THE TURBOT MACROPHAGE MANNOSE RECEPTOR: PHYLOGENETIC ANALYSIS, FUNCTIONAL CHARACTERIZATION AND CHANGES IN GENE EXPRESSION DURING VACCINATION AND INFECTION WITH *Philasterides dicentrarchi*

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ABSTRACT

The mannose receptor is a carbohydrate-binding receptor expressed in some populations of macrophages and dendritic cells and non vascular endothelium in mammals. It has been described as a transmembrane protein with three types of extracellular domains: a cysteine rich domain, a fibronectin type II repeat and eight carbohydrate recognition domains. This highly effective endocytic receptor is involved in capture and clearance of pathogens, capture of foreign antigens for presentation to MHC-II compartments, and internalization of glycoprotein hormones, extracellular peroxidases and lysosomal acid phosphatase.

Very little is known about the structure and function of the mannose receptor in fish macrophages. The aims of the present study were to characterise the mannose receptor in turbot, determine where the receptor is expressed under normal and experimental conditions, and to carry out functional studies to shed more light on the function of the receptor. We have developed an antibody against the turbot mannose receptor to enable his localisation in the cells and for use in functional studies. Fish were infected with the parasite *Philasterides dicentrarchi* or immunized with vaccines containing different adjuvants. The dynamics of the cell populations expressing the mannose receptor in free and attached peritoneal cells and in lymphomyeloid tissues were studied by quantitative PCR, Western blot, immunohistochemistry, confocal microscopy and flow cytometry. We also evaluated the role of this receptor in endocytosis of several compounds and explored the changes in gene expression induced by different stimuli under in vitro conditions.

KEYWORDS: Turbot, macrophage, mannose receptor, phagocytosis, *Philasterides dicentrarchi*

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