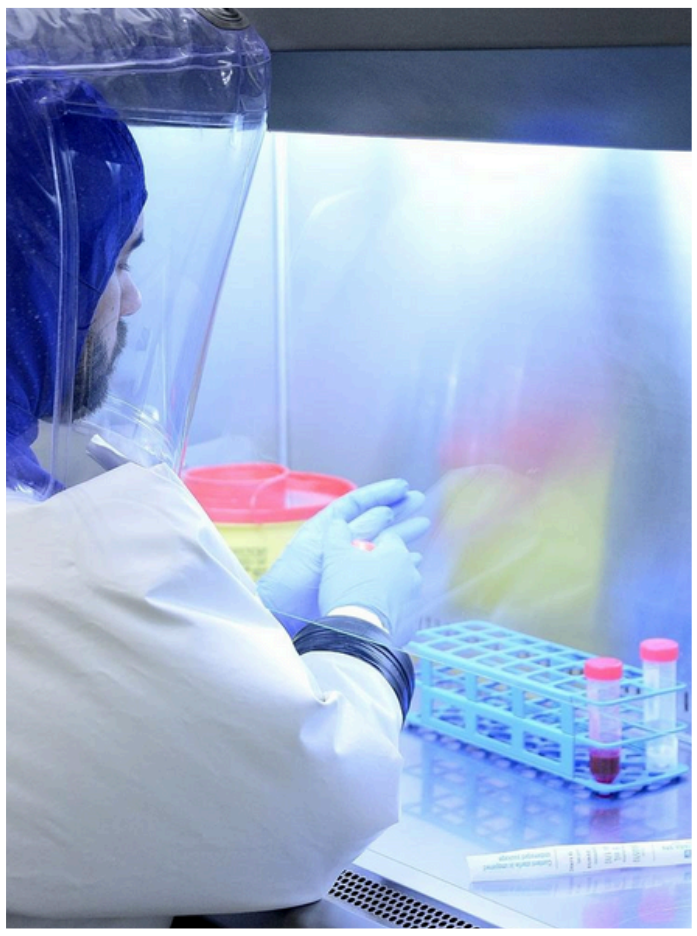
NATIONAL LABORATORY OF VIROLOGY

ADVANCING THROUGH SCIENCE: PREPAREDNESS AND SERVICE IN THE AGE OF PANDEMICS

The National Laboratory of Virology (VNL) is at the forefront of investigating zoonotic viruses, which are capable of crossing from animals to humans. This eminent institution houses four specialized research groups, diligently addressing the comprehensive research demands necessitated by the age of pandemics and the imperative for global pandemic preparedness. These groups engage in a dual mission of advancing fundamental virology research and spearheading applied research initiatives. Their endeavors aim at the development and validation of novel diagnostics and therapeutic agents for clinical application, alongside pioneering strategies for pandemic prevention and epidemiological investigations.VNL's central ambition is the consolidation of virological research tied to epidemic defense within Hungary. This endeavor seeks to position Hungary at the forefront of battling epidemics through the relentless innovation and application of cutting-edge technologies. This initiative significantly contributes to a deeper understanding of the operational mechanisms underlying known infectious diseases.



MAIN RESEARCH AREAS

- Viral Pathogenesis and Development of New Antiviral Drugs
- Inhibition of Virus Replication via RNA Interference and Blocking Small Molecules
- Discovery of New Viruses and Characterization of Emerging Diseases due to Climate Change and Human Activities
- Study and Early Detection of Vector-Borne Diseases and Disease-Spreading Insects
- Development of Diagnostic Procedures
- Participation in Establishing National and Global Biodefense and Biosecurity Systems
- Development and Testing of Epidemic Investigation and Prevention Systems
- Advanced Viral Genomics Research and Development of Novel Methods

