Press Release

LEIBNIZ INSTITUTE OF VIROLOGY (LIV)

Horizon Europe project DEFENDER: New targets for antiviral therapies

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International research project coordinated by the Leibniz Institute of Virology

Hamburg. The interdisciplinary project DEFENDER is developing innovative approaches to combat (re-)emerging viruses. The project, coordinated by the Leibniz Institute of Virology (LIV), is being funded with around 9.6 million euros as part of *Horizon Europe*. Nearly 1.3 million euros will go to the LIV.

The COVID-19 pandemic has highlighted the immense risk potential posed by (re-)emerging viruses. There are neither approved vaccines nor specific therapies for many of these viruses. This is precisely where DEFENDER (IDEntification oF novel viral Entry factors aNd DevelopmEnt of antiviRal approaches) comes in: The project aims to develop new, alternative antiviral approaches in order to be prepared for future outbreaks.

Unique research approach

By using state-of-the-art technologies such as CRISPR gene technology, bioinformatic analyses and artificial intelligence, DEFENDER is pursuing an integrated concept for the development of new targets for antiviral therapies that focuses on both the host and the virus. On the host side, new host factors are identified that play a key role in viral entry, while on the virus side, virus structures are identified that represent potential targets for therapeutic antibodies or nanobodies.

The research focus of the DEFENDER consortium lies on highly pathogenic viruses such as Nipah and Lassa viruses and mosquito-borne viruses like Zika, dengue, yellow fever and chikungunya viruses.

Strengthening European pandemic preparedness

Starting on January 1, 2025, DEFENDER will run for five years and will make a decisive contribution to improving European and global pandemic preparedness. Systematic research into virus-host interactions will be used to develop antiviral candidates that can be followed up in clinical trials.

Project leader Prof. Dr. Stephanie Pfänder (Research Group *Emerging Viruses*, LIV) emphasizes: *"DEFENDER combines the expertise of leading European research institutions in the fields of virology, structural biology, genetics and bioinformatics to develop innovative, forward-looking antiviral strategies. We are convinced that we will make a significant contribution to combating future virus outbreaks."*

In addition to the Leibniz Institute of Virology, 11 other institutions are involved in DEFENDER: The University of Zürich (Switzerland), the University Medicine Greifswald (Germany), the Helmholtz Centre for Infection Research in

Braunschweig (Germany), the University of Lübeck (Germany), the École Polytechnique Fédérale de Lausanne (Switzerland), the Heidelberg University (Germany), the Liverpool School of Tropical Medicine (England), the Institut Pasteur (Paris, France), the Ruhr University Bochum (Germany), the Philipps University Marburg (Germany) and the Bernhard Nocht Institute for Tropical Medicine (Hamburg, Germany).

The Leibniz Institute of Virology (LIV)

Founded in 1948, the Leibniz Institute of Virology is a non-profit and independent research institution under civil law, which has been a member of the Leibniz Association since 1995.

The LIV researches human pathogenic viruses with the aim of understanding virus related diseases and creating new therapeutic approaches. Based on basic experimental research, new approaches are developed for improved methods of treating viral diseases such as AIDS, influenza and hepatitis, as well as emerging viral infections such as COVID-19 or West Nile and Dengue fever. With its research focus, the LIV covers a wide range of the world's most important viral pathogens.
The LIV is involved in regional and national research networks such as the Centre for Structural Systems Biology (CSSB), the German Center for Infection Research (DZIF), the Hamburg Leibniz ScienceCampus *Integrative Analysis of pathogen-induced Compartments* (InterACt), and the Leibniz Lab *Pandemic Preparedness: One Health, One Future*. Together with the neighboring Leibniz research institutes Bernhard Nocht Institute for Tropical Medicine (BNITM) and the Research Center Borstel, Leibniz Lung Center (FZB), the LIV has founded the Leibniz Center Infection (LCI), a strategic alliance of the three complementary institutes.

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