



Confidential

Supervisor's Review of USB RIFCH PhD Thesis

Surname of the PhD student: Guralp	Name of supervisor: Taiju Saito
Title of PhD thesis: Embryo development and transplantation of primordial germ cells in pikeperch <i>Sander lucioperca</i>	

OVERALL COMMENTARY ON THE PhD THESIS

The aim of a research conducted by Ms. Hilal Guralp was to establish a "surrogate production" technology, which is realized by transplanting germline stem cells into a recipient during embryonic stage, in percidae species. This new technology has already been established in some species, and is expected to help efficient production of percidae species as well. However, due to the methodological difficulties in manipulating percidae embryos, such as hard chorion and fragile eggs, nobody has succeeded this technology in this fish group yet.

Accordingly, Ms. Guralp selected pikeperch, *Sander lucioperca*, as a model species of percidae, and performed several cutting-edge experiments. This thesis is mainly composed of three parts: 1) in-depth embryonic development analysis of pikeperch including establishment of a new assay method to find the optimum stage for embryonic manipulations, 2) observation and characterization of primordial germ cells (PGCs) migration in pikeperch embryos using molecular imaging approach, and 3) the induction of germline chimeras by transplanting blastomeres in pikeperch. The knowledge obtained from the results of 1) and 2) could be a platform to realize the induction and confirmation of the germline chimeras in 3). A series of technologies and approaches developed in this thesis were implemented in percidae species for the first time, and may enable to produce percidae species, including freshwater, seawater, and endangered species, via surrogate production system by using pikeperch as a surrogate recipient. In my opinion, she has good credentials necessary to obtain the doctoral degree with this thesis.

FINAL RECOMMENDATION

- can be recommended for defence of PhD Thesis
 can be recommended with reservations for defence of PhD Thesis
 can not be recommended for defence of PhD Thesis

26. Apr, 2017 Japan
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Date and place

Taiju Saito
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surname and signature