

ORAL COMMUNICATIONS

HEMOLYMPH REPOPULATION AFTER WITHDRAWAL INVOLVES CIRCULATING AND KIDNEY-RESIDENT HEMOCYTE POPULATIONS IN THE SNAIL *POMACEA CANALICULATA*

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Immune cells play essential roles in pathogen defense and tissue homeostasis, and their levels are maintained constant by combining hematopoiesis and exchanges between circulating cells and organ reservoirs. In mollusks, these processes are largely unexplored and *Pomacea canaliculata* represents a valuable gastropod research model for in-vivo hemocyte studies, due to the possibility of repeated hemolymph withdrawals and the presence of renal hemocyte aggregates referred to hemocyte islets (HI). Here, we investigated hemocyte repopulation after withdrawal and concomitantly observed posterior kidney (PK) HI behavior.

Circulating hemocyte number and morphotype proportion were analyzed by flow cytometry at 1.5, 3, 6, 9, 18, 24, and 48 hours post withdrawal (hpw). Model-based time-series analysis revealed dynamic non-directional changes in hemolymph composition within 48 hpw, during which small blast-like hemocytes peaked at 18 hpw and total cell number maximized at 24 hpw. Consistently, computer-assisted im-

age quantification from PK histological sections showed a decrease of HI areas at 18 hpw followed by progressive recovery. In the absence of hemocyte markers, analyses of available Pc transcriptomes revealed predominant expression of two conserved clotting- and hematopoiesis-related genes (Transglutaminase (PcTgase) and Hematopoietically expressed homeobox (PcHhex)) in circulating hemocytes and PK. In situ hybridization on control PKs showed their expression in HIs. RT-qPCR on PKs at 18 and 24 hpw revealed downregulation of PcTgase at 24 hpw and no significant changes for PcHhex.

To our knowledge, these results provide the first evidence for a coordinated involvement of both circulating and tissue resident hemocytes in mollusks during hemolymph repopulation.

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