

B/MYELOID CELL SIGNATURES IN *FLAVOBACTERIUM PSYCHROPHILUM*-RESISTANT AND -SUSCEPTIBLE GENETIC LINES OF RAINBOW TROUT.

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ABSTRACT

The common aquaculture pathogen *Flavobacterium psychrophilum* (*Fp*) causes bacterial cold water disease (BCWD) in the rainbow trout (*Oncorhynchus mykiss*). For this project, we examined whether resistance to *Fp* is associated with differences in B/myeloid cell signatures in rainbow trout. The National Center for Cool and Cold Water Aquaculture has bred two genetic lines of rainbow trout: a line of *Fp*-resistant fish (ARS-*Fp*-R or R-line fish) and a line of susceptible fish (ARS-*Fp*-S, or S-line) having similar genetic background. Earlier studies from our labs have shown that 1) R-line fish have larger spleens than S-line fish, 2) R-line fish have a lower abundance of B lineage cells, and 3) R line fish have a higher abundance of EBF⁺ progenitors. Together, this might suggest that R-line fish have a more robust innate immune response compared to S line fish. To begin testing this hypothesis, we examined whether R-line fish had a higher abundance of myeloid cells than S-line fish, using antibodies against B/myeloid specific markers in a flow cytometric assay. Using myeloid marker Q4E in combination with early B lymphoid marker EBF, no significant differences between the two fish lines was observed (N~10). However, using myeloid markers Pu1 and Q4E, and B-cell marker Pax5, potential differences were detected between lines: S-line fish had higher percentages of Pu1⁺/Q4E⁺/Pax5⁻ cells. We are currently analyzing additional fish and testing additional markers to better characterize myeloid lineage populations. This should shed light on the immunological mechanism by which R-line fish are better able to survive *Fp*-challenges than S-line fish.

KEYWORDS:

BCWD
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