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Acquired immune gene expression in rainbow trout (*Oncorhynchus mykiss*) promoted by an inactivated vaccine against infectious pancreatic necrosis virus

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Statement of the Problem: Infectious pancreatic necrosis virus (IPNV) constitutes a major concern for aquaculture industry, then it is important to develop vaccines against this disease, and to study the immune response that they produce. The objective of this study was to evaluate the expression of some acquired immune response genes promoted for an experimental vaccine against IPNV, using *Salmonella typhi* porins as an immunostimulant in rainbow trout (*Oncorhynchus mykiss*).

Methodology & Theoretical Orientation: Vaccine was produced in BF-2 cell line and inactivated by gamma radiation. Subsequently, the vaccine was mixed with 10g of *Salmonella typhi* purified porins. In all cases, vaccine formulations were administered intraperitoneally in three different groups of rainbow trout (n=70, size=5 cms). One group was immunized with the vaccine plus *S. typhi* porins 10g, other with vaccine alone and the last only with MEM. A booster was performed at day (d) 15 post-vaccination (pv). Fishes were challenged at 45 days with 5x10⁶ TCID50/ml of lethal dose of IPNV. Gene expression of CD4⁺, CD8⁺ and IgM was determined by real time qPCR at days 2, 7, 15 and 22 pv and after challenge (ac), days 2 and 7 pv. Spleen and peritoneum from five trout were used for evaluating at days previous mentioned.

Findings: Group of trout immunized with vaccine plus porins showed an up-regulated CD4⁺ and IgM gene expression in spleen and peritoneum at days evaluated pv, but not CD8⁺. While after challenge, an up-regulated CD4⁺ and CD8⁺ gene expression was observed in the spleen, but not IgM. In this group survival rate was 12.5% (p<0.05). These results indicated that immune response elicited for both (pv and ac) was not specific to IPNV. The group immunized only with the experimental vaccine exhibited a significant IgM gene expression increase and mobilization of CD4+ cells at peritoneum pv; however, this was not happened in spleen and neither ac. Survival rate was 57.1%. Control group died ac.

Conclusion & Significance: This study demonstrates that relative expression of IgM and CD4⁺ cells was mainly elicited by the prototype experimental vaccine with a protective effect in vivo against IPNV. However, porins did not work in trouts, since the effect was opposite than they promote in mice, even in human. Then, it is necessary to assay another kind of immunomodulators.

Biography

Catalina Tufino Loza is Veterinarian, Graduated from the Faculty of Veterinary Medicine and Animal Science. Master of Science in Production and Animal Health from the UNAM. She has collaborated in several projects in the National Center for Disciplinary Research in Animal Microbiology of the National Institute of Forestry, Agriculture and Livestock Research (INIFAP). Currently holds a PhD in the Faculty of Veterinary Medicine of the National Autonomous University of Mexico (UNAM) through Doctorate Program in Animal Production and Health Sciences.

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