

PRESS RELEASE

Leendertz: "Human health cannot be viewed in isolation"

New Helmholtz institute conducts research at the interface of human health, animal health and the environment

The Helmholtz Institute for One Health (HIOH) was ceremoniously founded on 26 April 2022 in Greifswald. The HIOH is a new institute of the Helmholtz Centre for Infection Research (HZI) in Braunschweig, which is being established together with the University of Greifswald, the Greifswald University Medicine and the Friedrich-Loeffler-Institut, Federal Research Institute for Animal Health (FLI) as local founding partners. The founding director is the veterinarian and microbiologist Prof Fabian Leendertz. Research at the new institute will focus on the threats posed by the emergence of pathogens, as well as the epidemiology and ecology of antimicrobial resistance (AMR) to common medicines and vaccines.

Contact between humans and animals is becoming increasingly closer. This is due to the growing world population, the ever deeper intrusion of humans into natural habitats, the hunting of wildlife, and intensive livestock farming and agriculture. Combined with globalisation, climate change and the increased mobility of people, these are the main causes of the outbreak and rapid spread of infections – the SARS-CoV-2 Coronavirus is just one example. Emerging or modified pathogens can spread globally in a very short time and cross species boundaries.

"Human health can no longer be viewed in isolation. We have had to learn in recent years that it is closely intertwined with animal health, the environment and also ecological diversity," says Fabian Leendertz, founding director of the new Helmholtz Institute for One Health (HIOH) and Professor of One Health at the University of Greifswald. The One Health concept is an interdisciplinary research approach that starts precisely at these interfaces. Integrated monitoring and improvement of human and animal health, as well as environmental and climatic factors, is intended to provide holistic approaches to addressing the health challenges posed by infectious diseases.

"Our One Health concept was reviewed very positively in November, now it has to prove itself," says Leendertz. "So I am very happy that with the new Helmholtz Institute for One Health we have the opportunity to build our research on the principles of One Health and include all disciplines from which the research approach can benefit." The HIOH is being established as a new site of the Helmholtz Centre for Infection Research (HZI) and will primarily use the HZI's expertise in epidemiology, drug and vaccine research. Fabian Leendertz is convinced that the research location Greifswald offers very good conditions for this with the University of Greifswald, which covers a traditionally broad expertise in ecology and zoology, but can also provide input from experienced specialists for certain pathogens as well as from completely different disciplines. Greifswald University Medicine is an important partner, for example, for cohort studies in which people are monitored over long periods of time and health data is collected. Finally, the Friedrich-Loeffler-Institut covers the focus on animal health and offers a unique infrastructure with laboratories up to the highest security level (S4). "Embedding the Helmholtz Institute for One Health in the Helmholtz Association also offers many points of connection to other Helmholtz centres in health,

environmental and climate research, so that the HIOH can increase the degree of networking within the community even more," says Leendertz.

The HIOH will house three research departments, namely "Ecology and Emergence of Zoonotic Diseases" headed by Fabian Leendertz and the departments "Epidemiology and Ecology of Antimicrobial Resistance" and "Pathogen Evolution", which are already in the appointment phase. In addition, three junior research groups and two core units will complement these departments. "I would like to get the new colleagues on board as soon as possible so that we can jointly bring our concept to life," says Leendertz. "Especially for our research approach, close collaboration and continuous cross-cutting data analysis is crucial to be able to quickly and efficiently bring results into application."

One particular focus is on prevention, i.e. preventing disease outbreaks and strengthening the pandemic preparedness. Important questions are, for example, where exactly the transmission of pathogens between humans and animals takes place, what the local risks are and which pathogens occur at all. Africa's tropics and Mecklenburg-Western Pomerania's cultural landscape serve as model regions, both of which are characterised by a good proportion of agriculture and hunting – albeit in traditionally very different ways. "In both regions, we can take a comparative look at which pathogens with which antibiotic resistances exist in people, animals and the environment and how the contacts take place. Together with the local people, we then want to derive specific hygiene measures adapted to their way of life, for example," says Leendertz. Here, too, the great importance of interdisciplinarity is evident: "We people have to learn to listen to each other so that we can find solutions on a local as well as global level." So the One Health approach must also find its way even more into university teaching and also into school education. "We have a clear educational mission to bring more attention to the One Health idea - and we want to fulfil this mission with the HIOH," says Leendertz.

In addition to the boards of the founding partners and the President of the Helmholtz Association, Prof Otmar D. Wiestler, the Federal Minister of Education and Research, Bettina Stark-Watzinger, and the State Minister of Science, Culture, Federal and European Affairs, Bettina Martin, attended the founding ceremony, among others. Dr Chikwe Ihekweazu, Deputy Director General of the World Health Organisation (WHO), and Prof Lothar Wieler, President of the Robert Koch Institute (RKI), sent video messages. The founding is followed by a scientific meeting, the One Health Conference 2022, on 27 and 28 April 2022.

Further information about the Institute and the research approach "One Health" can be found here:

- <https://www.helmholtz-hzi.de/en/the-hzi/sites/helmholtz-institute-for-one-health-hioh/about-hioh/>

- <https://onehealth-greifswald.de/en/>

HIOH fact sheet:

- https://www.helmholtz-hzi.de/fileadmin/user_upload/Organisation/Standorte/Greifswald/HIOH_Infoblatt_A4_150dpi.pdf

The founding partners:

The Helmholtz Centre for Infection Research:

At the Helmholtz Centre for Infection Research (HZI), scientists study the mechanisms of infections and the defense against them. Understanding what makes bacteria or viruses into pathogens will hold the key to developing new medicines and vaccines. The HZI is a member of the German Centre for Infection Research (DZIF). Further information:

<https://www.helmholtz-hzi.de/en/>

The University of Greifswald:

The University of Greifswald is one of the oldest universities in Germany and the Baltic Sea region. It maintains exchange relations with over 200 universities worldwide. International students and academics come from over 90 different countries. The university offers outstanding study conditions in modern buildings with an excellent infrastructure for research-oriented teaching. The university's scientists have access to an exceptional research infrastructure, including two inter-faculty research buildings of national importance and a (meta-)proteomics platform. Infection research at the university is based on interdisciplinary and cross-faculty research networks that deal with important bacterial pathogens, the diagnosis and therapy of infections, bacto-viral co-infections, the spread of antimicrobial resistances, human and environmental microorganisms and bats as a potential pathogen reservoir. <https://www.uni-greifswald.de/en/>

Greifswald University Medicine:

The hallmarks of Greifswald University Medicine are the complementary linking of the research foci of Community Medicine and Molecular Medicine and the resulting Greifswald approach to Individualised Medicine (GANI_MED). Currently, 608 staff are employed in research and teaching. They teach 1,370 students of human medicine and 270 students of dental medicine. <https://www.medizin.uni-greifswald.de/en/home/>

Friedrich-Loeffler-Institut, Federal Research Institute for Animal Health (FLI):

As Federal Research Institute for Animal Health, the Friedrich-Loeffler-Institut (FLI) addresses farm animal health and welfare. The work aims at the prevention, diagnostics and control of animal diseases, the improvement of animal welfare and animal nutrition as well as the preservation and use of farm animal genetic resources. <https://www.fli.de/en/startpage/>