

Isolation and Sequences Analysis of Tight Junction Protein Claudin Encoding Genes in Intestinal Barrier of Common Carp (Cyprinus carpio)

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Abstract	A multiple genes family claudin encodes proteins which forms main structures of tight junction between epithelial cells. In intestinal epithelium claudin proteins are proposed to have roles in ion balances regulation and forming barrier against pathogenic invasion. In the present work, claudin genes were molecularly identified in common carp (Cyprinus carpio), one of the most important cultured fish in freshwater aquaculture. Carp claudin 1 and 2 were amplified with primers designed based on relevant known claudin genes in fish. On the basis of carp ESTs, other six carp claudin genes were amplified. The amplification products were cloned and sequenced. Phylogenetic and sequence analysis confirmed that the eight identified genes are claudin genes and could be designated as carp claudin 1, 2, 3b, 3c, 7, 11, 23, and 30, respectively. This finding could be used to develop further study of carp claudin especially roles of claudin during pathogen infection and strategy to modulate its expression in order to protect diseases in carp aquaculture.
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