



## Construction and analysis of a subtractive cDNA library of early embryonic development in duck

Y.L. Liu<sup>1,2</sup>, L.X. Zhong<sup>1,2</sup>, J.J. Li<sup>2</sup>, J.D. Shen<sup>2</sup>, D.Q. Wang<sup>2</sup>, Z.R. Tao<sup>2</sup>,  
F.X. Shi<sup>1</sup> and L.Z. Lu<sup>2</sup>

<sup>1</sup>College of Animal Science and Technology, Nanjing Agricultural University,  
Nanjing, China

<sup>2</sup>Institute of Animal Husbandry and Veterinary Science,  
Zhejiang Academy of Agricultural Sciences, Hangzhou, China

Corresponding author: F.X. Shi  
E-mail: fxshi@njau.edu.cn

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**ABSTRACT.** Several studies have documented the process of early embryonic development in poultry; however, the molecular mechanisms underlying its developmental regulation are poorly understood, particularly in ducks. In this study, we analyzed differential gene expression of embryos 6 and 25 h following oviposition to determine which genes regulate the early developmental stage in ducks. Among 216 randomly selected clones, 39 protein-encoding cDNAs that function in metabolism, transcription, transportation, proliferation/apoptosis, cell cycle, cell adhesion, and methylation were identified. Additionally, the full-length cDNA of the *Nanog* gene, encoding a 302-amino acid protein, was obtained. Quantitative real-time polymerase chain reaction analyses were performed to detect expression levels of the selected genes during early and late embryonic stages, which revealed that these genes are expressed in a particular spatial and temporal pattern. These results indicate that these genes may play pivotal roles in the process

of area pellucida formation through a complex and precise regulatory network during development in duck embryos.

**Key words:** Duck; Embryo development; Subtractive hybridization; Duplex-specific nuclease; *Nanog*