

The role of the gills as potential portal of entry in rainbow trout fry syndrome

Henriksen, Maya Maria Mihályi; Kania, Per Walther ; Madsen, Lone; Buchmann, Kurt; Dalsgaard, Inger

Published in:
DAFINET Workshop : Immune Responses in Fish

Publication date:
2012

[Link back to DTU Orbit](#)

Citation (APA):
Henriksen, M. M. M., Kania, P. W., Madsen, L., Buchmann, K., & Dalsgaard, I. (2012). The role of the gills as potential portal of entry in rainbow trout fry syndrome. In DAFINET Workshop : Immune Responses in Fish: Book of abstracts (pp. 19). University of Copenhagen.

DTU Library

Technical Information Center of Denmark

General rights

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

- Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain
- You may freely distribute the URL identifying the publication in the public portal

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.

THE ROLE OF THE GILLS AS POTENTIAL PORTAL OF ENTRY IN RAINBOW TROUT FRY SYNDROME

Maya M. M. Henriksen¹, Per Walther Kania², Lone Madsen¹, Kurt Buchmann² & Inger Dalsgaard¹

¹*National Veterinary Institute, Technical University of Denmark*

²*Laboratory of Aquatic Pathobiology, Department of Veterinary Disease Biology, University of
Copenhagen, Denmark*

The Gram negative fish pathogen *Flavobacterium psychrophilum* is the causative agent of rainbow trout fry syndrome (RTFS), also known as BCWD (bacterial cold water disease). While injection-based experimental challenges with *F. psychrophilum* have been standardized and result in high mortality rates, the same has not been the case for immersion based models. However, injection is not a proper approach for investigations of the immune response since the first line of defense is bypassed. This study aims at understanding the immune response in the gills following infection as well as their possible role as portal of entry. A bath model, using hydrogen peroxide (H₂O₂) as a pre-treatment stressor to increase the number of infected fish, was used for sampling. The experimental setup consisted of four treatment groups; 1) untreated controls, 2) H₂O₂, 3) *F. psychrophilum* and 4) H₂O₂ and *F. psychrophilum*. The use of this model also provides information regarding the impact of H₂O₂ alone, though this was not the main objective. Samples were taken 4 hours, 2 days, 5 days and 8 days after infection and preserved for later processing. Two methods are employed in this study. Firstly, quantitative real-time PCR will be used to investigate the immune response in the gills after immersion exposure to *F. psychrophilum*. Secondly, fluorescent in situ hybridization will be used to visualize pathogen entry and spread in gills and head region. Samples are still undergoing analysis and results will be presented at the workshop.