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Temporal and Spatial Expression of *fgfbp* Genes in Zebrafish

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ABSTRACT

Fibroblast growth factor binding proteins (FGFBPs) are a class of secreted proteoglycans that function as an extracellular chaperone for locally stored FGFs and enhance FGF signaling. To date, all three human *FGFBP* genes have been identified and one orthologue *fgfbp1a* has been studied in zebrafish embryos. Here, we described the cloning and expression patterns of four novel *FGFBP* orthologues in zebrafish, *fgfbp1b*, *fgfbp2a*, *fgfbp2b*, and *fgfbp3*. Quantitative PCR and whole-mount *in situ* hybridization results showed that all transcripts except *fgfbp2a* are initially expressed in a maternal manner. *fgfbp1b*, *fgfbp2b* and *fgfbp2a* transcripts are expressed broadly in the head at 24 hours post-fertilization (hpf), and then become restricted to the pharyngeal tissue, pectoral fins, and liver, respectively. *fgfbp3* is abundantly expressed in the central nervous system (CNS) throughout embryonic and larval development. In adults, *fgfbp* family manifest the tissue specific patterns of expression with *fgfbp3* robustly expressed in muscle and heart. Our work offers a starting point to uncover roles of *FGFBP* family genes and the possible mechanisms of FGF-dependent and -independent actions of FGFBP in vertebrates.

Key words: FGFBP; FGF signaling; Pharyngeal tissue; Pectoral fin; Liver; Central nervous system; Zebrafish.

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