



Correlation between sheep *YAP1* temporal and spatial expression trends and *MSTN* and *MyoG* gene expression

X.Y. Lv¹, W. Sun¹, R. Su¹, D. Li¹, Q.Z. Wang¹, H.H. Musa², L. Chen³,
Y.F. Zhang³ and W.Z. Wu³

¹Animal Science and Technology College, Yangzhou University, Yangzhou, China

²Faculty of Medical Laboratory Sciences, University of Khartoum, Khartoum, Sudan

³Animal Science & Veterinary Medicine Bureau of Suzhou City, Suzhou, China

Corresponding author: W. Sun
E-mail: dkxmsunwei@163.com

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ABSTRACT. The aim of the current study was to investigate the effects of Yes-associated protein 1 (*YAP1*) gene expression after birth on the development of muscle and the relationship between *YAP1* and myostatin (*MSTN*) and myogenin (*MyoG*). Reverse transcription polymerase chain reaction was used to analyze the trends in *YAP1*, *MSTN*, and *MyoG* temporal and spatial expression levels in various skeletal muscles (i.e., longissimus dorsi muscle, soleus muscle, gastrocnemius muscle, and extensor digitorum longus) and across 3 different growth stages (i.e., 2 days old, 2 and 6 months old) of Hu Sheep. The results showed that *YAP1* expression was significantly different in the skeletal muscles of sheep; the expression level gradually increased with age; it was highly expressed in the gastrocnemius muscle and minimally expressed in the longissimus dorsi muscle. *MSTN*, a negative regulator

of skeletal muscle development, was minimally expressed in the soleus muscle and might be related to the enlargement of muscle fiber diameter. *MyoG*, an important factor in regulating skeletal muscle development, was minimally expressed in the longissimus dorsi muscle and extensor digitorum longus, and highly expressed in the gastrocnemius and soleus muscles; it might inhibit the enlargement of muscle fiber diameter after birth. *YAPI* expression was significantly ($P < 0.05$) or extremely significantly ($P < 0.01$) and positively correlated with *MSTN* and *MyoG* at 2 days old, 2 and 6 months old. *YAPI* expression was related to muscle fiber development after birth and might be a candidate gene for the regulation of muscle growth.

Key words: Hu-sheep; *YAPI*; *MSTN*; *MyoG*; Gene expression; Muscle fiber development