

STSM Scientific Report

COST STSM Reference Number: COST-STSM-FA1205-16781

COST Action: FA1205

STSM Applicant: Ms Ievgeniia Gazo, Faculty of Fisheries and Protection of Water, University of South Bohemia, Vodnany (CZ) , gazo@frov.jcu.cz

STSM Topic: Molecular mechanisms of motility activation in spermatozoa of different fish species: sterlet (*Acipenser ruthenus*) and common carp (*Cyprinus carpio* L.)

Purpose of the STSM:

- To study protein phosphorylation mechanisms and role of protein kinases involved in spermatozoa motility of different fish species in collaboration with colleagues from the Marine Station in Villefranche-sur-Mer, Université Pierre et Marie Curie, France.

Description of the work done and the main results:

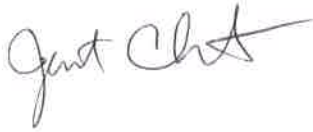
During my stay in the Marine Station in Villefranche-sur-Mer I had a unique opportunity to work with the best specialists in the field of proteomics. Due to their help and collaboration I was able to study protein phosphorylation on serine, threonine and tyrosine residue in spermatozoa of sterlet (*Acipenser ruthenus*) and common carp (*Cyprinus carpio*) during motility period. Involvement of protein kinases A and C (PKA and PKC) in sperm motility was studied as well. Using ECL kit and Fusion FX7 visualization system for western blotting analysis, we found out that spermatozoa of common carp change their phosphorylation state on serine and tyrosine residue. In case of sterlet spermatozoa it was shown that phosphorylation on tyrosine, serine and threonine residue as well as PKC and PKA are involved in sperm motility. Additionally, I studied method of immunolabeling using fluorescent and confocal microscopy. With this method we showed for the first time that in sterlet spermatozoa tyrosine-phosphorylated proteins are distributed according to a decreasing gradient along the flagella. Also the translocation of PKA substrate from the axoneme to membrane after motility activation was found in sterlet spermatozoa.

Future collaboration with host institution:

Due to the present COST action we have started our cooperative work with the to Laboratoire de Biologie de Developpement in the Villefranche Marine Station. Consequently as a valuable outcome from our research collaboration we expect to publish results of the present study.

Confirmation by the host institution:

Dr. Janet Chenevert hereby confirms that Ms. Ievgeniia Gazo visited the Laboratoire de Biologie de Developpement, University of Pierre and Marie Curie, Villefranche-sur-mer, France from 5th to 31st May 2014.



Signed: Dr. Janet Chenevert



Signed: Ievgeniia Gazo, M.Sc.