Graduate Position: ETH Zurich/Eawag. Immune Defense Evolution

A PhD student position is offered in the group of aquatic ecology at ETH Zurich (Swiss Federal Institute of Technology Zurich) / Eawag (Swiss Federal Institute of Aquatic Research), in Switzerland, to assess evolutionary potential of innate immune traits of the freshwater snail *Lymnaea stagnalis.*

Host immune capabilities that counter harmful parasites are considered important determinants for fitness. However, knowledge on the evolutionary potential of immune traits in the wild is limited. This project will examine the extent of genetic variation as well as genetic architecture of snail immunity in natural populations under stress of parasite infections. The project will combine field work, classical quantitative genetic breeding designs, and modern genomics and transcriptomics technologies. The goals of the project are (1) to quantify additive genetic variance and covariance of immune defense traits under field conditions, (2) to determine their genetic architecture by testing whether the traits are polygenic or not and which candidate loci contribute to trait variation, and (3) to test the relative importance of various genetic and non-genetic factors in determining the expression of immune genes by calculating variance components for them. Extensive transcriptomic datasets, previously obtained from L. stagnalis, are available to initiate this project. The work will be conducted in collaboration with Dr. Philine Feulner (Eawag), Prof. Coen Adema (University of New Mexico) and the Genetic Diversity Centre at ETH (http://www.gdc.ethz.ch/).

General information about the research group can be found at http://www.ae.ethz.ch/

We invite highly motivated students with a good background in evolutionary ecology and molecular methods to apply for the position. A MSc or equivalent degree is required. Earlier experience with the study system is not required. The project is funded by ETH Zurich for 3 years. The project will be integrated with ongoing investigations of natural selection on immune function.

Earliest starting date: September 1, 2017

Qualified persons are invited to apply by email. Please attach a single PDF file including a letter of motivation, CV, and names plus contact information of two references to otto.seppaelae@env.ethz.ch . Subject line should read "PHD-Position 2017". Evaluation of applications starts July 21, 2017. Top candidates will be interviewed.

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