

TECHNOLOGY USED

Well-equipped laboratories for work under infectious and non-infections conditions. The most relevant equipments include:

- Laboratories for an identification and quantification of proteins or lipids on the principle of mass spectrometry and on principle of immunoassays
- Laboratories for microscopy covering also scanning electron microscopy, confocal microscopy, inverted epifluorescence microscopy for live-cell imaging, laser microdissection
- Laboratories for flow cytometry allowing not only multiparametric analyses but also cell sorting
- Laboratories for work with nucleic acids
- Laboratories for monoclonal or polyclonal antibodies production

Modern experimental animal facility, including infectious facility under BSL3 regime. These facilities had an accreditation for almost all animal species – from rodents and lagomorphs, through pigs, cattle, and birds, up to fish. Instrumentation allows also a detection of fluorescence, luminescence, and radioisotopes with X-rays in live objects, sonography or X-ray examination.

Institute has also permission for performance of experiments with genetically modified organisms and handling with highly hazardous biological agents and toxins.

Additional activities

- OIE Reference laboratory for paratuberculosis and for avian tuberculosis
- National Reference Laboratories of the State Veterinary Administration – for *Escherichia coli* and for viral diseases of fish
- Centre of accredited laboratories and Methodical and consulting centres
- Acquisition, preservation and distribution of zoopathogenic bacteria and animal viruses in CAMP (Collection of Animal Pathogenic Microorganisms)
- Activities of the Scientific Veterinary Committee for Food Safety



WHY TO COLLABORATE WITH US

- Modern infrastructure and experienced staff for advanced biomedical research
- Facilities for conducting infectious and non-infectious experiments
- Successful scientific and commercial cooperation at the international level in basic and applied research
- Number of successfully commercialized products on the market – especially diagnostic kits and vaccines

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MAIN SCIENTIFIC PROGRAMS

Vaccines and Prevention

- Host-pathogen interaction
- Development and testing of live and inactivated vaccines
- Testing of appropriate vaccination schedules
- Expression and purification of the protein antigen
- Alternative ways of protecting animal health

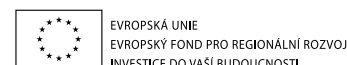
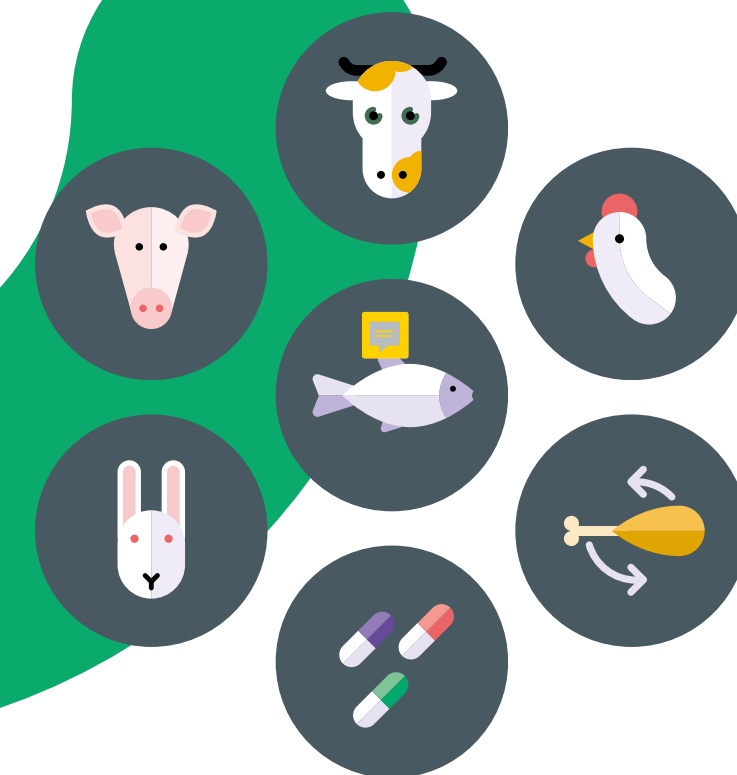
Veterinary epidemiology and diagnosis

