

UTILIZATION OF DWARF MOUSE STRAIN "LITTLE" FOR THE POTENCY DETERMINATION OF RECOMBINANT HUMAN GROWTH HORMONE.

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Homozygous 40 to 90 days old little mice (lit/lit), derived from the C57Bl/6J strain have been used to set up an in-vivo body weight gain bioassay for growth hormone (GH) that has been compared, in its performance, to the still widely used hypophysectomized rat assay. A dose response curve has been analyzed in order to choose doses, in the linear range, that are suitable for the setting up of an useful, precise and economical 2x2 factorial assay. A comparison between the growth response in the two sexes has also been carried out, showing no significant difference between male and female little mice of this age. Assays have been carried out in this animal model for the potency determination of a local hGH reference preparation in terms of the 1st. International Standard of GH, human, for bioassay (WHO 80/505) comparing them to a classical 10-day assay in hypophysectomized rats done with the same preparations. The values of calculated potency were in good agreement while the statistical parameters indicating a comparable assay precision even in a practical and rapid 5-day assay. We suggest the substitution of hypophysectomized rats with little mice for this in vivo test, still required for potency and bioidentity determination of clinical preparations especially of recombinant human growth hormone. This way one can avoid the highly invasive, costly and time consuming animal surgery providing a faster, more flexible and economical assay method, still measuring parameters of in-vivo linear growth. It is also suggested that the little mouse can be used as a useful model for isolated human GH deficiency, especially the inherited isolated GH deficiency type I.

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