

Mission Statement

The Institute of Parasitology, the part of the [Biology Centre CAS](#) that is a public research institution, pursues research on human and animal parasites at the organismal, cellular and molecular levels. The mission of the Institute is to acquire, advance, and disseminate knowledge of the biology and host relationships of parasitic protists and related eukaryotic microorganisms, helminths, and arthropods. The Institute pursues its mission through research, education and other activities at both the national and international levels. The results obtained have contributed to the prevention and control of human and animal parasitic diseases and had an impact on agriculture.

Principal characteristics

The Institute of Parasitology was established in Prague in 1962, but it was relocated to České Budějovice in South Bohemia in 1985. It represents a principal institution devoted exclusively to parasitological research in the Czech Republic. The main research areas involve protistology, helminthology, and medical entomology, including studies on the causative agents of the infections transmitted by arthropods. Investigations into fish parasites, life-cycles of helminths, parasitic arthropods as vectors of diseases, molecular biology of parasitic protists, phylogeny of parasites and molecular ecology of parasites have remained long-term research priorities of the Institute.

Research

The mission of the Institute of Parasitology is primarily research in parasitology, with the aim to obtain and present new information about the biology of causative agents of parasitic diseases of man and animals. The main areas representing the priorities of the Institute's research are listed below:

1. Parasites of fish

- Morphology, molecular taxonomy, and pathogenicity of amphizoic amoebae
- Life-cycles, ultrastructure and phylogeny of myxosporeans and microsporidia
- Diversity, systematics, biology and phylogeny of helminth parasites related to aquatic environment, with special attention to helminths of fish in temperate and tropical regions

2. Parasitic protists of man and animals with special reference to opportunistic parasites

- Human parasites with special attention to emerging opportunistic parasites

- Biology, pathogenicity and phylogenetic relationships of coccidia
- Immune response against microsporidia

3. Molecular biology of parasitic protists and nematodes

- Functional genomics of the mitochondrion of the flagellate *Trypanosoma brucei*
- Population structure of the causative agents of leishmaniosis in Europe
- Secondary endosymbiosis and evolution of complex plastids
- Genetic analysis of the nuclear receptor function in the model nematode *Caenorhabditis elegans*

4. Biology of disease vectors: molecular interactions involved in pathogen transmission

- Immunology of host-vector interactions with respect to pathogen transmission
- Molecular and cellular factors of pathogen transmission in ticks
- Molecular ecology of Lyme borreliosis and tick-borne encephalitis with respect to the antigenic structures of the causative agents and protein-carbohydrate interactions
- Tick chemical communication

5. Molecular taxonomy and phylogeny of parasites

- Phylogeny of parasitic protists, helminths and arthropods, and host-parasite co-evolution
- Parasite distribution and host specificity as the result of coevolutionary and host-switching events
- Molecular phylogeny of the bacteria associated with blood-feeding arthropods

Editorial activity

The Institute of Parasitology is the publisher of the international journal *Folia Parasitologica*, with an impact factor ranging from 0.6 to 1.0. It is issued quarterly and publishes contributions from all branches of parasitology.

Facilities and capabilities

The laboratories of the Institute of Parasitology are well equipped with instruments to undertake and perform a vast array of methods such as light microscopy, scanning and transmission electron microscopy, histopathology, biochemistry, molecular biology, and tissue and cell cultures. Its facilities make it possible to study host-parasite interactions at the organismal, cellular and molecular levels. Other special devices and laboratory instruments are also available in other research institutes within the Academy of Sciences in České

Budějovice, as well as the most comprehensive parasitological library in the Czech Republic. The Institute also possesses an Animal Facility approved for experiments with laboratory animals. The Institute has been approved for work with genetically modified organisms.

The Institute of Parasitology maintains a collection of parasitic protists and helminths, tissue cultures, and laboratory colonies of ticks and mosquitoes. Large collections of type and voucher material (about 3000 species of protists, helminths and parasitic arthropods) are also deposited in the Institute of Parasitology.

Education

The Institute of Parasitology has a close relationship with the Faculty of Biological Sciences of the University of South Bohemia in České Budějovice. The staff of the Institute has the primary responsibility for the professional curriculum in parasitology and its related topics, especially with specialisation of study towards MSc and PhD degrees. Diploma works and theses of undergraduate and graduate students of the Faculty of Biological Sciences are undertaken within a research programme of the Institute.

The Institute of Parasitology is also involved in undergraduate and graduate teaching at Charles University in Prague, Masaryk University in Brno, and Veterinary and Pharmaceutical University in Brno. The Institute of Parasitology endorses doctoral programmes in parasitology, molecular and cellular biology, and zoology at the Faculty of Biological Sciences, and it has also been licensed for doctoral studies in parasitology for the Faculty of Science, Charles University in Prague.

The Institute of Parasitology offers opportunities for postdoctoral and residency training in parasitology. The staff of the Institute organises international training courses and its researchers participate as lecturers in parasitology courses abroad.

Other activities

An integral part of activities of the Institute of Parasitology is the organisation of scientific events such as international symposia and workshops. Scientists of the Institute provide expert opinions to national and international agencies, professional societies, and scientific granting agencies. Researchers of the Institute also serve as members of editorial and advisory boards of international journals in addition to being referees of submitted articles.