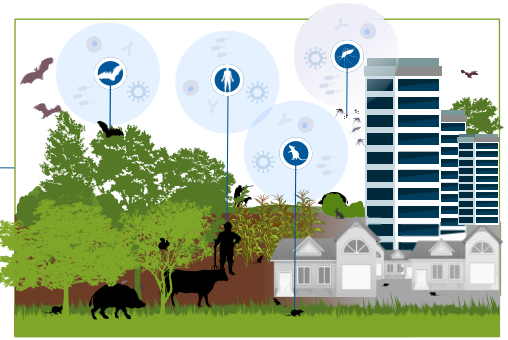


**THE HELMHOLTZ INSTITUTE  
FOR ONE HEALTH**

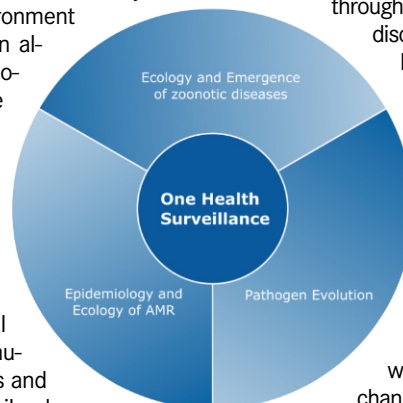


## THE HELMHOLTZ INSTITUTE FOR ONE HEALTH

The Helmholtz Institute for One Health (HIOH) in Greifswald is a new institute of the Helmholtz Centre for Infection Research (HZI). The institute is closely interlinked with its local founding partners: the University of Greifswald, the University Medical Center Greifswald and the Friedrich-Loeffler-Institut. HIOH will address the threat posed by the emergence of novel pathogens as well as the evolution of known pathogens, including their antimicrobial resistance (AMR). HIOH will adopt a comprehensive research approach, including the integrated monitoring and improvement of human and animal health, as well as environmental and climatic factors.



The current world population of about 8 billion people is projected to increase beyond 11 billion by the year 2100. Due to globally increasing anthropogenic impact, the climate is changing, human-animal contact is intensifying and more and more wilderness is being transformed into farmland. In concert, these transformations lead to an **increased risk for the transmission of zoonotic pathogens** from the vast microbial diversity found in wildlife and the environment to humans. Globalization then allows locally emerging pathogens to spread around the world rapidly, as recently experienced for the COVID-19 pandemic. The rapid development of **resistance against vaccines and therapeutics** further aggravates the threat posed by zoonotic pathogens. This implies that global human health is a product of human interactions with animals and the environment. As a result, siloed approaches focused on human or animal health in isolation, will fail at understanding disease emergence and hinder the development of preventive measures. Integrative transdisciplinary approaches working in a **One Health framework**, that is a holistic approach, which focuses on the health of humans and animals within their environment, are clearly needed to deal with these complex multifaceted problems.



ties together with various partners and networks, e.g. in **further hotspots for disease emergence, such as Asia**. HIOH will generate, analyze, and integrate both high-resolution longitudinal health and pathogen data at human-animal interfaces.

These activities are significantly strengthened by embedding the HIOH in the existing network of internationally recognized founding institutions, through which a broad spectrum of key disciplines is synergistically contributed, in particular human and veterinary medicine, microbiology, virology, epidemiology, drug discovery, biodiversity research, anthropology, sociology, evolutionary biology and ecology. The quality, quantity, and diversity of integrated data generated by the HIOH will provide a new mechanistic understanding of what perturbations are caused by changes in individual parameters, opening opportunities to better control the spread of dangerous microbes in the future. Three planned research departments will focus on (1) **ecology and emergence of zoonotic diseases**, (2) **epidemiology and ecology of antimicrobial resistance** and (3) **pathogen evolution**. Two infrastructural competence centers, and three junior research groups will complement these departments, giving additional room for further innovative and translational approaches.

### THE RESEARCH CONCEPT

The Helmholtz Institute for One Health, implements such a **transdisciplinary design**. The main focus of this new site of HZI is to investigate the interfaces of human, animal and environmental health through longitudinal and comprehensive sampling and data collection and -analysis related to emerging infections/microbes and resistance in **two model regions**. One focal area will be the **African tropics**, since this area is a **hotspot for disease emergence and AMR**. The other focal area will be directly at HIOH's doorstep in **Mecklenburg-Western Pomerania**, Germany. These focal areas will be complemented by third party funded **global activi-**

With its integrated and timely scientific concept, a **unique cluster of complementary founding partners** and cutting-edge infrastructure in Greifswald, HIOH will provide a vibrant research environment for both German and international scientists to tackle pressing global issues. The synergy between HIOH and its parent institutions will foster highly integrative research and its translation to the prevention and treatment of infectious diseases, using a One Health framework. In the future, HIOH and its partners will make important contributions to **improve pandemic preparedness** and a more effective **fight against AMR** through use of the One Health approach.



3 departments  
3 junior research groups



2 core units



New research building





## THE HELMHOLTZ ASSOCIATION

The Helmholtz Association is Germany's largest research organization. Research at its 18 independent research centers contributes to solving the major challenges facing society, science, and the economy. They work on developing sustainable solutions for the future. In doing so, Helmholtz covers the entire spectrum from basic to application-oriented research whilst applying an interdisciplinary approach. The Helmholtz Association cooperates with leading research institutions at the national and international level and is committed to the highest standards of talent management at all levels and the promotion of early-career researchers.

