



## Expression of MMP-1, -2, and -8 in longissimus dorsi muscle and their relationship with meat quality traits in cattle

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**ABSTRACT.** The extracellular matrix (ECM) is the major macromolecule in skeletal muscle, which affects meat quality greatly. The remodeling of the ECM is mainly regulated by matrix metalloproteinases (MMPs). The expression patterns of MMP-1, -2, and -8 in longissimus dorsi muscle were explored using quantitative real-time polymerase chain reaction. The results show that the expression of MMP-1, -2, and -8 decreased significantly from 135 days of pregnancy to postnatal 30 months. While the expression of MMP-1, -2, and -8 showed no significant relationships with intramuscular fat contents, MMP-1 and -2 showed significant negative correlations with the shearing force of the longissimus dorsi muscle in cattle. The expression of MMP-1 also showed a significant negative correlation with cooking loss and a positive correlation with water holding capacity. The expression levels of MMP-1 and -2 were usually higher in fat than in skeletal muscle tissue. The expression of MMP-8 was significantly higher in the mammary fat pad and the longissimus dorsi muscle than in all other tissues. This study indicates that the remodeling of the ECM has important effects both on the development of postnatal skeletal muscle and on meat quality.

**Key words:** Matrix metalloproteinases; Meat quality; Nanyang cattle; Muscle development