

EMERGENCE OF LYMPHOID T CELLS (CD3) IN THE KIDNEY DURING THE EARLY DEVELOPMENT OF COBIA *Rachycentron canadum*

Marta Klosterhoff*, Joaber Pereira Jr., Emeline P. Gusmão, Ricardo V. Rodrigues, Marcelo B. Tesser, Luís A. Sampaio and Luis A. Romano

Federal University of Rio Grande – FURG
Institute of Oceanography
CP 474, Rio Grande, RS - Brazil - 96201-900
klosterhoff@uol.com.br

The immune system of teleost fish is different from mammals: bone marrow and lymph nodes are absent. Instead of bone marrow as the primary site for hematopoiesis, teleosts use the head kidney. At the same time, the head kidney also serves as a secondary lymphoid organ – a lymph node analogue, important in the induction and elaboration of immune responses. Next to thymus as primary T cell organ, head kidney is considered the primary B cell organ. Thereafter, the lymphocytes differentiated in the thymus also colonize the head kidney. The thymus plays a pivotal role in the development of the adaptive immune system, and the CD3 complex is a co-receptor that serves as a marker for general T-cell identification in fish. In this work we report the timing of emergence of the lymphocytes T CD3 in the kidney of the cobia *Rachycentron canadum*.

Larvae were sampled for histological sections at 10, 15, 21, 25 and 28 days after hatching (d.a.h.) for histological and immunohistochemical analysis. Larvae were euthanized with tricaine methanesulfonate and transferred to vials containing 10% buffered formalin. Serial sections of 5 µm were made and they were incubated with a monoclonal anti-CD3. The mass of haemopoietic and lymphoid tissue in the anterior part of the kidney was dramatically large at 10 d.a.h. (Fig 1). Immunohistochemical analysis confirmed the presence of CD3 (thymus T-lymphocytes) at 15 d.a.h. (Fig 2). Histological changes in the lymphoid population of kidney of cobia with respect to age, with lymphocytes B and T assure an effective immune answer.

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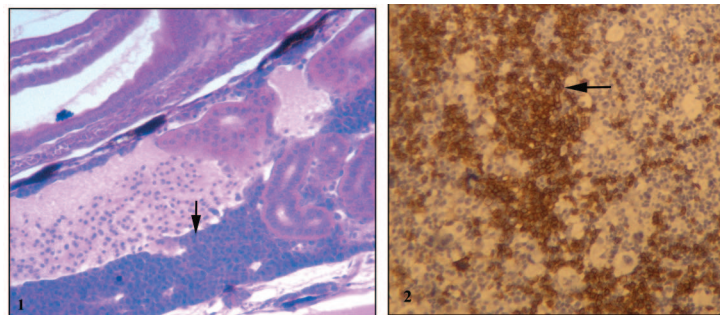


Figure1: Anterior kidney with renal tubules and haemopoietic and lymphoid (arrow) tissue in the anterior part of the kidney increased dramatically at 10 days after hatching (Hematoxilin-Eosin).

Figure 2: Anterior kidney with T lymphocytes evidenced by the presence of CD3 receptors (arrow), at 15 d.a.h.