

appearance of estrus, except for slight dominance of the estrified phase in some animals. This procedure was observed in 10 normal adult female rats for a period of 60 days, by means of daily vaginal smears. The average absorption from each pellet of testosterone propionate was .072 mg per day.

Collateral anastomotic circulation from the spleen into the systemic circulation may be established by transplanting it between the overlying muscles and skin. Return of any blood into the portal system may then be prevented by ligation of the splenic vessels. A pellet of testosterone propionate implanted in such a spleen produces anestrus exactly comparable to that produced by the pellet in the subcutaneous tissues. This effect was observed in 4 normal adult female rats for a period of 30 days, by means of daily vaginal smears. The average absorption from each pellet was .081 mg per day.

Summary. Anestrus occurred as long as a pellet of testosterone propionate was present in the subcutaneous tissues of normal female rats. No significant changes occurred in the estrous cycles of normal adult female rats when pellets of testosterone propionate were implanted in the spleen in which the normal portal circulation was intact. When the blood from the spleen containing a pellet of testosterone propionate entered the systemic circulation without passing through the liver, estrus was inhibited.

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Rabbit Test for Thermal Reactions Caused by Concentrated Horse Serum.

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(Introduced by Ralph S. Muckenfuss.)

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Since tests in rabbits for pyrogenic activity of therapeutic antipneumococcal rabbit serum processed with heat and Kaolin have proven useful in indicating which preparations will produce thermal (chill) reactions when given intravenously in man,¹ the possibility of applying this method to concentrated antipneumococcal horse

¹ Goodner, K., Horsfall, F. L., and Dubos, R. J., *J. Immunol.*, 1937, **33**, 279.

serum was investigated. Tests were carried out to determine whether any correlation exists between temperature response in rabbits and thermal (chill) or other untoward response in man, following intravenous administration of the same sera. Fifty-three preparations of horse serum, chosen for the most part because they were known to produce thermal or other reactions when administered intravenously in man, were studied in rabbits. No correlation was observed between temperature response in rabbits and reactions other than thermal (chill) reactions in man, and only thermal reactions are considered below.

Method. Three normal, healthy rabbits with temperatures between 99° and 102°F were each given 2 cc of one serum preparation intravenously. Rectal temperature observations were made after 30, 60, 120 and in some instances 150 minutes. The greatest elevation of temperature over the initial level was recorded for each rabbit, and the average for the 3 rabbits was computed.

The thermal (chill) effects of the serum preparations when they were used in the treatment of human pneumonia patients were compared with the average rabbit temperature response. An average temperature elevation of 1.3°F or less was found in rabbits for 14 serum lots. Nine or 64% produced no chills; 5 or 35.7% produced chills infrequently; and none caused chills frequently. Chills in less than $\frac{1}{3}$ of patients were considered infrequent and chills in $\frac{1}{3}$ or more were considered frequent. An average temperature elevation of 1.4°F or more was found for 39 serum preparations. Three lots of 7.7% caused no chill reactions; 12 or 30.8% caused chills infrequently; and 24 or 61.5% caused chills frequently.

It is apparent that the results in rabbits made a certain degree of selection of horse serum lots possible with regard to the tendency of the lots to cause chills when given intravenously in man. The pyrogenic activity of various sera was not associated with the degree to which the potency of the refined preparations was increased over that of the raw serum from which the lots were prepared.

Conclusions. Measurement of the pyrogenic activity of horse antipneumococcic sera in rabbits will aid in the production of concentrated serum free of chill-producing substances.