

Growth of Mammary Gland of Hypophysectomized Guinea Pig.*

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In a previous note,¹ it was reported that estrogens were ineffective in stimulating the growth of the mammary gland of hypophysectomized guinea pigs. Similar results have since been obtained when estrogen and progestin were injected simultaneously. These observations indicate either that the ovarian hormones stimulate the pituitary to the secretion of hormones which directly or indirectly cause the growth of the gland or require the supplementing effect of pituitary hormones to stimulate mammary gland growth.² As the pituitary has been shown to stimulate the thyroid and adrenals, the products of these glands, thyroxine and adrenal cortical extracts, have been injected alone and in conjunction with estrogen into hypophysectomized male guinea pigs with negative results. The lactogenic as well as the thyrotropic and adrenotropic hormones of the pituitaries have also been tried without success.

Encouraging results have been obtained in one preliminary experiment which will be reported in the present communication. Three hypophysectomized male guinea pigs each received one male rat pituitary implant daily for 20 days. The donor rats had received 100 I.U. of estrogen (theelin in oil[†]) daily for 10 to 20 days before being sacrificed. The nipples of the guinea pigs showed gradual development and microscopic examination of the whole mounts of the mammary glands as well as sections revealed extensive alveolar development comparable with the extent of gland development induced by 20 daily injections of theelin into normal male guinea pigs.

A fourth hypophysectomized male received 20 daily implants of male rat pituitaries from animals which had not received theelin injections. The nipple and duct system remained rudimentary. Completeness of hypophysectomy was checked in each animal by section of the sella.

These observations appear to indicate that the route of action of the estrogens upon the mammary gland is by way of the pituitary.

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¹ Gomez, E. T., and Turner, C. W., PROC. SOC. EXP. BIOL. AND MED., 1936, 84, 404.

² Theelin was kindly supplied by Dr. Oliver Kamm of Parke, Davis and Co.