

DIFFERENTIAL GENE AND PROTEIN EXPRESSION IN PIG NUCLEAR
TRANSFER EXTRAEMBRYONIC MEMBRANES AND BLASTOCYST STAGE
EMBRYOS

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ABSTRACT

Nuclear transfer (cloning) is the process of transferring a donor cell nucleus into an enucleated oocyte. The oocyte and donor cell are subsequently fused and activated to allow for nuclear reprogramming and continued development. The first objective was to determine the cloning efficiency in pigs between three activation methods. The second objective was to determine the effects of nuclear transfer on gene expression of blastocyst stage embryos and day 30 placentas and compare that to normal in vivo pregnancies. It was then determined that treatment of reconstructed pig zygotes with the histone deacetylase inhibitor, Scriptaid, returned some of the aberrantly reprogrammed transcripts to normal levels. Although gene expression was similar between the three activation groups, this study identified differentially expressed transcripts between nuclear transfer and normal in vivo embryos and placentas that will help elucidate the reprogramming errors associated with nuclear transfer in pigs.