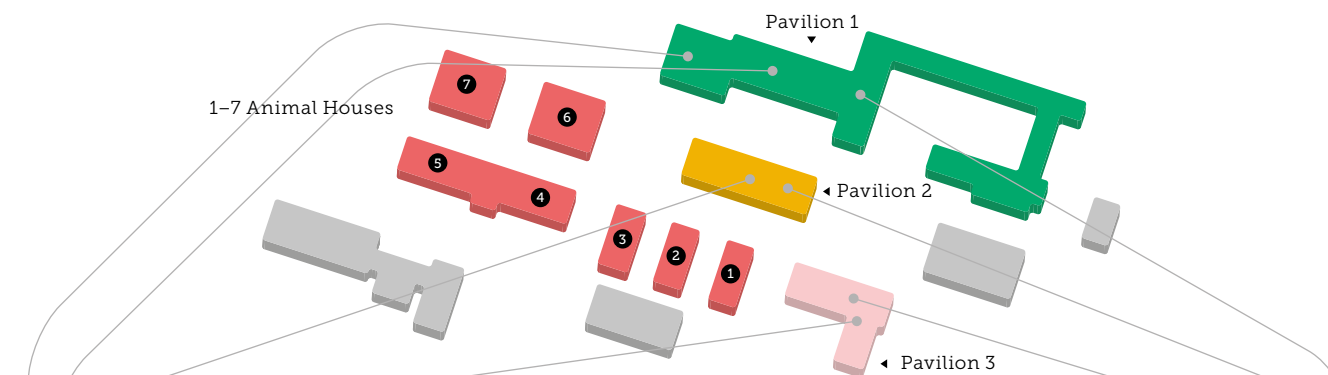
- Development and application of diagnostic kits
- Studies of veterinary epidemiology
- Development and use of the program of damping and prevention of animal diseases



Veterinary Research Institute

Brno, Czech Republic





Veterinary Research Institute (VRI) is the only centre of research specialized in veterinary medicine in the Czech Republic, which can conduct the most demanding studies with the right balance between basic and applied research due to the professional level of its teams, methodological basis and instrumentation. Research activities cover all types of farm animals, whilst the control of diseases of cattle, pig and poultry is its top priority.

The main scientific activities are carried out in 7 departments of the Institute:



Department of Virology



Department of Bacteriology



Department of Immunology



Department of Food and Feed Safety



Department of Genetics and Reproduction



Department of Chemistry and Toxicology



Department of Pharmacology and Immunotherapy

RESEARCH SERVICES



In vitro experiments

Using different *in vitro* models, including work with primary and permanent cell lines and transwell technology.

Laboratory analyses

All laboratory analyses needed to perform *in vivo* and *in vitro* experiments.

Pre-clinical tests

Independent testing site for an assessment of effectiveness of developed products for active and passive immunostimulation of farm and accompany animals.

Independent testing site for an assessment of effectiveness of feed additives or therapeutic protocols for farm animals.

Animal models

Using different infectious and non-infectious animal models, incl. caesarean-derived / colostrum-deprived piglets.



COLLABORATIVE RESEARCH ACTIVITIES

- Study of infectious diseases of farm animals, including development of live or recombinant vaccines.
- Development of eradication programs on economically important diseases.
- Study of molecular epidemiology of zoonosis.
- Development of nanoparticle based vaccines, immunotherapeutic and drug delivery systems.
- Study of occurrence and mechanisms of the bacterial resistance to antimicrobial agents.
- Study of food chain contamination with infectious agents.
- Study of non-infectious diseases, incl. reproductive dysfunction and embryo transfer.
- Study of mechanisms controlling chromosome segregation in mammalian germ cells and embryos.
- Study of the effect of contamination on animal health and product quality.
- Study of toxicity mechanisms of food chain chemical contaminants.
- Development of methods for determination of xenobiotics in the environment and in biological materials.

