GENE EXPRESSION OF INTERLEUKIN 8 IN LIVER OF JAPANESE FLOUNDER *PARALICHTHYS OLIVACEUS* INFECTED WITH *EDWARDSIELLA TARDA*

Osamu Kurata*, Shinpei Wada

Laboratory of Aquatic Medicine, School of Veterinary Medicine, Nippon Veterinary and Life Science University, Tokyo 180-8602, Japan

ABSTRACT

Edwardsiellosis caused by the Gram-negative bacterium *Edwardsiella tarda* induces hepatitis showing abscess formation in fish. Because the remarkable neutrophil infiltration occurs in the lesions of hepatic abscess, the chemokine interleukin 8 (IL-8) known as a neutrophil chemoatractant is expected to be relevant for the pathogenesis. In this study, we examined the characteristics of IL-8 gene expression in liver of Japanese flounder *Paralichthys olivaceus* infected with *E. tarda*.

The experimental infection was performed by bathing of the fishes weighing about 11g in a bacterial suspension containing 2×10^6 CFU/mL of *E. tarda* NJB1401 for 10 min. Pathological changes of the liver were investigated by histological analysis using H&E staining and immunostaining with anti-*E. tarda* rabbit serum. The response of IL-8 gene expression in the liver was characterized by quantitative RT-PCR assay, which was compared with gene expression of the other inflammatory cytokines, IL-1β and TNFα, in the liver and with that in the other organs with lymphoid tissue, the kidney, spleen and intestine.

The liver of infected fish showed upregulation of IL-8 genes before appearance of *E. tarda* and accumulation of inflammatory cells. On the other hand, the gene expression of IL-1β and TNFα were upregulated after the appearance of *E. tarda*. Although such a quick response of IL-8 gene expression was also detected in kidney, spleen and intestine of the infected fish, IL-8 gene expression in the liver was more active than that in other organs. In conclusion, the liver was characterized as an organ quickly and actively responding by upregulation of IL-8 gene at the early stage to *E. tarda* infection in Japanese flounder.

KEY WORDS

inflammation, interleukin 8, liver, *Paralichthys olivaceus*, *Edwardsiella tarda*

*Corresponding author. Tel.: +81-422-31-4151; Fax: +81-422-31-6796

E-mail address: kurata@nvlu.ac.jp