

Decreased Mammotropin in Pituitaries of Thyroidectomized (Maternalized) Male Rats.

MORVYTH MC QUEEN-WILLIAMS. (Introduced by Herbert M. Evans.)

From the Institute of Experimental Biology, University of California.

The attitude¹ of adult male rats may be so altered that they will display maternal interest in newborn rats. This can be accomplished by complete ablation of the thyroid, or by administration of bovine anterior hypophyseal implants.

The anterior pituitaries of maternalized male rats, thyroidectomized 3-4 months previously (at the end of first month of life), were assayed for lactogenic hormone by the squab local crop sac method. Implants were made subcutaneously into one-month-old pigeons, glandules from normal rats being inserted directly over the center of one side of the crop sac, as controls to the hypophyses from thyroparathyroidectomized rats, which were implanted at a similar site on the opposite side. Each bird was implanted once on each side. At the end of 96 hours, the pigeons were sacrificed and the crop sacs examined, graded and preserved, stretched over a cork, in 10% formol.

The anterior pituitary of one normal male rat is usually sufficient to induce a good response in the pigeon crop sac. In positive reactions, a circumscribed, thickened, opaque, well vascularized area can be seen just under the implant site, easily distinguished from the rest of the thin transparent membrane. The right and left sides can be studied independently, each bird serving thus as its own control, unless an excess of lactogenic hormone is administered, which would result in a change involving the whole of one side and spreading to the other. The greatest reaction in this series (Table I) was obtained by implanting 2 normal male hypophyses on one side. The opposite side, which received the pituitaries from 2 thyroidectomized rats, exhibited no noticeable response. In all cases, the soft, swollen, purplish hypophyses from the thyroidectomized male rats induced a negative or only a slight response, in spite of their greater weight.

The definitely subnormal store of lactogenic hormone in the pituitaries of thyroidectomized male rats might be explained by the conception that this hormone is being used up rapidly in these animals that manifest such unusual behavior.

¹ McQueen-Williams, M., *Science*, 1935, **82**, 67.

TABLE I.
Anterior Pituitaries of Thyroidectomized (Maternalized) Male Rats Tested for Mammotropin.

Pigeon	Sex	No.	Donors of Pituitaries (male rats 4-5 mos. old) Body wt. (gm.)	Maternal behavior	Wt. of implanted tissue (mg.)	Crop Sac Reaction
Thyroidectomized.						
1	♂	1	216	Yes (good)	10.0	Slight (+)
4	♂	1	214	" (very good)	12.0	" (+)
5	♂	1	240	" (fairly good)	11.0	No
10	♂	1	212	" " "	15.0	"
12	♂	1	215	" " "	12.5	Slight (+). Diffuse.
25	♂	2	218	" (fair)	11.0	" (+) "
			217	" " "	12.3	
P	♂	2	266	" (fairly good)	15.0	No
			222	" (fair)	15.0	
LC	♀	1	212	" (very good)	9.0	No
2	♀	1	190	" (good)	11.5	"
3	♀	1	214	" (very good)	15.0	Slight
6	♀	1	229	" (fairly good)	7.7	" (+). Diffuse.
11	♀	1	213	" " "	8.0	"
Normal.						
1	♂	1	380	No	8.3	Good (++)
4	♂	1	321	"	7.9	Very good (+++)
5	♂	1	384	"	7.3	Slight (?)
10	♂	1	362	"	7.5	No
12	♂	1	326	"	6.5	Good (++) Diffuse.
25	♂	2	308	"	6.0	" (++)
			304	"	5.5	
P	♂	2	333	"	7.0	Very good (++++)*
			354	"	7.3	
A	♂	1	370	"	5.3	Slight (+)
A	♂	2	360	"	5.3	Good (++)
			330	"	5.3	
LC	♀	1	334	"	9.0	No
2	♀	1	380	"	7.7	"
3	♀	1	308	"	7.0	Good (++)
6	♀	1	450	"	8.2	" (++) Diffuse.
11	♀	1	369	"	7.8	" (++)

*Most of crop sac on one side responded.

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Summary. The anterior pituitaries of normal adult male rats, when implanted directly over the center of the crop sacs of squabs, evoke a greater response in the crop sacs, hence store more mammotropin, than do the glandules from thyroparathyroidectomized (maternalized) males of the same age.

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