IMPLEMENTER:
University of Pécs

PROJECT NUMBER: RRF-2.3.1-21-2022-00010

FUNDING PERIOD: 01.06.2022 - 30.06.2025

OVERALL BUDGET: 1.252.000.000 HUF

BENEFITS TO BE EXPECTED FROM LABORATORY RESEARCH

- Enhancement of National Virology Research: Significant growth in both basic and applied research activities, strengthening collaborative capabilities, and increasing national and international recognition and acclaim.
- Support for Biotechnology Initiatives: Building on research foundations to support biotech startups, pharmaceuticals, healthcare industry, diagnostics, and vaccine corporations, as well as government sector R&D efforts.
- Integration of Socially Beneficial Research: Scientific advancement, successor training, and communication of research projects with significant societal benefits.
- Provision of Biodefense and Biosecurity Expertise in Hungary: Ensuring a continuous supply of professionals and scientific support for state, industrial, and scientific stakeholders in biodefense and biosecurity.
- Successor Training and Education: Contributing to undergraduate and postgraduate education and popularizing science from secondary education levels.
- Active Participation in National Scientific Mentor Programs: Engaging in mentorship to foster the next generation of scientists.
- Regional Leadership in Infectious Disease Research: Taking a proactive role in researching and mitigating infectious diseases and epidemics, with a focus on the Balkans and the Carpathian Basin.
- Global Engagement in Pandemic Protection: Participating in global research initiatives across continents to address strategic issues of pandemic protection, applying locally developed prevention solutions to manage high-risk pathogens.

THE PROFESSIONAL TEAM

Dr. Gábor Kemenesi (Associate Professor with Habilitation)

Dr. Gábor Kemenesi, a Junior Príma awarded virologist and a renowned expert in international epidemic investigation and prevention research. He earned his biology degree at the University of Pécs, with a PhD focused on bat virology. His main research area is the discovery of high-pathogenicity zoonotic pathogens and comprehensive virological risk assessment, aiming to develop methods for epidemic study and prevention. He is currently a member of a WHO advisory body and leads several international research consortia.

Dr. Anett Kuczmog (Postdoctoral Researcher)

Dr. Anett Kuczmog graduated in biology from the University of Pécs in 2006 and obtained her PhD in biological sciences in 2012. Alongside teaching, her research focuses on mapping genetic resistance to agrobacterium in grapes. Her key project role involves studying gene expression changes behind the mechanisms of virus infections and antiviral synthetic agents.

Dr. Mónika Madai (Postdoctoral Researcher)

Mónika Madai earned her degree in biology and environmental science education from the University of Pécs in 2010. She works at the National Laboratory of Virology as a scientific assistant, engaging in serological tests, animal experiments, and actively participating in BSL-4 laboratory research and experiments.

Dr. Tamás Görföl (Postdoctoral Researcher)

Tamás Görföl completed his undergraduate in conservation engineering at Kaposvár University in 2010 and his MSc in Biology at Szent István University in 2012. He defended his PhD summa cum laude in 2017 at the University of Veterinary Medicine. His research at the National Laboratory of Virology primarily focuses on the diversity and disease ecology of viruses found in bats. He is an internationally recognized bat researcher.

Dr. Eszter Szabó (Postdoctoral Researcher)

Eszter Szabó completed her master's in biotechnology at the Budapest University of Technology and Economics in 2013 and received her PhD from Eötvös Loránd University in 2021. She joined the National Laboratory of Virology in 2022, focusing on virus-host cell interactions and the pathomechanism of viral infections in vitro.

Dr. Kornélia Bodó (Postdoctoral Researcher)
Kornélia Bodó completed her biology degree at the University of Pécs, where she also earned her PhD in immunology in 2020. Her research examines the immunological, signaling, and methylation processes in cells following virus infection.

Dr. Zsófia Lanszki (Postdoctoral Researcher)
Zsófia Lanszki completed her biology BSc and MSc at the University of Pécs. She focuses on detecting and researching viral zoonoses, diseases transmitted from animals to humans. She earned her PhD studying viruses in small carnivores and is a lead expert in virological research on wild predators at the VNL.

Dr. Safia Zeghbib (Postdoctoral Researcher)
Safia Zeghbib graduated in molecular genetics from Mentouri University in Algeria in 2010. She has extensive knowledge in molecular biology and bioinformatics techniques. Her work includes data analysis and experimental research, focusing on North African viral zoonoses and researching infectious diseases threatening Europe from the south.

