

**P0176****Age Effects on Gene Expression Related to the Bacterial Chondronecrosis with Osteomyelitis in Broiler***Date: Monday, January 12, 2015**Room:*

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Genetic selection for rapid growth and improved feed efficiency has been very effective in meat-type chickens. However, incidence of bone problems has increased significantly, causing a negative impact on welfare and production. Bacterial Chondronecrosis with Osteomyelitis (BCO) is one of the most important leg disorders in commercial broilers. This pathology is also known as femoral head necrosis and its etiology and genetic mechanisms involved remains unclear.

In this study, age-related differentially expressed (DE) genes were identified in femur of broilers at 21 and 35 days affected with BCO. Six injured males from a commercial broiler line were sampled, 3 from each age. RNA from the femur growth plate was extracted using Trizol®. Sequencing was performed using the Illumina HiSeq (15 million reads/sample, 2x100bp). After data cleaning, around 97,5% of the reads were mapped to the chicken reference genome (Galgal4) containing 17,108 genes (Ensembl release 75). Data were analyzed with EdgeR and 11,224 genes were expressed in femur. Out of those, 87 were DE (FDR<0.05) between ages, being 81 genes upregulated at 35 days. Genes related to immune response were the most frequent, mainly those involved with the following processes: inflammatory response, adaptive immune response, cell differentiation and interaction with host, such as gallinacins, which are chicken antimicrobial peptides.

Furthermore, 6 genes were upregulated at 21 days, two of them involved with bone metabolism (DLX3 and SPARCL1), possible candidates to trigger BCO in the broiler's growth phase. Hence, age is an important factor related to DE genes in this condition.

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