Ljudevit Luka Boštjančić

Project title: Evolution of immunity in decapods

Project description :

Freshwater crayfish, keystone species and ecosystem engineers, have a high impact on biodiversity in European freshwaters. Native crayfish populations throughout Europe are experiencing a severe decline, mainly due to the introduction of the invasive North American crayfish, vectors of the crayfish plague pathogen, *Aphanomyces astaci*. Exposure to the pathogen, leads to the high mortality in native European crayfish, while invasive North American crayfish are considered to be highly resistant.

In our project we aim to uncover the molecular mechanisms underlying the disease progression in the resistant/susceptible host. We focus on two crayfish species: **marbled crayfish** (*Procambarus virginalis*), a highly invasive carrier of the *A. astaci* pathogen, and **noble crayfish** (*Astacus astacus)*, an emblematic native European species. Based on the original **transcriptomic framework**, we aim to characterise the difference in the immune of A. astaci challenged crayfish. Based on the results of the RNAseq analysis, we further aim to characterise the course of the **immune response genes** expression. To complement the transcriptomic approach, we are analysing the changes in the **classical immunological markers** on the histological and pathophysiological level.

CURRICULUM VITAE

Ljudevit Luka Boštjančić ljudevit.luka@gmail.com

Born: 1st of October 1996 in Zagreb, Croatia

Education

2015.-2018. Bachelor of Science in Molecular Biology, Faculty of Science, Department of Biology, Zagreb

2018.-2021. University Graduate Programme in Molecular Biology, Faculty of Science, University of Zagreb (Croatia)

Work and research experience

2017.-2021. Intern at the Laboratory for molecular analyses, Division of Zoology, Department of Biology, Faculty of Science, University of Zagreb, under the supervision of prof. Ivana Maguire, PhD

2020. Erasmus+ student internship at the Institute for Environmental Sciences, University of Koblenz-Landau, under the supervision of Kathrin Theissinger, PhD

2021. Erasmus+ student internship at the Senckenberg Biodiversity and Climate Research Centre, LOEWE Centre for Translational Biodiversity Genomics (LOEWE-TBG), under the supervision of Kathrin Theissinger, PhD

Conferences

2018. 13th Croatian biological congress with international participation in Poreč, Croatia, poster presentation

2019. 5th Students' Symposium in Biology and Life Sciences - SISB5, Zagreb, oral presentation

2019. Regional European IAA meeting “IAA Gotland 2019 – Crayfish and Aquaculture”- poster presentation

2019. International medical conference ZIMS, Zagreb, Croatia Workshop leader: Mutations and disease, a bioinformatics approach Tracking down Alzheimer’s

Awards

2019. Rector's award for individual scientific work (one/two authors) in natural sciences

2019.-2020. City of Zagreb Scholarship for excellence

Projects

2019.-2020. Project leader of the student project founded by the University of Zagreb Student union grant, "Development of new karyotypization techniques of freshwater crayfish (family: Astacidae)", KarioInAstacidae.

Publications

Lovrenčić, L., Bonassin, L., **Boštjančić, L.L.**, Podnar, M., Jelić, M., Klobučar, G., Jaklič, M., Slavevska-Stamenković, V., Hinić, J., Maguire., I., 2020 New insights into the genetic diversity of the stone crayfish: taxonomic and conservation implications. BMC Evol. Biol. **20**, 146

Boštjančić, L.L., Bonassin, L., Anušić L., Lovrenčić, L., Besendorfer, V., Maguire, I., Grandjean, F., Austin, C.M., Greve, C., Hamadou A.B., Mlinarec, J., 2020, The *Pontastacus leptodactylus* (Astacidae) Repeatome Provides Insight Into Genome Evolution and Reveals a Remarkable Diversity of Satellite DNA. Front. Genet. **11**, 611745.

Boštjančić, L.L., Francesconi, C., Rutz, C., Hoffbeck, L., Poidevin, L., Kress, A., Jussila, J., Makkonen, J., Feldmeyer, B., Bálint, M., Lecompte, O. and Theissinger, K., 2021. Comparative transcriptome analysis of noble crayfish and marbled crayfish immune response to *Aphanomyces astaci* challenges., bioRxiv, 445163 (under review).

Skills

Languages Croatian (native proficiency), English (full professional proficiency)

Software R, Linux