Early immune gene expression responses to Salmonella enteritidis infection in indigenous chickens

Abstract

Salmonella enteritidis (SE) is a common cause of food-borne disease in humans and loss of growth in poultry. An effective method to inhibit salmonellosis is to increase the genetic resistance of poultry to Salmonella through genetic selection programmes that may be performed using phenotypic or genotypic data. A better understanding of the effects of Salmonella infection on the expression of inflammatory and anti-infectious cytokines and antimicrobial molecules is essential for choosing potential markers in selection programmes. The aim of this study was to investigate the expression of NRAMP1, TLR4, IL8 and IFNg genes in the caecum and spleen of Malaysian village chickens and red jungle fowl 48 h after inoculation with SE. Real-time reverse transcription PCR was used to quantify the fold-change in mRNA expression. The results showed that all the genes were highly expressed 48 h post-infection in the caecum of the village chickens. Overall, these results showed that Malaysian indigenous chickens have appropriate innate immune responses to SE infection.

Keyword: Indigenous chicken; Gene expression; Immune response; Salmonella enteritidis