

one microgram of antigen and killed fourteen days later. It is interesting that the cellular response was only about 1/100 that of the bovine serum albumin controls. A still smaller immunizing dose of pneumococcal polysaccharide II would probably have resulted in greater numbers of cells containing antibody. The lack of immune reactivity in 'paralyzed' mice is in agreement with the early suggestion of Felton¹ and conflicts with the concept of continuous neutralization suggested by others, including one of us.

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HISTOLOGY

Site of Production of Oestrogen in the Ovary of the Rat

OPINIONS differ concerning the site of production of oestrogen in the ovary. So far only indirect evidence has been obtained.

In an attempt to elucidate this problem, female rats were spayed, and small autotransplants of ovarian tissue containing only one or two endocrine cell systems and vaginal tissue were inserted close together into the anterior chamber of the eye (Fig. 1). The vaginal transplant served in this way as a sensitive indicator of oestrogen production. A piece of vaginal tissue transplanted into the other eye served as a control. After various periods of time, usually 8-11 days, the transplants were excised and studied histologically (serial sections). The vagina *in situ* and the uterus were also examined histologically.

The following types of transplants were examined: cell aggregates from the interstitial gland, theca interna cells (from the top of follicles after removal of the granulosa cells), isolated granulosa cells, small pieces of follicle wall containing both theca interna and granulosa cells, cell aggregates from corpora lutea, combinations of theca interna or interstitial gland cells with granulosa or corpus luteum cells, and follicles of various sizes.

Transplants containing pure cell aggregates of interstitial gland, theca interna, granulosa or corpora lutea often survived but never produced any oestrogenic effect, as well as interstitial gland or theca interna contaminated with small follicles not possessing theca interna. Isolated granulosa cells and fragments from the wall of larger follicles always

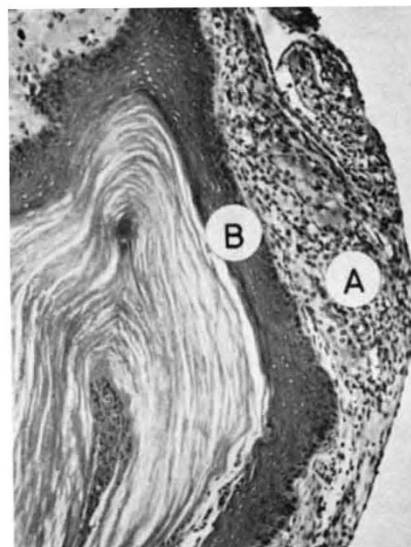


Fig. 1. Ovarian transplant (A) containing both theca interna cells and granulosa cells (transformed into corpus luteum cells). The vaginal transplant heavily cornified. ($\times c. 63$)

developed typical corpus luteum cells in the transplants.

Follicle wall transplants containing both theca interna and granulosa cells regularly produced oestrogen. When theca interna cells and granulosa cells were first separated from each other and then inserted together into the eye, oestrogen formation was also noted thus showing that the absence of an oestrogenic effect of either type of cell by itself could not be ascribed to any traumatization of the cells attending the separation procedure. Oestrogen production was also noted when theca interna or interstitial gland cells were transplanted together with corpus luteum cells.

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CYTOLOGY AND GENETICS

A Sex Difference in White Blood Cells of Rats (WR Strain)

DURING the course of toxicity studies in male rats (WR), isologous bone marrow from female animals was transplanted to counteract depressing action on the bone marrow of the compound under evaluation. A search was made for a biological marker characteristic of the donor identifiable in the host and the presence of a structural difference between nuclei of male and female neutrophilic leucocytes as described for humans¹, rabbits², and dogs³ was confirmed also for rats.

Blood films (Wright stain) of male and female WR rats were examined. In females, characteristic 'drumsticks' consisting of distinct chromatin nodules about 1 μ in diameter, occurred on the average of once in every fourteen neutrophils (Fig. 1). At least six had to be counted before identifying the blood film of a female. Atypical structures with minor lobes or sessile nodules were occasionally confusing. They occurred with about equal frequency in females, but were almost four times as frequent in males as