

PHENOTYPICAL AND FUNCTIONAL CHARACTERIZATION OF TELEOST MUCOSAL CD8 α ⁺ DENDRITIC CELLS

Aitor González Granja¹, Irene Soletó¹, Esther Leal¹, Jaime Pignatelli¹, Rosario Castro¹, Beatriz Abós¹, Goshi Kato², Uwe Fischer², Carolina Tafalla^{1§}

¹ *Centro de Investigación en Sanidad Animal (CISA-INIA). Valdeolmos (Madrid), Spain*

² *Friedrich-Loeffler-Institut, Federal Research Institute for Animal Health, Greifswald - Insel Riems, Germany*

Although fish constitute the most ancient animal group in which an acquired immune system is present, the presence of dendritic cells (DCs) in teleost has only been briefly addressed and the identification of a specific DC subset in teleost remained elusive due to the lack of specific antibodies. In mice, CD8 α ⁺ DCs from lymphoid tissues have the capacity of cross-presenting extracellular antigens to T cells through MHC I, similarly to tissue derived CD103⁺ DCs and the human CD141⁺ DC population. In the current study, we have identified in trout a subpopulation of leukocytes of large size and high complexity co-expressing MHC II, CD8 α , CD103 and CD141. These cells, mostly present in mucosal tissues, exhibit functional characteristics of DCs and thus provide the first evidence of a specific DC-like subtype in teleost and support the hypothesis of a common origin for all mammalian antigen cross-presenting cells. In the current study, we have compared the functional and phenotypical characteristics of these DCs in different mucosal tissues (skin, gills and intestine), analyzing their phagocytic ability, their T cell activating capacity, their responsiveness to TLR ligands and the expression of DC-specific markers. Interestingly, this DC subtype exhibited specific phenotypes and functionalities in skin, gills and intestine, suggesting important differences in their activation state depending on their location. These results shed light on how a specific subset of mucosa-resident DCs triggers local responses in the different fish mucosal tissues.

KEYWORDS

Dendritic cells; trout; skin; cross-presentation; CD8.

§ Corresponding author. Tel.+34 916202300; Fax +34 916202247.

Email address: tafalla@inia.es