

**Eric Gillock, Professors, Fort Hays State University**

**Title:** The potential spread of porcine endogenous retrovirus C among feral swine populations

**Abstract:** Xenotransplantation is considered a potential alternative to allotransplantation to relieve the current shortage of human organs for transplantation. Due to their similar size and physiology, the organs of pigs are of particular interest for this purpose. One factor that must be considered in xenotransplantation is that pathogens present in the xenotransplants might be transmitted to the human organ recipient. Porcine endogenous retroviruses (PERVs) are of special concern because they are found in pig organs and tissues that might otherwise be used for xenotransplantation. PERV proviruses can be induced to replicate and recombine in pigs, and have been shown to infect human cells in vitro. There are three subtypes of PERVs based on differences in the receptor binding domain of the *env* protein; PERV-A, PERV-B, and PERV-C. PERVs A and B can infect human cells in vitro and can recombine with PERV-C, resulting in a recombinant virus with a higher rate of replication in both pig and human cell lines. With this in mind, our lab is interested in measuring the distribution of PERVs A, B, and C in various pig populations. In the current study, we used a PCR-based analysis to study the distribution of PERVs A, B, and C in swine raised under domestic conditions, versus feral swine from rural areas. PERV-A and PERV-B were universal in both domestic and feral swine, as expected. Feral swine, however, had an incidence of PERV-C nearly double that of domestic swine. We hypothesize that PERV C is becoming widely endogenized in feral swine due to their prodigious and uncontrolled reproduction rates. Further studies in other feral swine herds are ongoing to verify this phenomenon.