



Developmental changes in the expression of the *GLUT2* and *GLUT4* genes in the longissimus dorsi muscle of Yorkshire and Tibetan pigs

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ABSTRACT. Glucose transporter proteins 2 and 4 (*GLUT2* and *GLUT4*) play important roles in glucose transport and energy metabolism. Changes in the levels of *GLUT2* and *GLUT4* mRNA were measured in longissimus dorsi muscle from the lean Yorkshire and fat Tibetan pig breeds at six different time points (1, 2, 3, 4, 5, and 6 months) with quantitative real-time polymerase chain reactions. The results showed that *GLUT2* and *GLUT4* mRNA were abundantly expressed in the longissimus dorsi muscle and that the developmental expression patterns were similar in both breeds. Tibetan pigs exhibited higher intramuscular fat and *GLUT2* mRNA levels, while Yorkshire pigs exhibited a higher myofiber cross-sectional area (CSA) and *GLUT4* mRNA levels. Furthermore, the changes in the *GLUT4* mRNA levels were strongly and positively correlated with the CSA over a period of six months. These results exhibit time- and breed-specific expression patterns of *GLUT2* and *GLUT4*, which highlight their potential as candidate genes for assessing adipose deposition and

muscle development in pigs. These differences in the expression of *GLUT* family genes may also have indications for meat quality.

Key words: Pig; Developmental expression; Longissimus dorsi muscle; Glucose transporter; Quantitative real-time PCR