Decoding Fish Resilience: Combating Microbial Threats

The dual transcriptomic approach to evaluate lumpfish response from *Vibrio anguillarum* biofilm cells

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Background and motivation

The overall goal of this project is to better understand the intricate host-pathogen interactions and apply these discoveries to answer relevant clinical questions of immunology.

Project description:

The research group conducts multidimensional transcriptomic studies on fish infection and immunology, encompassing functional analyses of immune cells, host-pathogen interactions, transcriptome-wide analysis of signaling pathways, and genomics with a focus on comparative and evolutionary studies.

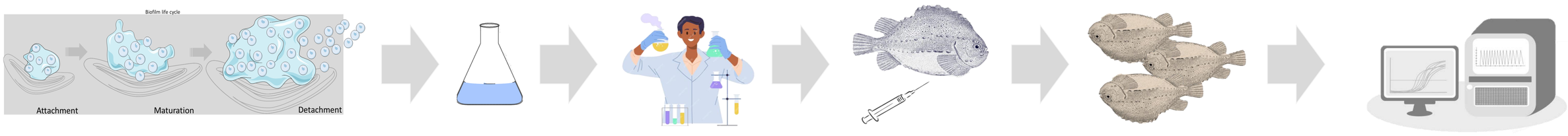

Figure 1*: Graphical abstract for the experimental procedure.*

Main questions

1. How effective are non-linear defense strategies in host-pathogen interactions, and what limitations do they present?

2. What are the hybrid warfare tactics employed by pathogens in infections, and how do they influence the dynamics of host-pathogen interactions?

3. In studying bacterial fawn responses in infections, what insights can we gain into the mechanisms of biofilm interactions?

Aims

To establish a robust foundation for lumpfish vaccinology research, aiming to gain comprehensive insights into the intricate dynamics at the intersection of marine sustainability and veterinary medicine

Marine sustainability

Working towards marine sustainability along with our collaborators, we aim to develop novel approaches against infections through prophylaxis or/and preventions.

Highlighted results

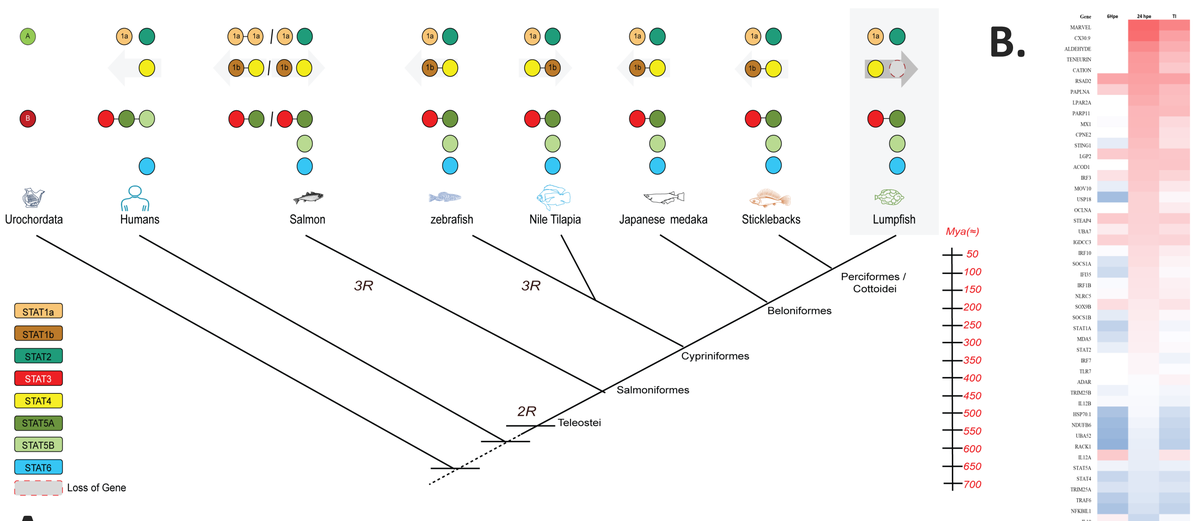

Figure 2 *: Illustration of preliminary outcomes from the study. A)Evolutionary study B) Differential gene expression analyses.*

Activities

1. Oral presentation at the 4th ISFSI 2022 in Bodø, Norway.
2. Impactful articles were successfully published in peer-reviewed journals (1,2).
3. Contributed to academia by co-supervising three students in their research project (MOL231).

References:

1. *Rao SS, Lunde HS, Dolan DWP, Fond AK, Petersen K and Haugland GT (2023)DOI:10.3389/fimmu.2023.1198211.*
2. *Rao SS, Nelson PA, Lunde HS and Haugland GT (2023). DOI:10.3389/fcimb.2023.1252744.*

Supervisory team

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