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[2] Fish and Shellfish Bio-Defense

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bivalve C-type lectins have different carbohydrate-binding specificities and function to be a kind of antibody in non-self recognition (Song et al, 2010).

Invertebrate lectins have been demonstrated in the plasma of the hemolymph and bound to hemocyte membrane (Vasta et al, 1999; Tasumi and Vasta, 2007). Lectins have been isolated and characterized from the hemolymph of many species of bivalve mollusks (Vasta et al, 1999).

In marine bivalves, using potent invasive microorganisms such as marine bacteria requires investigation into the functional roles of lectins. For instance, in clam *Ruditapes philippinarum*, a C-type lectin MCL-4 enhanced the phagocytic ability of hemocytes to eliminate bacteria via recognition of terminal carbohydrate residues on the microbe surface (Song et al, 2010). In *C. gigas*, the hemolymph contains two erythrocyte lectins with the ability to agglutinate horse RBC (Gigalin E) and human RBC (Gigalin H), respectively. Gigalin E is a C-type lectin. Gigalin H has a high affinity for sialic acid residues in glycoprotein and has strong agglutinating activity against bacteria (Yamaura et al, 2008).

Glossary

PGN: Peptidoglycan,

PGRPs: Peptideglycan recognition proteins,

PAMPs: Pathogen-associated molecular patterns

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