

Production and Characterization of Hen Egg Yolk Immunoglobulin Against *Campylobacter jejuni*

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Campylobacter jejuni is the most common bacterial cause of food-borne diseases worldwide. Campylobacteriosis is a self-limiting enteritis that may lead to more severe autoimmune disorders, such as the Guillain-Barré syndrome. Consumption and mishandling of contaminated poultry meat products are the main sources of campylobacteriosis for humans. *C. jejuni* can be considered as commensal bacteria in poultry, colonized birds remain asymptomatic even with 10^9 *C. jejuni* colony forming units (cfu) per gram of intestinal content. *C. jejuni* is detected in chickens often after the 2nd or 3rd week of age, which suggests the presence of natural barriers against *C. jejuni*, like the transfer of maternal immunity (IgY). The objectives of this study are to obtain a thorough characterization of the presence and specificity of antibodies against *C. jejuni* in egg yolk and to evaluate different protocols to produce IgY antibodies. To do so, 40 SPF laying hens were separated in 4 groups: control, orally challenged with live *C. jejuni*, subcutaneously injected with formalin-killed *C. jejuni* or with outer membrane proteins (OMP). The inoculations of the hens were done with the same mix of four well characterized strains of *C. jejuni* and were performed at 16 weeks of age. Immunization boosters were given at 21 and 30 weeks of age. Eggs were collected from the beginning of the lay and the IgYs were extracted from egg yolk using a chloroform-based method. Total IgY as well as anti- *C. jejuni* antibody level were determined with an ELISA method. Immuno Blots against OMPs and total proteins of *C. jejuni* strains were performed to compare the specificity of antibodies obtained from each antibody production methods.

Those upcoming results will allow to choose the best method for antibody production to obtain an egg powder against *C. jejuni* that could be used as a feed additive at the farm level to control *C. jejuni* intestinal chicken colonization.