Accepted Manuscript

Pathological analysis, detection of antigens, FasL expression analysis and leucocytes survival analysis in tilapia (*Oreochromis niloticus*) after infection with green fluorescent protein labeled *Streptococcus agalactiae*

Jingyuan Wang, Jinying Wu, Liyuan Yi, Zengxin Hou, Wensheng Li

PII: S1050-4648(17)30012-8

DOI: 10.1016/j.fsi.2017.01.002

Reference: YFSIM 4379

To appear in: *Fish and Shellfish Immunology*

Received Date: 25 June 2016

Revised Date: 2 January 2017

Accepted Date: 3 January 2017

Please cite this article as: Wang J, Wu J, Yi L, Hou Z, Li W, Pathological analysis, detection of antigens, FasL expression analysis and leucocytes survival analysis in tilapia (*Oreochromis niloticus*) after infection with green fluorescent protein labeled *Streptococcus agalactiae*, *Fish and Shellfish Immunology* (2017), doi: 10.1016/j.fsi.2017.01.002.

Pathological Analysis, Detection of Antigens, FasL Expression Analysis and Leucocytes Survival Analysis in Tilapia (*Oreochromis niloticus*) after Infection with Green Fluorescent Protein Labeled *Streptococcus agalactiae*

Jingyuan Wang, Jinying Wu[1], Liyuan Yi, Zengxin Hou, Wensheng Li

State Key Laboratory of Biocontrol, Institute of Aquatic Economic Animals and Guangdong Provincial Key Laboratory for Aquatic Economic Animals, College of Life Sciences, Sun Yat-Sen University, Guangzhou 510275, PR China.

[1] E-mail: lsswjy@mail.sysu.edu.cn.

Abstract

The pathogenesis of *Streptococcus agalactiae* infection in tilapia has not been fully described. To understand this, we investigated the clinic-pathological features of acute experimental septicemia in tilapia (*Oreochromis niloticus*) after receiving an intra-peritoneal injection with *S. agalactiae* THN-1901GFP. Immunohistochemistry and sections of pathological tissues were used to estimate the level of damage in the head-kidney, liver, spleen and trunk-kidney. The expression of FasL was analyzed by western blotting in these samples based on their damage levels. Leucocytes were isolated from the head-kidney and incubated with *S. agalactiae* THN-1901GFP. Then, phagocytosis, programmed cell death and the expression of FasL were analyzed. The infected tissues showed varying degrees of necrosis and histolysis. The serous membrane of the intestine was dissolved by *S. agalactiae* THN-1901GFP. Antigens of *S. agalactiae* THN-1901GFP accumulated in different parts of the infected organs. In the head-kidney and spleen, the expression of FasL was up-regulated in parallel with increased tissue damage. After being incubated with *S. agalactiae* THN-1901GFP, the phagocytic capacity and ability were both very high and the expression of FasL remained high in leucocytes. *S. agalactiae* THN-1901GFP was able to survive for a long period of time after being engulfed by phagocytic cells. These findings offer insight into the pathogenesis of *S. agalactiae* infection in tilapia.

Key words: *Streptococcus agalactiae*; pathology; Phagocytosis; Tilapia; FasL;