Accepted Manuscript

Expression of Hsp70 reveals significant differences between fin regeneration and inflammation in *Paramisgurnus dabryanus*

Li Li, Linlin Wang, Jingya He, Zhongjie Chang

PII: S1050-4648(17)30143-2

DOI: 10.1016/j.fsi.2017.03.024

Reference: YFSIM 4493

To appear in: *Fish and Shellfish Immunology*

Received Date: 12 January 2017

Revised Date: 8 March 2017

Accepted Date: 10 March 2017

Please cite this article as: Li L, Wang L, He J, Chang Z, Expression of Hsp70 reveals significant differences between fin regeneration and inflammation in *Paramisgurnus dabryanus*, *Fish and Shellfish Immunology* (2017), doi: 10.1016/j.fsi.2017.03.024.

Expression of Hsp70 reveals significant differences between fin regeneration and inflammation in *Paramisgurnus dabryanus*

Li Li, Linlin Wang, Jingya He, Zhongjie Chang*

Abstract Hsp70 is the most strongly induced in response to various cellular stresses and a good candidate for investigating its role in tissue injury. We firstly cloned full-length cDNA of *hsp70* from *Paramisgurnus dabryanus* (*PdHsp70*) by RACE method (GenBank: KP402408). Then regeneration and inflammation of fin were established by amputation and scratch respectively. Quantitative RT-PCR detected the *PdHsp70* began to increase rapidly its expression at 1 days post amputation (dpa) and reached the peak at 2 dpa during fin regeneration. Its expression was also up-regulated at 2 days post scratch (dps) of inflammation but still significant weaker in comparison with it in regenerated fin at 2 dpa. Next, immunohistochemistry analysis of PdHsp70 showed that PdHsp70 located mainly in the deeper epidermis of regenerated fin and was stronger than its expression in the scratched inflammatory fin which was involved in whole epidermal. SDS-PAGE and Western blotting confirmed that the PdHsp70 protein expressed efficiently in *Escherichia coli* BL21. These findings have implied that PdHsp70 are implicated in different regulation of regeneration and inflammation in response to injury stimulation. During the regeneration, it is involved in the formation of wound epidermis by mediating cellular protection whereas it can modulate inflammatory by activating the innate immune response.

Keywords Hsp70; regeneration; inflammatory; injury stimulation; *Paramisgurnus dabryanus*

1. Introduction

Urodele amphibians and teleost fish have a remarkable ability to renew lost or damaged body parts, whereas this acute tissue regeneration in many higher