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Top appointment together with the UKE: New Research Department "Integrative Virology" at the Heinrich Pette Institute

Prof. Maya Topf and her Research Department complement the research spectrum of the HPI since October 2020

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Hamburg. On October 1, 2020, the Research Department "Integrative Virology", headed by Prof. Maya Topf, started its work at the Heinrich Pette Institute, Leibniz Institute for Experimental Virology (HPI). Prof. Maya Topf follows a joint call of the University Medical Center Hamburg-Eppendorf (UKE) and the HPI. The group is part of the Leibniz ScienceCampus *InterACT* and located at the Centre for Structural Systems Virology (CSSB) in Hamburg-Bahrenfeld.

The appointment of Prof. Maya Topf to a W3 professorship is an integral part of *InterACT* (Integrative Analysis of pathogen-induced Compartments), a Leibniz ScienceCampus established in Hamburg in 2019 with the overall goal of better understanding the role of compartments in the course of infection.

Prof. Topf's research focuses on macromolar complexes that are formed during the viral infection cycle, for example, when the virus attaches to the host cell or when the newly formed virus is released. For this purpose, Prof. Topf's group is developing computer-aided modeling approaches that integrate both experimental data and bioinformatics approaches. The long-term goal is to design antiviral therapies that can block these steps or, alternatively, to redesign viruses for use as targeted carriers.

"In recent years, the use of integrative, information-driven approaches to model the structure of macromolecular complexes such as those formed by viruses in cells has gained popularity. However, there is still a great need for the development of new computational methods that allow you to integrate different types of data, generate structural models and further investigate," explains Prof. Topf, adding: "The scientific environment and infrastructure of the HPI and the *InterACT* ScienceCampus are ideal to successfully drive my research forward."

"At CSSB we endeavor to understand the molecular mechanisms of pathogens and how they interact with their human host. Prof. Topf's focus on the development of computational modeling approaches will contribute to our understanding of these interactions on both a functional and systems level. Prof. Topf's joint appointment by two CSSB partners (HPI and UKE) strengthens Hamburg's focus on combatting infectious diseases and we are excited to have her on board," says Prof. Chris Meier, Scientific director of CSSB about the start of Prof. Maya Topf and her group.

"Prof. Topf has many years of experience in the development and application of computational methods for integrative structural modeling, with a special focus on the use of data from cryo-electron microscopy and mass spectrometry.

Considering that several HPI groups produce such data, her expertise will be a great asset to provide new functional and fundamental insights into the biology of human pathogenic viruses. The establishment of the new Research Department 'Integrative Virology' is thus another milestone in strengthening infection research at the HPI and the region of Hamburg," say Prof. Thomas Dobner, Scientific Director of the HPI, and UKE dean Prof. Blanche Schwappach-Pignataro.

Prof. Maya Topf

Prof. Maya Topf was born in 1973. After a bachelor and a master degree in chemistry at Tel Aviv University, she received her PhD in chemistry at the University of Oxford in 2002. From 2003 to 2006 she worked as a postdoctoral fellow at the Department of Biopharmaceutical Sciences at the University of California in San Francisco. Since 2006 she has been working at the Institute of Structural and Molecular Biology (ISMB, Birkbeck College and UCL), London, first as a Career Development Fellow (2006-2012), then as a Lecturer (2012-2013) and Reader (2013-2016). In March 2016 Maya Topf was appointed as Professor of "Structural and Computational Biology" at the ISMB.

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Heinrich Pette Institute, Leibniz Institute for Experimental Virology

The Heinrich Pette Institute, Leibniz Institute for Experimental Virology (HPI) investigates the biology of human pathogenic viruses with the aim of unraveling the molecular mechanisms that control viral life cycles and virus induced pathogenesis. The institute applies basic experimental research to develop new approaches for contemporary treatments of viral infections such as AIDS, influenza and hepatitis but also of emerging viral diseases.

The HPI was established by the philanthropist Philipp F. Reemtsma and the neurologist Heinrich Pette in 1948. The institute is a non-profit, independent research foundation that is part of the Leibniz Association.

Further information: www.hpi-hamburg.de

Leibniz ScienceCampus *InterACT*

Leibniz ScienceCampi enable Leibniz institutions and universities to cooperate on a thematically focused basis in the sense of an equal, complementary, regional partnership. The aim is to create networks in order to further develop the respective research area and strengthen the scientific environment for this topic.

Hamburg's Leibniz ScienceCampus "Integrative Analysis of pathogen-induced compartments", *InterACT*, has set itself the goal of better understanding the role of compartments in the course of infection.

In the course of the cellular infection cycle, pathogens such as viruses, bacteria and parasites use existing reaction spaces of the host or create new compartments. These reaction compartments protect the pathogens from host defense and concentrate factors that contribute to reproduction. The complexity of the dynamics, structure and function of these diverse reaction spaces can only be fully analyzed *in situ*. *InterACT* uses state-of-the-art imaging analysis techniques for this purpose. The resulting complex data sets are also integratively combined with data from complementary methods. In the long term, the knowledge gained in this way makes it possible to find new approaches for innovative therapeutic approaches. *InterACT* combines Hamburg's expertise in infection, structural and systems biology with *in situ* imaging and bioinformatics methods.

Further information: www.leibniz-interact.de