Growth Parameters After Intramuscular hGH Plasmid Administration Compared to Recombinant hGH Injections in Lit/scid Mice

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We have previously obtained sustained levels of circulating human growth hormone (hGH) after electroporation of naked DNA in the muscle of immunodeficient dwarf mice (lit/scid) and these treated animals presented a highly significant weight increase of ~33%. In the present study the efficacy of this *in vivo* gene therapy strategy was compared to the conventional daily hGH injections in terms of growth parameters. The first set of experiments showed highly significant increments ($P<0.001$) in the weight gain, nose-to-tail length and organ weights (quadriceps muscle, liver, kidneys, heart, spleen) for the DNA-injected mice versus the control group (saline administration followed by electroporation) after 60 days of the treatment. In a second set of experiments the animals were followed for 1 month after hGH plasmid administration and compared to a regular 30-day injection of hGH (5 µg/animal twice a day). The growth parameters were again significantly increased compared to the controls. In conclusion, intramuscular hGH naked DNA administration showed to be effective for promoting growth of dwarf “little” mice and avoids the drawbacks of daily injections of the recombinant protein in the conventional treatment for patients suffering of GH deficiency (GHD).

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