**Abstract**

The shortage of human tissues and organs for allotransplantation can be overcome by xenotransplantation. As a source of organs, the miniature pig is convenient. However, the presence of pathogens transmissible to the recipients, especially porcine endogenous retrovirus (PERV), represents a threat for successfull xenotransplantation. Infectious PERVs contain three classes of envelope glycoprotein. Two classes, PERV-A and PERV-B are polytropic, they can infect human, pig and mink cells *in vitro*. PERV-C is evolutionary young, ecotropic isolate that can infect pig only.

We previously detected a new full-lenght, but replication-defective PERV-A isolate dubbed (MAMBA) with high transcriptional activity in Large-White pig from a Czech breed.

To support our results with PERV-MAMBA epigenetic regulation in pig tissues, *in vitro* DNA methylation essay was accomplished. Methylated or non-methylated reporter plasmids containing provirus 5' LTR were transfected into 293T cells and luciferase activity was measured. In both cases, methylated LTR decreased significantly expression of luciferase. Thus, PERV LTR-driven transcription is sensitive to DNA methylation. We also used PERV-A MAMBA provirus to study recombination between two pig endogenous retroviruses. We prepared 293T and BeWo cell clones harboring PERV-A MAMBA and PERV-C 1312 proviruses and used these cells for infection assay. Our data suggest that these viruses are capable of some recombinatory event (pseudotyping, complementation or recombination), because PERV-A *env* mRNA sequences were detected in naive 293T cells.

**Key words:** porcine endogenous retrovirus, provirus silencing, retrovirus recombination, miniature pig, xenotransplantation, antiviral restriction factors