REACTIVE OXYGEN INTERMEDIATES PROMOTES THE EXPRESSION OF AN ANTIMICROBIAL PEPTIDE IN THE NORTHERN SCALLOP *ARGOPECTEN PURPURATUS* HEMOCYTES *IN VITRO*

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ABSTRACT

Reactive oxygen intermediates are metabolites normally produced on aerobic metabolisms and has been linked to processes like oxidative stress and aging. Despite this negative paradigm about ROI, another set of evidence in mammals suggest that these reactive intermediates can act as important second messengers in a variety of cellular signaling processes such as those involved on the immune response. Primary cultures of hemocytes from the Chilean scallop *Argopecten purpuratus* were developed to study a possible link between the production of reactive oxygen intermediates and the expression of an antimicrobial peptide, big defensin, under a context of immune response. A modified Leibovitz L-15 medium supplemented with 50% of sterile plasma from scallop was essential for hemocyte adhesion an survival. The ability of these primary cultures to develop an immune response was confirmed by phagocytic activity and ROI production essays. The antimicrobial peptide big defensin was up-regulated in response to the β-glucan zymosan and this up regulation could be diminished near to constitutive levels by the treatment of cultured hemocytes with the antioxidant trolox for 3 hours before the immune induction. This results constitutes the first evidence on invertebrates that supports a rol of intracellular oxygen intermediates as promoters of the expression of an antimicrobial effector during an immune response.

KEYWORDS: Reactive oxygen intermediates, Antimicrobial peptide, Chilean scallop

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