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POST TRANSLATIONAL POLYMORPHISM OF *NATURAL* ANTIBODIES: RAPID PROTECTION TO INFECTION?

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Natural antibodies (NAb), i.e. antibodies present in individuals without prior immunization or infection, perform many important functions in various immune responses, and are often polyreactive of nature with low binding affinity. Also natural auto-antibodies (N(A)Ab) binding at least one auto-antigen were found in various species including the chicken. Natural auto-antibodies might provide regulation in various other physiological systems. In poultry, levels of NAb are highly heritable, and were related with health and survival. Levels of NAb not only increase with age, but dietary pro- and antibiotics, and immunizations with innate antigens like lipopolysaccharide (LPS) at least temporarily enhance NAb levels. Polyreactivity of NAb may rest on a change of the three-dimensional structure of the immunoglobulin $F(ab)_2$ fragment caused by various locally present oxidizing agents, salts and lower or higher pH, as a result of the activation of inflammatory cells. We evaluated by Western blotting effects of subcutaneously administered LPS and lipoteichoic acid (LTA), respectively, on binding characteristics of chicken N(A)Ab towards the 'auto-antigen' chicken-liver-cell-lysate (CCL) *in situ* prior to (day 0) and 3 days after subcutaneous challenge, as well as the effect of different *in vitro* maltreatments in the form of oxidizing agents: hydrogen peroxide, low pH, and aqua dest on chicken N(A)Ab polymorphism. Prior to, and at 3 days after challenge, plasma N(A)Ab bound to CCL. Differences in the staining patterns of individual CCL molecular weight-identified fragments (MWIF) were found as was true for the extinction intensity of these fragments after LPS or LTA challenge. Staining of CCL by plasma samples was prone to *in vitro* maltreatment of the plasma samples. The results suggest that chicken N(A)Ab are prone to irreversible post translational polymorphism *in vitro*, which can be can be initiated by PAMP-induced inflammatory agents *in situ*, and which may provide a rapid humoral defense to be mobilized after infection.