelberg Faculty of Medicine at Heidelberg University. Nine CRCs/TRRs are currently funded by the DFG with faculty members serving as spokespersons, and a further eleven with participation of researchers from Heidelberg Faculty of Medicine.

CRC 1550: Tailored Therapies for Heart Disease

Since 2022, researchers of CRC 1550 *"Molecular Circuits of Heart Disease"* have been investigating how environmental factors affect genetic information, protein expression, metabolism, and disease progression. By applying machine learning, they aim to identify critical molecular processes that drive the development of heart disease, validate these processes experimentally and leverage the insights to develop novel therapies for both congenital and acquired heart conditions. The CRC brings together project teams from both Medical Faculties in Heidelberg and Mannheim, the Helmholtz Institute for Translational AngioCardioScience (HI-TAC) at Heidelberg University, the European Molecular Biology Laboratory (EMBL), the German Cancer Research Center (DKFZ) and the University of Göttingen.

Current drug therapies for heart failure, which can arise from a range of underlying heart conditions, are largely non-specific and often reach their limits. In the first funding period, the interdisciplinary teams of CRC 1550 addressed this challenge by analyzing changes in the genome, proteome and metabolic activity in cardiac tissue and developing initial treatment strategies. "Our new therapeutic concepts are designed not only to alleviate the symptoms of heart failure, but to precisely target its causes and restore the altered molecular circuits," says CRC spokesperson Professor Backs. Most recently, the team published a treatment concept for a particularly aggressive form of congenital heart failure characterized by dilation of the heart muscle and loss of pumping function, known as RBM20 cardiomyopathy (van den Hoogenhof MMG et al., *Nature Cardiovascular Research* 2026, doi: 10.1038/s44161-026-00818-2).

"One of our goals for the next four years is to link disease mechanisms in cardiomyocytes with processes in other cell types. We do not view the heart – whether healthy or diseased – in isolation: it is in constant communication with its environment and thereby influences systemic health. Our CRC therefore makes a fundamental contribution to prevention and healthy ageing," Professor Backs adds.

Heidelberg Researchers Also Involved in CRCs at Other Universities

In the current funding period, the extension of the following Collaborative Research Centres involving researchers from the Heidelberg Medical Faculty has also been approved:

- CRC 1531 *"Damage Control by the Stromal-Vascular Compartment"*, coordinated by Goethe University Frankfurt am Main is entering its second funding period. The CRC includes a project team led by Professor Dr Florian Leuschner, Heisenberg Professor of Immune Cardiology at the Heidelberg Faculty of Medicine. The CRC aims to characterize similarities and differences in tissue repair processes following organ damage caused by impaired blood flow, such as occurs in heart attacks and strokes.
- CRC/TRR 237 *"Nucleic Acid Immunity"*, jointly coordinated by the University of Bonn, Ludwig Maximilian University of Munich and Dresden University of Technology, and involving a team led by Professor Dr Axel Roers (Institute for Immunology, Heidelberg University), has been awarded a third funding period. The research focuses on how organisms detect microbial and endogenous RNA and DNA to initiate protective immune responses, as well as on the dysfunctions of these mechanisms that cause severe inflammatory diseases.

Collaborative Research Centres of the German Research Foundation

Collaborative Research Centres are designed to promote innovative, complex and long-term research projects that transcend disciplinary and institutional boundaries. In addition to scientific excellence, aspects such as the promotion of early-career researchers and gender equality also contribute to success in the DFG's highly competitive selection process.

Press release

15-May-2026
Source: University Hospital Heidelberg

Further information

- Heidelberg University Hospital