QUANTITATIVE AND QUALITATIVE EVALUATION OF PITUITARY ANTI-GH AND ANTI-PRL LABELLED CELLS OF THE CYCLING FEMALE SYRIAN HAMSTERS

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A THESIS SUBMITTED IN PARTIAL
FULFILLMENT OF THE REQUIREMENTS
FOR THE DEGREE OF MASTER OF SCIENCE
(ANATOMY)

IN THE
FACULTY OF GRADUATE STUDIES
OF
MAHIDOL UNIVERSITY

1983

ABSTRACT

Twenty-four pituitary glands from the non-mated young adult, of about 2-3 months of age, female Syrian hamsters (Mesocricetus auratus) were used in this study. The animals were observed for the stages of the estrous cycle, using the technique of Orsini (1961), for 2-3 cycles and equal numbers (6 animals per group) were killed by decapitation on Day 1, Day 2, Day 3 or Day 4 of the cycle. The pituitary glands were then processed and representative horizontally-cut paraffin (3-5 µm thick) sections were subjected to either the periodic acid Schiff-iron hematoxylin-orange G (PAS-IH-OG), or Brooke's stains, or the triple-antibody-peroxidase techniques for localization of either growth hormone (GH) or prolactin (PRL) cells. The labelled cells of both types distributed unevenly throughout the gland. Areas of maximal (>30% of the labelled cells per microscopic field), intermediate (between 25% and 30% of labelled cells per field) and minimal (<25% of labelled cells per field) concentration of labelled cells could be observed. It was found that the mean combined percentages or their arcsine transformations, using the equation: $y = \sin^{-1}\sqrt{p}$, of the anti-GH labelled cells or of the anti-PRL labelled cells were the same for all the stages of the estrous cycle. Furthermore, on the basis of size and shape of their nuclei and their size and geographical distribution, the anti-GH cells were comparable to the acidophils of the PAS-IH-OG and the orange G or GH cells of the Brooke's stains;

whereas the anti-PRL positive cells were identical to the acidophils of the PAS-IH-OG and the carmosine L or PRL cells of the Brooke's techniques. The average size of these cells was statistically smaller than the average size of the basophil cell population.
