

***„ Proteomic insights into the mechanism of the acrosome reaction in sturgeon (Acipenser baerii) spermatozoa”***

**Supervisor: Mariola Dietrich, Ph.D., D.Sc.**

The long-term objective of this project is to obtain a new and original knowledge regarding molecular mechanisms accompanying the process of acrosome reaction (AR) in sturgeon as well as cryoinjuries to sperm acrosome. The first aim of this project is to characterize the Siberian sturgeon seminal plasma proteome using a novel proteomic methods, in order to understand the role of seminal plasma in the prevention of premature activation of acrosomal enzymes. The second task of this study is focused on detailed analysis of sperm proteome changes during the acrosomal reaction, evaluation of the protein redox status, assessment of their phosphorylation to predict the molecules involved in acrosomal reaction. The third aim of this project includes proteomic characterization of egg envelope, egg water and identification of specific proteins inducing acrosome reaction. Furthermore, the sperm proteome changes during the semen cryopreservation will be evaluated. Additionally, comprehensive analysis of sturgeon semen (sperm motility and viability, oxidative stress, acrosome status) will be performed.

**Requirements for the candidate:**

1. Master Thesis accomplishment – life science degree or any other biological degree
2. High motivation, independent thinking, good analytical and interpersonal skills, collaborative attitude;
3. Knowledge in the field of animal physiology as well as biochemistry
4. Basic knowledge in the field of proteomics and sperm analysis
5. Availability and willingness for gathering of the scientific material.
6. Very good knowledge of English language

**Required documents:**

1. Motivation letter
2. CV
3. Master Thesis Certificate
4. Recommendation letter