Molecular characterization and expression patterns of insulin-like growth factor-binding protein genes in postnatal Nanjiang brown goats

S.Y. Zhan, L. Chen, L. Li, L.J. Wang, T. Zhong and H.P. Zhang

Farm Animal Genetic Resources Exploration and Innovation Key Laboratory of Sichuan Province, Sichuan Agricultural University, Ya’an, Sichuan, China

Corresponding author: H.P. Zhang
E-mail: zhp@sicau.edu.cn

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ABSTRACT. Insulin-like growth factor-binding proteins (IGFBPs) play a key role in modulating insulin-like growth factors (IGFs), and are considered candidate genes for growth traits in livestock. In this study, we identified the complete coding sequences of IGFBP-1 to -6 in the Nanjiang brown goat, and assessed gene tissue expression patterns by quantitative polymerase chain reaction. Expression of mRNA for the six gene targets was detectable in liver, heart, and longissimus dorsi (LD) muscle. Expression levels of IGFBP-1, -2 and -5 mRNA were higher in liver than in heart and LD muscle (P < 0.01), while IGFBP-6 expression was highest in LD muscle, and IGFBP-3 and -4 were predominantly expressed in LD muscle and liver. Higher IGFBP-2, -3, -4, and -6 mRNA levels were observed in LD, compared to triceps brachii muscle (P < 0.01). Additionally, the target genes had different temporal expression profiles during postnatal development. Histological assessment of muscle sections revealed a constant increase in muscle fiber diameter with aging. These results suggest that IGFBPs...
may be important for liver and skeletal muscle development, and may contribute to the biological function of these tissues in goats.

**Key words:** Insulin-like growth factor-binding protein; Gene expression; Nanjiang brown goat; Cloning