HOKKAIDO UNIVERSITY

Title	IMMUNE RESPONSES OF RAINBOW TROUT AGAINST VIBRIO ANGUILLARUM : MEASUREMENT OF MACROPHAGE ACTIVITY BY CHEMILUMINESCENCE
Author(s)	YAMADA, Fumitaka
Citation	Japanese Journal of Veterinary Research, 34(2), 166-166
Issue Date	1986-04-30
Doc URL	http://hdl.handle.net/2115/3013
Type	bulletin (article)
File Information	KJ00002374420.pdf

Instructions for use

Hokkaido University Collection of Scholarly and Academic Papers : HUSCAP

IMMUNE RESPONSES OF RAINBOW TROUT AGAINST *VIBRIO ANGUILLARUM*: MEASUREMENT OF MACROPHAGE ACTIVITY BY CHEMILUMINESCENCE

Fumitaka YAMADA

Department of Epizootiology
Faculty of Veterinary Medicine
Hokkaido University, Sapporo 060, Japan

It is known that phagocytes participate in the host defense against bacterial infection in fish as well as in mammalian and avian species. In the present study, the author investigated the role of macrophages of rainbow trout against the infection with *Vibrio anguillarum* by measuring the chemiluminescent (CL) reaction of the macrophages.

1. Normal macrophages from the peritoneal cavity, head kidney, spleen and peripheral blood exhibited CL reaction against *V. anguillarum* and zymosan. However, lymphocytes did not exhibit any CL reaction.

2. The macrophages stimulated with viable *V. anguillarum*, regardless of the treatment of the bacteria with rainbow trout complement, exhibited a strong CL reaction. By contrast, the macrophages stimulated with formalin-inactivated bacteria treated with complement showed a low and slow process of CL reaction. However, the macrophages did not respond to inactivated bacteria untreated with complement.

3. The macrophages of fish vaccinated with inactivated *V. anguillarum* emulsified in Freund's complete adjuvant showed an increased CL reaction seven days after vaccination when compared to that of unvaccinated fish. Though serum agglutinins were not detected in fish at this stage, 3/5 and 4/4 of the fish resisted challenge with *V. anguillarum*.

The results of the present study indicate that the activity of macrophages of rainbow trout increases within a short period of time after immunization, and the macrophages play a role in host defense before protective humoral immunity is established.