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Developmental characteristics of pectoralis muscle in Pekin duck embryos

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ABSTRACT. To confirm the entire developmental process and transition point of embryonic Pekin duck pectoral muscle, and to investigate the association between pectoral muscle development and their regulating genes, anatomical and morphological analyses of embryonic Pekin duck skeletal muscles were performed, and the expression patterns of its regulating genes were investigated. The anatomical analysis revealed that body weight increased with age, while increases in pectoral muscle weight nearly ceased after the embryo was 20 days of hatching (E20). The developmental morphological characteristics of Pekin duck pectoral muscle at the embryonic stage showed that E20 was the transition point (from proliferation to fusion) of Pekin duck pectoral muscle. The expression patterns of MRF4, MyoG, and MSTN indicated that E19 or E20 was the fastest point of pectoral muscle development and the crucial transition for Pekin duck pectoral muscle development during the embryonic stage. Together, these findings imply that E20 is the crucial transition point (from proliferation to fusion) of Pekin duck pectoral muscle and that there is no

muscle fiber hypertrophy after E20. Results of this study provide further understanding of the developmental process and transition point of Pekin duck pectoral muscle during the embryo stage.

Key words: Pectoral muscle; Pekin duck; Embryos; Tissue sections; Expression pattern

