

Enhancement of Growth Performance in Transgenic Rabbits with Overexpressing Growth Hormone Receptor and IGF-1 Receptor Genes

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Transgenic rabbits were produced by microinjection of DNA containing metallothionein promoter ligated to growth hormone receptor (GHR) and IGF-1 receptor (IGF-1R) genes. Founder transgenic rabbits transmitted transgenes into pups with Mendelian ratio. The mRNA expression of transgenes using Northern blotting with probes of IGF-1R and GHR genes was checked in liver of transgenic rabbits. Transgenic rabbits with IGF-1R and GHR genes more expressed mRNA than control non-transgenic rabbits. There was increase in the rate of growth of transgenic rabbits during the growth phase. The growth of GHR transgenic rabbits tend to commence before 30 days while that of IGF-1R transgenic rabbits was accelerated at 70 days compared with the growth of non-transgenic control. Weights were determined every one week on two transgenics and two negative littermates. By 17 weeks of age GHR transgenic rabbits were 50% heavier (3.0 kg vs. 2.0 kg) than normal littermates. IGF-1R transgenic rabbits were 35% heavier (2.7 kg vs. 2.0). Double transgenic rabbits were produced through the mating between IGF-1R and GHR single transgenic rabbits. Transmission pattern of double transgenic mice were almost the same as that of single transgenic rabbits. Growth of double transgenic rabbits (IGF-1R/GHR) were fastest compared with transgenic rabbits containing IGF-1R and/or GHR genes.

Key words) *transgenic rabbits, growth hormone receptor, IGF-1 receptor, growth performance*