

## Abstract 19:

Characterization of mucosal B cells in common carp

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Fish protect themselves from various pathogenic challenges and stay resilient in their environments, thanks to the action of various immune cells. B cells at mucosal surfaces (skin, gill and gut), secrete immunoglobulins (antibodies) that neutralize microbes and microbial toxins. In teleost fish, IgM, IgD and IgT (IgT1 and IgT2 in carp) are the main immunoglobulins produced by B cells. IgM is known for a long time to play a protective role in both mucosal and systemic organs (blood, spleen, other peripheral organs). IgT, the most recently discovered, is described as the main immunoglobulin responsible for immune response at mucosal surfaces of the skin, gills, gut, nasal cavity, pharyngeal mucosa, and buccal cavity, but its role in systemic responses has also been reported.

Due to the lack of specific tools, information with regard to carp IgT at the protein level is missing. Here, we describe the generation and validation of antibodies specific for carp IgT1 and IgT2. We used these antibodies in combination with available monoclonal antibodies against carp IgM (WCI12) to evaluate the expression of the respective soluble immunoglobulins in the serum and mucus. In addition, we evaluated the relative distribution of IgT1+, IgT2+ and IgM+ B cells in the head kidney, spleen, gut, and gills of naïve carp. Furthermore, we assessed the immune responses of IgT1+ and IgM+ B cells to a systemic infection with the blood parasite *Trypanoplasma borrelli*, by examining the serum and spleen of infected carp. Altogether our data show that also in carp, IgT may be involved in mucosal as well as systemic responses and show the utility of our newly developed tools for future studies on carp responses to infection and vaccination.