► [www.helmholtz.de](http://www.helmholtz.de)



> 43,000 employees



5 billion €  
annual budget



18 Helmholtz Centers  
12 Helmholtz Institutes



> 400 new patents/year



~20 new spin-offs/year

## THE HELMHOLTZ CENTRE FOR INFECTION RESEARCH (HZI)

HZI with its main campus in Braunschweig is Germany's largest academic institution dedicated exclusively to infection research. HZI researchers investigate bacterial and viral pathogens of high clinical relevance, elucidate their interactions with the host's immune system and explore new ways to prevent and combat infections. Through its unique strength in natural product research, HZI is engaged in the discovery and development of novel anti-infectives, together with industry. Strategic partnerships have provided the basis for establishment of a number of joint branch institutes (TWINCORE and CiiM with Medical School Hannover, HIPS with Saarland University, HIRI with Würzburg University, CSSB with a number of partners). As a member of the German Center for Infection Research (DZIF), HZI makes important contributions to fostering translational infection research on a national scale. The new institute's focus on „One Health“ will ideally complement the existing research portfolio.

The new Helmholtz Institute will be a branch of HZI. Scientists joining the institute will therefore be employees of HZI and enjoy advantages of HZI and access to a strong network of selected strategic partners.

► [www.helmholtz-hzi.de](http://www.helmholtz-hzi.de)



940 employees  
162 guest researchers



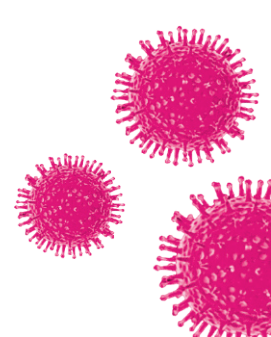
65 Mio. €  
program-oriented funding  
25 Mio. €  
third-party funds

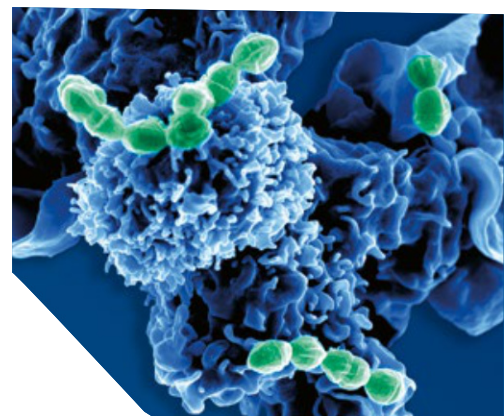


76 patent families



> 600 publications in 2021





10,291 students



1,220 employees



148 professors



5 faculties



4,595 employees



2,012 students



74 professors



21 clinics



5 locations in Germany



12 specialized institutes



75 reference laboratories

## UNIVERSITY OF GREIFSWALD

Founded in 1456, the University of Greifswald is one of the oldest universities in Germany. Today, the university is an internationally recognized research university offering outstanding study conditions in modern buildings with an excellent infrastructure for research-led teaching. Cutting-edge research originates from the intensive interdisciplinary collaboration of the faculties with renowned regional, national and international research partners. An excellent research infrastructure is available to the university's scientists, including two interfaculty research buildings of national importance as well as an outstanding (meta)proteomics platform. Infection research at the university is based on interdisciplinary and cross-faculty research networks addressing important bacterial pathogens, diagnostics and therapy of infections, bacto-viral coinfections, spread of antimicrobial resistances, human and environmental microbiomes and bats as a potential pathogen reservoir.

► [www.uni-greifswald.de/en](http://www.uni-greifswald.de/en)

## UNIVERSITY MEDICINE GREIFSWALD

With its combination of population-oriented, epidemiological Community Medicine and state-of-the-art Molecular Medicine, the University Medicine Greifswald has successfully developed a unique research profile in the past decades. The „Study of Health in Pomerania (SHIP)“, launched in 1997, is one of the most comprehensive longitudinal cohort studies, covering a vast array of phenotypic and genotypic characterization. The UMG is a partner site of the German Centre for Cardiovascular Research (DZHK) and the German Centre for Neurodegenerative Diseases (DZNE). With the newly established researchsupporting clinical workplace system KAS+, the next step has been taken to make clinical information available for research. As infection and inflammation is one of UMG's focus topics, the UMG offers access to clinical and health care settings to jointly generate much-needed knowledge and strategies to contain the persisting threat and health burden of infectious diseases.

► [www.medin.uni-greifswald.de](http://www.medin.uni-greifswald.de)

## FRIEDRICH-LOEFFLER-INSTITUT

Founded by Friedrich Loeffler in 1910, the FLI, the Federal Research Institute for Animal Health, is an independent federal authority under the auspices of the Federal Ministry for Food and Agriculture that focuses on research for the health and well-being of food-producing animals and the protection of humans from zoonoses. With its recently completed state-of-the-art laboratories and experimental animal facilities up to biosafety level 4 located at its headquarters Greifswald-Insel Riems, it is one of the most modern infectious disease research institutes in the world. Its research is based on Federal Animal Health Legislation including the operation of national and international reference laboratories for notifiable and reportable infectious animal diseases and zoonoses, e.g. caused by Influenza virus, Coronavirus, Coxiella, and Mycobacteria.

► [www.fli.de/en/home](http://www.fli.de/en/home)

