two glucocorticoid receptors, and their differential response associated to basal or high cortisol concentrations.
Keywords: Stress, cortisol, Glucocorticoid receptors, mucosal-associated lymphoid tissues, gene expression.

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O-129.

Moritella viscosa in lumpfish (_Cyclopterus lumpus_) and Atlantic salmon (_Salmo salar_)

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Abstract
Winter ulcer disease, caused by *Moritella viscosa*, is a significant problem in cold water salmonid farming, although the bacterium can infect and cause disease in a number of other fish species, such as lumpfish (*Cyclopterus lumpus*). Lumpfish are used as cleaner fish, to eat sea lice from Atlantic salmon (*Salmo salar*) in sea pens. It remains to be established whether *M. viscosa* can be transmitted between the fish species. In this study, we examined whether a salmon isolate of *M. viscosa* could infect and cause disease in lumpfish. We further examined whether a lumpfish isolate of *M. viscosa* could infect and cause disease in salmon. Finally, we examined whether vaccination of salmon with a salmon isolate of *M. viscosa* conferred protection against a lumpfish isolate. The data indicate that while lumpfish appeared to be resistant to a salmon isolate of *M. viscosa*, the salmon could be infected with a lumpfish isolate of *M. viscosa.* Vaccination protected the salmon against the salmon isolate of *M. viscosa* but did not confer sufficient protection to prevent infection with the lumpfish isolate.
Keywords: Atlantic salmon, Lumpfish, *Moritella viscosa*, Vaccine, Experimental infection

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O-130.

IFIT5 participates in the antiviral mechanisms of rainbow trout red blood cells

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Abstract
Recent evidences have demonstrated that rainbow trout nucleated red blood cells (RBCs) halted viral hemorrhagic septicemia rhabdovirus (VHSV) infection inside them. A wide variety of defense mechanisms related to the antiviral immune response have been reported for nucleated RBCs in response to VHSV exposure. In an attempt to identify the specific rainbow trout RBC proteins that interact directly with VHSV, we characterized the immunoprecipitated (IP) proteome of RBCs exposed to VHSV using an antibody against the N protein of VHSV. The IP proteomic characterization identified 31 proteins by mass spectrometry analysis. Among them, we identified interferon-induced protein with tetratricopeptide repeats 5 (IFIT5), a protein belonging to a family of proteins that are induced after the production of type I interferon, which have recently emerged as important players in antiviral innate immunity response. We confirmed the participation of IFIT5 in the rainbow trout RBC antiviral response by examining the expression profile of IFIT5 in RBCs after VHSV exposure at transcriptional and protein levels. In addition, silencing *ifit5* resulted in a significant increase in VHSV replication in RBCs. Moreover, IFIT5 modulation activity assays performed by modulating the IFIT5 RNA-binding pocket cavity, showed an increase in VHSV replication. In summary, these results suggest a possible role of IFIT5 in the antiviral response of RBCs against VHSV. This work broadens the knowledge of fish nucleated RBCs functions and their role in the immune response to viral infections
Keywords: Rainbow trout, IFIT5, red blood cells, VHSV, antiviral, immune response.

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O-131.

Analysis of immune gene expression during agd infection/ reinfection of Atlantic salmon (_Salmo salar_)

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Abstract
Farmed Atlantic salmon (*Salmo salar*) is one of the most economically important aquaculture species worldwide. Expansion has increased rapidly since the 1980s, and the subsequent industrial scale of production has led to numerous infectious diseases afflicting the marine grow-out stage. Amoebic gill disease (AGD) is a parasitic disease that was first recorded in Tasmania in 1989 and subsequently in Scotland in 2012, and is characterized by raised white lesions on the gills, with high mortality if left untreated. Current treatment methods primarily consist of freshwater or chemical treatment, and it is often necessary to repeat these treatments for the duration of the marine stage due to regular reinfection. To date, most research on analysis of the immune responses elicited has focused on salmon gene expression after first infection, or alternatively after numerous repeated infection/treatment cycles. This study has compared gene expression in gill and head kidney tissue during early infection (up to 15 days) with early reinfection (up to 14 days) post a single reinfection after hydrogen peroxide treatment. Multivariate analysis of the global transcript expression of a panel of ~40 immune genes showed that in the gill tissue, prior to hydrogen peroxide treatment, pro-inflammatory pathways were stimulated, whereas after treatment, anti-microbial peptides were more highly expressed. In the head kidney, differences between pre and post-treatment sampling points were limited, with the most pronounced changes between 15 days post infection, and 1 day post treatment. This model of reinfection allows differences in the expression of an array of genes between pre and post treatment to be elucidated, and improves our knowledge of how the salmon immune system responds to multiple rounds of AGD infection.
Keywords: AGD, reinfection, gene expression, salmon, Scotland

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