

Kinetics of local and systemic immune cell responses in whirling disease infection and resistance in rainbow trout

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Whirling disease is caused by the parasite *Myxobolus cerebralis* which infects different salmonid species, among them wild and farmed Rainbow trouts. Two strains of *Onchorrhynchus mykiss* (Rainbow trout) show different responses against *M. cerebralis*; the American Trout Lodge is susceptible to invasion and the German Hofer strain is resistant. Nevertheless, how this resistance is conferred has not been yet described.

In this work we aim to elucidate how resistant and susceptible rainbow trouts respond to *M. cerebralis* invasion. For this, fish were infected with spores of *M. cerebralis*, and the local and systemic immune response was analyzed by flow cytometry. Caudal fins, spleen and head kidney were sampled and measured in a kinetic manner.

Early T cells responses were observed in all organs analysed in the resistant strain, different from the results with the susceptible trout, where no T cell response was locally observed in the fins and a late myeloid response was observed 8d post infection; a slightly increase was observed in the spleen

Altogether, the results suggests that the resistance against *M. cerebralis* infection is driven by T cells, providing key information to continue elucidating the mechanisms that underlie the variation in resistance to whirling disease infection.

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