



# Effects of conjugated linoleic acid on the expression levels of miR-27 and miR-143 in pig adipose tissue

R.L. Qi<sup>1,2,3</sup>, Y. Chen<sup>1</sup>, J.X. Huang<sup>1,2,3</sup> and F.Y. Yang<sup>1,2,3</sup>

<sup>1</sup>Chongqing Academy of Animal Science, Rongchang, Chongqing, China

<sup>2</sup>Key Laboratory of Pig Industry Sciences, Ministry of Agriculture, Rongchang, Chongqing, China

<sup>3</sup>Chongqing Key Laboratory of Pig Industry Sciences, Rongchang, Chongqing, China

Corresponding author: F.Y. Yang

E-mail: [yfeiyun@yeah.net](mailto:yfeiyun@yeah.net)

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**ABSTRACT.** In this study, we evaluated the effect and possible mechanism of action of dietary conjugated linoleic acid (CLA) on pig body fat deposition. Landrace piglets (N = 48) were randomly divided into three groups, which were fed diets containing 0% (control), 1%, or 2% CLA. Dorsal and abdominal subcutaneous adipose tissues were collected, and real-time polymerase chain reaction (PCR) was used to determine the expression of adipocyte differentiation marker genes and associated microRNAs (miRNAs). Our results indicated that dietary CLA significantly decreased body fat deposition in the pig dorsum. The expression of adipocyte differentiation marker genes, including peroxisome proliferator-activated receptor (PPAR)- $\gamma$  and CCAAT/enhancer-binding protein  $\alpha$  (C/EBP $\alpha$ ) were not affected, whereas the expression of fatty acid binding protein 4 (FABP4) was significantly enhanced ( $P < 0.05$ ). The expression of miR-27 and miR-143 in adipose tissue was significantly decreased. Data analysis indicated a significant negative

correlation between miR-27 and FABP4 expression in the dorsal subcutaneous adipose tissue. In addition, the expression of miR-143 and miR-27 exhibited a significant negative relationship with FABP4 and PPAR $\gamma$  in the abdominal subcutaneous adipose tissue. Thus, miRNA levels in adipose tissues could be modulated by CLA, thereby affecting adipose metabolism.

**Key words:** Conjugated linoleic acid; MicroRNA; Adipose tissue; Pig; Gene expression