

Lipopolysaccharide Induced Avian Innate Immune Expression in Heterophils

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Abstract : Although chicken strains show differences in susceptibility to a number of diseases, the underlying immunological basis is yet to be elucidated. In the present study, heterophils were subjected to LPS stimulation and total RNA extraction, further differential gene expression was studied in broiler, layer and indigenous Aseel strain by Real Time RT-PCR at different time periods before and after induction. The expression of the 14 AvBDs and chTLR 1, 2, 3, 4, 5, 7, 15 and 21 was detectable in heterophils. The expression level of most of the AvBDs significantly increased ($P < 0.05$) 3 hours post in vitro lipopolysaccharide challenge. Higher expression level and stronger activation of most AvBDs, NF κ B-1 and IRF-3 in heterophils was observed, with the stimulation of LPS in layer compared to broiler, and in Aseel compared to both layer and broiler. This investigation will allow more refined interpretation of immuno-genetic basis of the variable disease resistance/susceptibility in divergent stock of chicken including indigenous breed. Moreover this study will be helpful in formulation of strategy for isolation of antimicrobial peptides from heterophils.

Keywords : differential expression, heterophils, cytokines, defensin, TLR

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