Dr. Brigitta Zana (Postdoctoral Researcher)
Brigitta Zana, a graduate of the University of Pécs in biology and medical biotechnology, works as a scientific assistant within the National Laboratory of Virology. Her role primarily centers on researching human pathogens and non-pathogens transmitted by mosquitoes, and she actively participates in BSL-4 lab work.

Balázs Antal Somogyi (Pre-doctoral Researcher)
Balázs Antal Somogyi completed his biology degree at the University of Pécs in 2015. He focuses on data processing and statistical analysis of research findings, particularly on the ecology and density-dependent mechanisms of viral zoonoses and their vectors. Alongside his comprehensive lab work, he manages the operations of the BSL-4 lab.

Dr. Kornélia Kurucz (Postdoctoral Researcher)
Kornélia Kurucz earned her biology degree and PhD from the University of Pécs. She has participated in several international postdoctoral research projects, including in Germany and Austria. She is an internationally recognized expert in researching disease-spreading invasive mosquitoes and ecological studies of infectious diseases. She currently leads the VNL's research group on disease ecology and arthropod-borne infections, known for her work on the Korean mosquito, a significant disease vector in Europe.

Zsaklin Varga (Researcher)
Zsaklin Varga, a graduate in biology from the University of Pécs, currently researches the role of arthropod insects in disease transmission and develops related investigative and mitigation technologies at the VNL.

Rebeka Csiba (Researcher)
Rebeka Csiba is currently researching at the VNL while completing her biology MSc at the University of Pécs. Her work focuses on reducing the risk of arthropod-borne diseases, applying modern treatment procedures, and introducing practices in Hungary.

PhD Students: 10

Additional Collaborative Partners: 22 Researchers

POSSIBLE PARTNERSHIPS

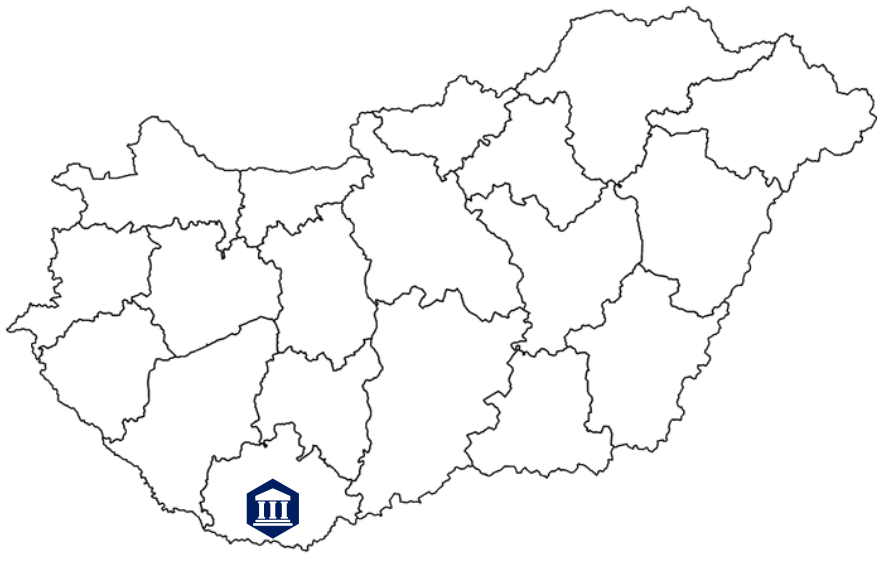
Leveraging its unparalleled professional team and one of the few dozen BSL-4 laboratories in the world, along with comprehensive molecular and traditional virological technologies, the National Laboratory of Virology (VNL) is open to numerous collaborative partnerships. This includes scientific institutes, biotechnology firms, healthcare industry players, governmental bodies involved in biosecurity or biodefense, and international entities dealing with scientific questions of pandemics. The training facilities associated with our BSL-4 laboratory offer additional opportunities for connection, providing potential collaboration options for all entities interested or engaged in biosecurity laboratory work.

TARGET GROUP

- Research Institutes
- University Research Centers
- Pharmaceutical Companies
- Small and Medium-sized Enterprises (SMEs)
- National Defense and Security Services
- Researchers Interested in Biosecurity Studies
- Young People Considering Their Career Path or Currently Enrolled in University Programs

PLACE OF IMPLEMENTATION:

- Pécs



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