

# The Institute for Molecular Infection Biology at the University of Würzburg is 20

The **INSTITUTE FOR MOLECULAR INFECTION BIOLOGY** (IMIB) and the Research Center for Infectious Diseases at the University of Würzburg, Germany, celebrated their 20th anniversaries on the 28th of June.

The IMIB and the Research Center for Infectious Diseases (Zentrum für Infektionsforschung or ZINF) were founded in 1993 as a means to facilitate the propagation of the then new molecular tools developed in different model pathogens to understand the basis for infection by bacteria, fungi, and parasites. While these molecular and cell-based approaches remain a central part of the institute there is now a focus on the application of new global approaches to understanding infectious diseases.

“The institute is increasingly investing in new discovery-based technologies to understand the infection process from a new viewpoint,” current Director of the IMIB and EMBO Member Jörg Vogel stated. “For example, several of the groups are using deep sequencing to look into the many unexpected different roles that RNA molecules play in both infection and the immune response. We are also using global approaches to try to understand the molecular events involved in the epigenetic basis of gene regulation and how complex traits such as antibiotic resistance can evolve in a specific pathogen.” He added: “In many cases, the institute is benefiting from new approaches brought in by the young investigators that allow us to answer these important and timely questions using different model pathogens.”

The central role for young independent group leaders was a fundamental goal of IMIB and ZINF in 1993. “From the beginning we have placed a strong focus on the importance of young investigators in our laboratories. Our intention has been to give them the support they need to become independent early in their scientific career and to help them put in place research programmes that will stand the test of time,” remarked EMBO Member Jörg Hacker, the founding director of IMIB and the first spokesperson for ZINF.

The anniversary event brought together many researchers from all over Europe and the rest of the world to reflect on the successes of the past and also to look to the future of infectious disease research. The programme included talks that provided an overview and different perspectives on current and future research on infection biology by Pascale Cossart, EMBO Member and Professor at the Institut Pasteur, France, and Michael Gilmore, the Sir William Osler Professor of Ophthalmology, Microbiology and Immunology at Harvard Medical School. EMBO



Hermann Bujard, Jörg Hacker and Jörg Vogel at the anniversary event

Members Fritz Melchers and Werner Goebel also attended the meeting.

“The Institute for Molecular Infection Biology and the Zentrum für Infektionsforschung have achieved visibility and recognition for their scientific contributions to understand the mechanisms of infectious disease over the past 20 years,” commented Pascale Cossart. “The expertise and commitment of its researchers and leadership team have helped to build a solid foundation to support infectious disease research in Europe. This will help, ultimately, in our global efforts to make new scientific discoveries and to improve the clinical understanding of infectious disease.”

In her talk, Cossart emphasized that there are many interesting and in some cases crucial research options that institutions can either pursue or choose not to investigate. “My generation of scientists has made it possible to dissect the molecular processes associated with pathogens but the field is ready for other big discoveries provided that politicians and other decision makers are aware of the need to establish important links between scientific disciplines,” said Cossart. “We must accept the fact that microbiology is no longer the field of Louis Pasteur or Robert Koch working alone with Petri dishes. What we need are new links with other disciplines including, for example, chemistry, ecology, veterinary science and nutrition. Infection biology requires significant investment in instruments, informatics and bioinformatics that will allow us to store and analyse large amounts of data.”

The plenary lecture was given by John Mekalanos, Chair of the Department of Microbiology and Immunobiology, Harvard Medical School, who described some of molecular strategies used by bacteria to fight for superiority within a specific environmental niche.

Hermann Bujard, first chair of the Scientific Advisory Board of ZINF, and former EMBO Director, concluded: “It is very satisfying to see the progress that has taken place over the past 20 years at ZINF and the IMIB. Infectious disease research and its translation to ‘the field’ are essential if we are to make progress in improving public health across the world, a most important prerequisite for peaceful developments in numerous regions around the globe. Universities with their genuine responsibility for research and education are particularly suited to meet these challenges. The research programmes of ZINF and IMIB are excellent paradigms for innovative approaches in this crucial endeavour.”

Pascale Cossart, Institut Pasteur

