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# Laboratory of Drug Metabolism, Interactions and Resistance

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*"We are open to a wide spectrum of collaboration with academic partners as well as with partners from applied research, industry and agronomy."*

## Offer

### Drug Metabolism Studies in Vitro and/or in Vivo

- Antiproliferative and toxicity tests using various cultures of immortalized cells
- Tests of hepatotoxicity of drugs and other xenobiotics
- Preparation and incubation of precision-cut liver and intestinal slices
- Isolation and cultivation of primary cultures of hepatocytes
- Preparation of subcellular fractions (animal and human organs, parasites, plants, cell cultures)
- Assays of enzyme expression and enzymatic activities
- Identification of metabolites of drugs and other xenobiotics

### Drug Resistance Studies in Helminths

- *In vivo* animal studies
- Isolation of helminths from infected hosts
- *Ex vivo* cultivations of helminths
- Coprological testing

## Expertise

- Drug biotransformation and transport studies in humans, animals, parasitic helminths and plants
- Effect of drugs, dietary supplements, natural compounds and other xenobiotics on expression and activity of drug-metabolizing enzymes
- Pharmacodynamics mechanisms of drug resistance in helminths

## Research Area & Excellence

- Identification of metabolites of drugs and other xenobiotics in humans, animals, parasitic helminths and plants
- Toxicity and interactions of natural substances/ food supplements with drugs
- Mechanisms of drug resistance in parasitic helminths

## Key Research Equipment

- Accredited vivarium
- Cell and tissue laboratory
- Laboratory for isolation and cultivation of helminths
- Laboratory for molecular biology (electrophoresis, Western blotting, qPCR)
- Analytical devices (spectrophotometers, spectrofluorimeters, HPLC, LC/MS)

## Achievements

Publications in respected international journals.

*"Our mission is to get better knowledge of fate of drugs in various organisms and the factors that could affect drug efficacy and safety."*

## Partnerships & Collaborations

### Main Projects

- 18-08452S "Anthelmintics in plants – interactions with polyphenols biosynthesis and antioxidant defence"
- 18-07724S "Circulation of anthelmintics in environment – does it contribute to drug resistance development in helminths?"

- 18-09946S “Metabolism of terpenes and mechanisms of their toxic effects in human liver“
- 18-07281Y “In vitro and ex vivo models to study drug-drug interactions of antiviral drugs on intestinal transporters“
- 17-11954Y “UDP-glycosyltransferases in Haemonchus contortus – players in drug-resistance?“
- No. P303/12/G163 “Centre of drug – dietary supplement interactions and nutrigenetics“
- UNCE18/SCI/012 “Centre of research of hosts-parasites interactions“
- PRIMUS/17/SCI/4 “Úloha mikroRNA v lékové rezistenci hlístic“

## **Are you interested in this expertisa?**

**Please contact CPPT UK**

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## **Experts and their department**

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