Česká zemědělská univerzita v Praze
Fakulta agrobiologie, potravinových a přírodních zdrojů

DOKTORSKÝ STUDIJNÍ PROGRAM

NÁVRH TÉMATU/PROPOSAL OF THEME

Studijní program/*Study Program*: **Applied Zoology**

Katedra/*Department of*: **Zoology and Fisheries**

Školitel (včetně titulů), email/*Supervisor*, email: Jan Dvořák Ph.D., dvorak19@af.czu.cz

Konzultant (včetně titulů)/*Co-supervisor*:

Forma studia/*Form of Study*: **Full_time**

Typ tématu/*Type of Theme:* **Framework**

Téma/*Theme:*
The role of metalloproteases in helminths as model organisms.
This topic is also available to students from other study programs.

Hypotéza/*Hypothesis*:

Study of a group of proteases in helminths in order to clarify the role of these enzymes in animal and human physiology, as well as with a potential impact on the development of treatment of parasitic diseases.

Anotace/Annotation:
The projects are focused on the study of related proteases of human glutamate carboxypeptidase 2 (GCP2) in platyhlemints (flukes of the genus *Schistosoma* and *Fasciola*) and nematodes (free-living n *Caenorhabditis elegans* and parasitic filarias of the genus *Brugia*). Human GCP2 is a transmembrane metallopeptidase belonging to the subfamily M28b. This class of proteases is unusual that includes enzymes with both aminopeptidase and carboxypeptidase activity, as well as a family of receptors without clear enzymatic function. Several genes encoding far less described proteases can be identified in the human genome. Another problem is, besides the unified misleading nomenclature, also lack of profound knowledge about their physiological functions. If these functions are known, they are especially those that play a role in pathologies. In our research, helminths serve as model organisms in biomedicine and also in parasitology. We use a wide range of laboratory techniques in the field of molecular biology, biochemistry and immunohistochemistry. We cooperate with several laboratories from domestic institutions, the EU and the USA.

Datum/*Date:* 26.10.2020

Podpis/*Signature:*