
Department of Clinical Microbiology

The department processes more than 120,000 clinical samples annually for the detection of bacterial, mycotic, viral and parasitic agents. The Department of Clinical Microbiology is part of a network of institutes focused on national and international surveillance of antibiotic resistance of selected bacterial pathogens, and also operates the National Reference Laboratory for Cytomegalovirus. The scientific interests of the Institute are focused in several directions. One of them is infections caused by typical and atypical mycobacteria, possible modes of transmission from the environment and testing of new antituberculosis drugs. Another area is the role of the microbiome in the gastrointestinal and urogenital tract and its influence on the development of serious clinical diseases. An important research direction is the role of the microbiota in pregnancy complications such as premature amniotic fluid leakage and preterm birth. Traditionally, the pathogenesis of infections with herpes viruses as well as other current viral agents (SARS-CoV-2) is also being investigated in the context of the reference laboratory. Finally, the analysis of the causative agents of serious mycotic infections, especially in intensive care and in immunosuppressed patients, as well as the testing of new antifungal agents is being carried out.

Main research topics

- The role of organ microbiomes in the pathogenesis of serious diseases
- Resistance of microorganisms and the development of new antimicrobial agents
- Mechanisms of viral disease pathogenesis

Scientific research groups

- The role of the microbiome in the pathogenesis of GIT, urogenital tract and immunosuppressed patients
- Role of microbial flora in intra-amniotic complications of preterm amniotic fluid leakage and preterm birth
- Mycobacterial infections, mycobacterial resistance, importance of atypical mycobacteria of the external environment for humans
- Study of the mechanisms of pathogenesis of viral diseases caused mainly by DNA viruses and SARS-CoV
- Development and testing of new antimycobacterial agents and antifungals

Department activities

- AZV MZ ČR No. NU21J-07-00058 Quantification of intra-amniotic inflammation in premature amniotic fluid leakage on the background of global proteomic response
- VES MZ COVID (NU22-A106) - Clinical phenotype of SARS-CoV-2 vaccinated persons hospitalized for COVID-19 disease as a basis for optimization of national vaccination strategy and post-exposure prophylaxis;
- NW24-05-00539 Development of novel compounds as options to address the adverse epidemiology of resistant fungal infections;
- NU20-09-00114 Non-tuberculous mycobacteria in the Czech Republic: current risks and improved prevention;
- AZV NW24-07-00129 (Pato)physiological role of the endocannabinoid system in pregnancy maintenance and preterm birth