



Doxycycline-regulated growth hormone gene expression system for swine

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ABSTRACT. Although growth hormone gene transgenic animals are much larger than normal animals, they manifest differences that have adverse effects on survival due to overexpression of growth hormone. We developed a stable pig embryonic fibroblast cell line expressing pig growth hormone (pGH) using the Tet-On system, with which we can conditionally manipulate expression of pGH *in vivo*. Inducible expression of pGH was achieved by combining reserve Tet-controlled transcriptional activator and tetracycline-responsive element in a single plasmid. The mRNA expression of pGH was significantly increased compared to the non-induced group by about 10-fold. The controlled

secretion of pGH induced by doxycycline was further tested in stably transfected cells. We conclude that inducible GH expression can be achieved in pig embryonic fibroblasts.

Key words: Growth hormone; Tet-On system; Lentiviral vector; Doxycycline