

Lyonbiopôle's fields and research topics

1 / The cluster's fields

Infectious diseases, infectiology, virology, bacteriology, parasitology, mycology and immunology

2 / The cluster's research topics

Host-pathogen interaction/ infection mechanisms

- Systematic study of virus-cell interactions: Experimental, bio-informatic approach to mapping interactions between viral and cellular proteins.
- Proteomics and comparative genomics of infection strains
- Longitudinal studies of virus-host interactions
- Structural analysis of viral proteins of interest for vaccines, viral assembly, and interactions with cell receptors
- Structural analysis of bacterial antigens, in particular carbohydrates

Host response to infection

- Methodology for research on the human immune repertoire and species of veterinary interest
- Induction of long-term immune memory
- Procedures for analyzing and predicting the immune response to an infection
- Immunomonitoring
- Antiviral and antibiotic therapy resistance mechanisms

Epidemiology/Emerging diseases

- Comparative epidemiology, zoonoses and pandemics
- Identification of emerging pathogens

Chronic infections/cancer/virally-induced cancer

- Virally-induced cancers, dynamics, prevention and therapy

Vaccination

- Vaccination procedures, animal models
- Antigens or therapeutic agents production processes
- Adjuvants, injection ways and vaccination protocols
- Viral or synthetic vectors and release systems
- Permissive cell lines, culture methods and new media

Diagnostics and analysis methods

- Cellular signs of infection and differential markers
- Sensitive pathogen detection processes
- Integrated molecular or cellular analysis methods
- Integrated microsystems for *in vitro* diagnostics, proteomics, and drug delivery
- Microfluidics and integrated laboratories
- Molecular species detection systems via direct electric sensing
- Use of micro & nanotechnologies to prepare very low-volume biological samples
- Related molecular profiles for diagnostics and prognostics
- Quick *in vitro* analysis methods