



Identification of the porcine sialoadhesin gene promoter region and its cell-specific expression in porcine alveolar macrophage cells

W. Sun*, Z. Xie*, S. Zhang, W. Nan and J. Chen

College of Animal Science and Technology, Nanjing Agricultural University,
Nanjing, Jiangsu, China

*These authors contributed equally to this study.

Corresponding author: J. Chen

E-mail: jiechen@njau.edu.cn

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ABSTRACT. Porcine reproductive and respiratory syndrome (PRRS), which is caused by the PRRS virus (PRRSV), is a communicable disease. PRRS caused huge economic losses to swine breeding. The porcine alveolar macrophage (PAM) cell is the main target cell of PRRSV; therefore, it is very important to identify the specific gene promoter that controls expression in PAM cells so that the anti-PRRSV exogenous gene can be efficiently and specifically expressed in PAM cells to improve porcine resistance to PRRSV. In this study, the transcription initiation site for sialoadhesin (*Siglec-1*), which is a porcine alveolar macrophage-specific gene, was determined by 5' rapid amplification of cDNA end, and 88 bp of the 5'-untranslated region was cloned. *Siglec-1* promoter activity was detected by a dual-luciferase reporter assay, which showed that the fragment from -173 to +81 bp had the strongest promoter activity. Additionally, the cell-specific expression of the promoter fragments was tested in a PAM cell line (CRL-2844 cells), porcine

kidney 15 cell line (PK-15 cells), porcine fetal fibroblast (PEF) cells, and porcine preadipocytes. These results also showed that the fragment from -173 to +81 bp had the strongest cell-specific expression in PAM cells.

Key words: Porcine reproductive and respiratory syndrome; Porcine reproductive and respiratory syndrome virus; Promoter activity; Cell-specific expression; *Siglec-1*