

ENDOCRINE SYSTEM AND METABOLIC DISORDERS

Body growth

Hypophysis, is an endocrine gland that secretes hormones that control the body growth, blood pressure, certain functions of the sex organs, thyroid glands and metabolism as well as some aspects of pregnancy, childbirth, nursing, water/salt concentration at the kidneys, temperature regulation and pain relief. The hypophysectomized rat has become of great value as a test animal to investigate many roles exerted by pituitary gland in the body^{1,2}.

Species: *Rattus norvegicus* (*Sprague Dawley* or *Wistar Hannover*)

Number of animals/group: 10 animals

Route of administration: upon request

Treatment mode: upon request

Main Read-outs: Body growth.

Facultative read-outs: Body weight, tibial epiphyseal width, immunohistochemistry, RT-PCR analysis of biomarker messenger RNA and others.

Validation Data

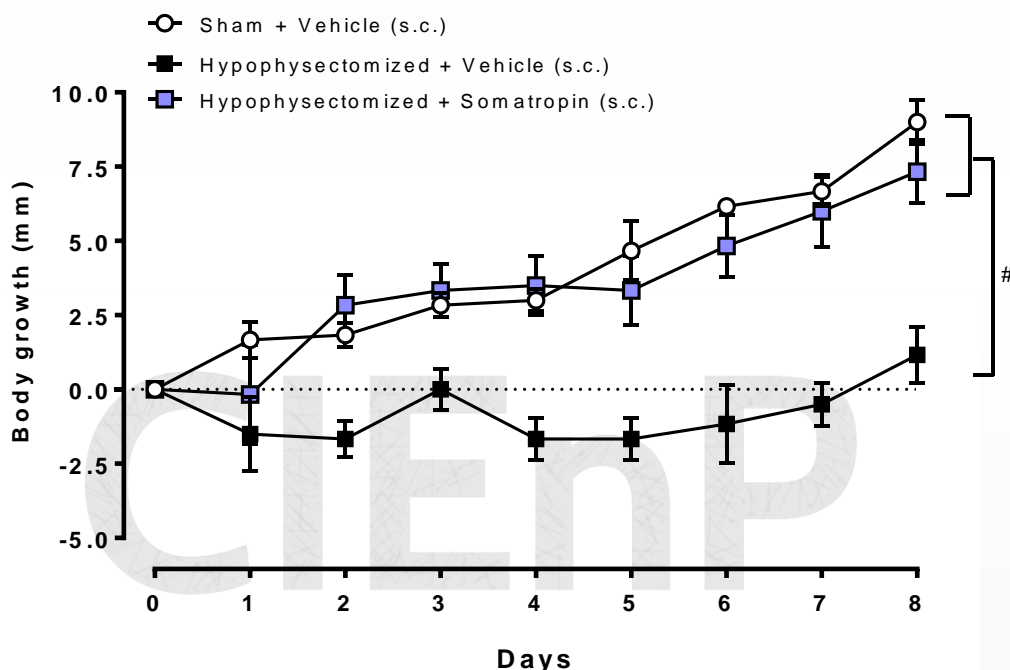


Figure: Body growth in basal (0) and once a day (1 – 8) in hypophysectomized animals. Each point represents the mean \pm SEM of 10 rats. The statistical analyses was assessed by *Bonferroni* test. #P < 0.05 versus vehicle group.

To avoid bias and to allow reproducibility all *in vivo* experiments follow the ARRIVE guidances³. Rat colony from Charles River Laboratories is bred and maintained in SPF conditions. The project includes study plan and final report. Raw data are inspected by quality assurance unity. The experimental procedures was previously approved by the CIEnP Committee on the Ethical Use of Animals.

References:

¹Nagamine J, Nakagawa T, Taiji M. Recombinant human growth hormone (SMP-140) is effective for growth promotion in hypophysectomized rats. *Biomed Res.* 2006 Aug;27(4):191-5.

²Zhu CJ, Li ZJ, Leng W. Measurement of biological activity of somatotropin in hypophysectomized rats. *Zhongguo Yao Li Xue Bao.* 1997 Nov;18(6):489-93.

³Kilkenny C, Browne WJ, Cuthill IC, Emerson M, Altman DG. Animal research: reporting in vivo experiments: The ARRIVE guidelines. *PLoS Biol.* 8 (6): e1000412, 2010.