filtrate had no action on frog rectus abdominis or on eserinized leech muscle, both of which contract with acetylcholine. The filtrate had no effect upon isolated rabbit intestine, which is depressed by adenosine and stimulated by the "substance P" of Euler and Gaddum. The diffusible depressor substance apparently present in the portal blood after release of an intestinal distention of 12-18 hours' duration thus remains unidentified.

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Species-Specificity in Production of Anti-Gonadotropic Substances.*

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The work of Collip and his collaborators[1] has shown that the prolonged daily administration of gonadotropic extracts to rats leads to the production of substances which can inhibit the action of such hormones. The present study was conducted to determine if an "anti-hormone" developing from the injection of an extract made from the pituitary glands of one species is effective against an extract prepared from the hypophysis of another species.

A series of 39 female rats, age 21 to 23 days at the beginning of the experiment, was injected daily with a weak dose of a gonadotropic extract prepared from human pituitary glands in the manner described previously.[2] In 5 days the ovaries had increased 50% in weight and showed developing graafian follicles and corpora lutea. The ovaries of the rats sacrificed in 30 days gave an 86% increase in weight, but in 60 days they were equal to those of the controls, and in 90 and 119 days they weighed slightly less than those of controls of the same age.

The blood serum of the rats sacrificed in 90 and 119 days was examined for the presence of "anti-hormones" according to the method used by Collip and Anderson[3] in testing for an anti-thyrotropic hormone.

* Supported in part by the Rockefeller Fluid Research Fund of Stanford University School of Medicine.

1 Collip, J. B., *J. Mt. Sinai Hosp.*, 1934, **1**, 28.

2 Fluhmann, C. F., PROC. SOC. EXP. BIOL. AND MED., 1932, **29**, 1193.

3 Collip, J. B., and Anderson, E. M., *Lancet*, 1934, p. 76.

A mixture of equal amounts of a human pituitary gland extract and serum from the injected rats failed to produce any increase in ovarian weight and no histologic changes when given twice daily for 4 days to 4 immature rats. However, the same extract mixed with serum from normal animals produced an average of 618% increase in weight when given in the same manner to 3 immature rats. It was apparent that the injected rats had developed the power of inhibiting gonadotropic extracts prepared from human pituitary gland material.

The serum from the injected rats also had "anti-hormone" properties against gonadotropic extracts made from the blood of pregnant women. A mixture of serum from the treated rats and a human pregnancy blood extract failed to induce any histologic change and no increase in weight in the ovaries of 4 immature rats injected as before. The control series of 4 immature rats, when given a mixture of the same extract and serum from normal rats, showed a 190% increase in ovarian weight and the presence of developing follicles, corpora lutea, and lutein cysts.

On the other hand, the serum of the treated rats was ineffective in inhibiting gonadotropic extracts made from sheep pituitary glands. A mixture of serum from the rats given human pituitary extract for 119 days and a sheep pituitary gland preparation produced extensive histologic changes and an average increase in ovarian weight of 210% in the ovaries of 5 immature rats. In the same way, a mixture of the same sheep extract and serum from normal rats produced an average increase in ovarian weight of 300% in 5 immature rats.

It seems, therefore, that there is a definite species-specificity in the development of "anti-hormone" properties in the blood of rats injected for long periods of time with pituitary gonadotropic preparations.