

Abstract

Domestic fowl (*Gallus gallus f. domestica*) is an economically important model species in science. Knowledge of the immune system of this species is therefore crucial. In research the commercial stocks are usually used together with laboratory inbred lines. They have an unnatural variability, as a result of inbreeding, their genetic and phenotypic variability is reduced. This laboratory lines are therefore not the best model for research of variability. Presently, genetically diversified poultry populations can be found in rural stocks and fancy breeds. These breeds could be good model for research in variability of immunoresponse. In this thesis, I try to map the genetic variability of the binding site of MHC class I glycoproteins in fowl breeds. In chickens are these molecules encoded in duplicated gene called BF (BF1 and BF2). These genes are relatively well known and considerable variability has been described in domestic fowl. Our results suggest a high genetic variability of MHC I in domestic fowl breeds. We had identified 41 haplotypes in 25 individuals of 14 breeds, including 7 haplotypes already known from the literature. I also focused on proinflammatory activity in fowl breeds. I watched swelling of tissue and expression of pro-inflammatory cytokines IL-6 and IL-1 β after subcutaneous injection of lipopolysaccharide. The results suggest that the magnitude of swelling after stimulation and expression of the two proinflammatory interleukins differ among fowl breeds.