

ANTIMICROBIAL PEPTIDES FROM MUSSEL *MYTILUS* *GALLOPROVINCIALIS*: THE MYTICINS

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ABSTRACT

Antimicrobial peptides (AMPs) have been found in different bivalve species but a remarkable abundance of these small peptides has been reported for the Mediterranean mussel, *Mytilus galloprovincialis*. In particular, the myticin C (Myt C) is the most abundantly expressed gene in cDNA libraries and also in Next generation sequencing projects after immune stimulation. This AMP presents a high genetic variability but until now the mechanism to generate it is unknown. Myt C is mainly present in hemocytes and also in serum where it is constitutively found in proteomic studies. Also, Myt C modulates the immune system because its overexpression is able to alter the expression of other mussel immune-related genes. Our results indicate that Myt C has antibacterial, antiviral and chemotactic properties being active across species due to its strong antiviral activity against a fish rhabdovirus. All these results suggest that this molecule should be considered not only as an AMP but also as the first chemokine/cytokine-like molecule identified in bivalves and one of the few examples in all of the invertebrates.

KEYWORDS

Antimicrobial peptides; bivalves, Myticin, antiviral activity

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