

Press release

Max-Delbrück-Centrum für Molekulare Medizin in der Helmholtz-Gemeinschaft

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Research projects
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Joining forces for immune research

The initiative “Immunology & Inflammation” unifies efforts in immunological research within the Helmholtz Association. 23 working groups from five Helmholtz Centers are joining forces to address some of the most complex problems in today’s immunology in ways that can only be explored in collaboration.

“What we have learned about the immune system and its role in many widespread diseases over the last ten years opens up countless perspectives for research,” says Professor Martin Lohse, Scientific Director of the Max Delbrück Center for Molecular Medicine (MDC), the center that coordinates the initiative.

“Our initiative’s projects combine the centers’ research topics,” says Professor Pierluigi Nicotera, Vice-President of the Helmholtz Association and Coordinator of the Field of Health Research. “They address key questions such as: How do the immune and nervous systems interact? How does the microenvironment of tissue influence the development of immune cells and what consequences does it have for cancer? How do we use this knowledge for therapies?”

Scientists working in more than 20 projects address these and other questions. Six of those are designed as tandem projects, which are special cooperative ventures involving teams from different centers. Additionally, researchers will meet and exchange knowledge in regularly. The first “Immunology & Inflammation” Conference will take place 24th-26th February 2019 in Berlin, and will host world-leading scientists as speakers.

Curing congenital immune deficiencies with CRISPR-Cas9

One of the six tandem projects, for example, brings together the teams of Professor Mathias Heikenwälder (DKFZ) and Dr. Uta Höpken (MDC) to investigate the influence of inflammatory processes and signaling molecules on the spread of blood cancer. Patients with lymphoma metastases have significantly reduced chances of survival. How and why lymphomas implant themselves in other organs such as the liver or brain is yet unknown.

Another joint project, led by Professor Klaus Rajewsky (MDC) and Professor Ellen Renner (HMGU), explores gene therapy using the CRISPR-Cas9 gene editing toolkit. The aim of this project is to open up an avenue for curing rare congenital immunodeficiencies such as Job’s syndrome, in which only a single gene is mutated.

A total of 23 working groups from five Helmholtz Centers are participating in this initiative, headed by Professor Klaus Rajewsky and Professor Michela Di Virgilio (MDC). They say: “The centers have a broad repertoire of state-of-the-art technologies and expertise. Our joint initiative provides a strong impulse to their work, both in terms of basic research and the development of new therapies.”

Organization and financing

The initiative brings together immunological research distributed among five centers of the Helmholtz Association in the research field health in a common structure. The involved Helmholtz Centers are:

Max Delbrück Center for Molecular Medicine in the Helmholtz Association (MDC), Berlin (coordinating center),
German Cancer Research Center (DKFZ), Heidelberg,
German Center for Neurodegenerative Diseases (DZNE), Bonn,
Helmholtz Zentrum München (HMGU), Munich, and
Helmholtz Centre for Infection Research (HZI), Braunschweig.

The three-year initiative started in November 2017, and it is the nucleus for a long-term research program that will position the Helmholtz Association internationally as a major player in application-oriented immunology research.

The Helmholtz Association is supporting the initiative through the Initiative and Networking Fund (Zukunftsthemen) with five million euros. The individual centers contribute the same amount from their own budget.

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URL for press release: <https://www.mdc-berlin.de/immunology> – Website “Immunology & Inflammation”, including a list of participating Helmholtz Research Centers and more detailed descriptions