Differentially expressed genes in the liver of lean and fat chickens

Q. Hu1,2,3, S.Z. Wang1,2,3, L. Leng1,2,3, W. Na1,2,3, Q.G. Wang1,2,4 and H. Li1,2,3

1Key Laboratory of Chicken Genetics and Breeding, Ministry of Agriculture, Harbin, China
2Key Laboratory of Animal Genetics, Breeding and Reproduction, Education Department of Heilongjiang Province, Harbin, China
3College of Animal Science and Technology, Northeast Agricultural University, Harbin, China
4Chongqing Academy of Animal Science, China

Corresponding authors: H. Li / Q.G. Wang
E-mail: lihui@neau.edu.cn / wangqigui@hotmail.com

Received January 3, 2014
Accepted June 21, 2014
Published December 19, 2014
DOI http://dx.doi.org/10.4238/2014.December.19.3

ABSTRACT. This study aimed to investigate gene expression in the chicken liver for lean and fat broiler lines. Birds used in this study were 2 and 4 weeks of age; they were derived from the 14th generation of Northeast Agricultural University broiler lines, which were divergently selected based on abdominal fat content. Chicken Genome Arrays were used to screen differentially expressed genes in the liver tissue from lean and fat birds. At 2 and 4 weeks of age, 770 and 452 genes were differentially expressed between the 2 lines, respectively. The differentially expressed genes were involved in Wnt, insulin signaling,
and cell cycle pathways. At 2 and 4 weeks, 42 shared, differentially expressed genes were revealed by the analysis. We speculate that these genes might regulate chicken lipid metabolism.

**Key words:** Chicken; Lean and fat broiler lines; Chicken liver; Gene expression profile