

Phosphorylases in the Prepubertal Human Testis: A Histochemical Study

In the adult human testis phosphorylase a) (active form) is present in larger quantities than the inactive form b)¹. This aspect is related to the fact that phosphorylase a) releases the energy from the glycogen for DNA synthesis during the early stages of spermatogenesis. The present report deals with the behaviour of phosphorylases in the prepubertal human testis.

Material and methods. Biopsy specimens were obtained from 2 cases aged 8 and 12 years. Fragments were imme-

probable that in the prepubertal human testis, in which there is still no sign of gonadotrophin stimulation, the glycogen present in the undifferentiated Sertoli cells is not used since b) phosphorylase is not activated.

Riassunto. Nel testicolo umano di tipo prepuberale la fosforilasi attiva a) é assente, mentre é presente in discreta quantità la fosforilasi inattiva b). E' probabile pertanto che, a differenza del testicolo umano normale, la

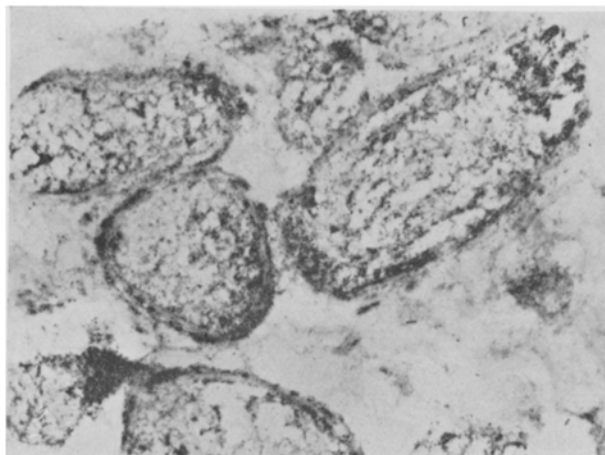


Fig. 1. The reaction product of phosphorylase b) is distributed quite regularly throughout the tubules. $\times 125$.

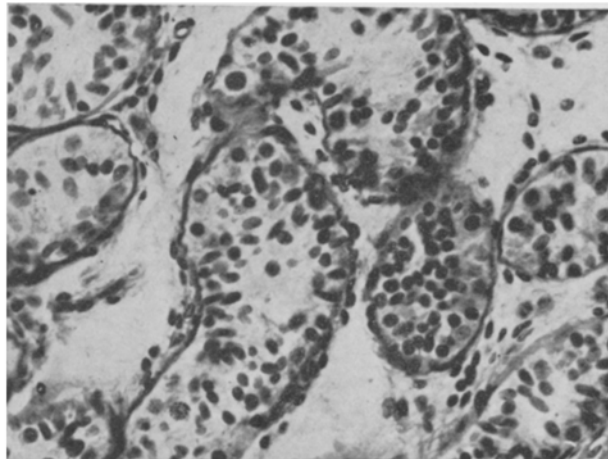


Fig. 2. Histological pattern of the same specimen (Hopa staining) $\times 125$.

diately frozen on dry ice and absolute ethyl alcohol. 12 μ m sections were prepared with the cryostat, mounted on glass slides and incubated according to the technique described in a previous paper^{1,2}. The sections were washed in 40% ethyl alcohol, fixed in absolute ethyl alcohol and stained according to Schiff-dimedone³. Control slices were incubated in a medium without substrate.

Results. The sections incubated in a medium for the histochemical demonstration of phosphorylase a) showed no reaction. Addition of AMP to the incubation medium for the study of phosphorylase b) revealed a large number of granules distributed quite regularly throughout the tubules, with higher positivity in the peripheral area of the preparation (Figures 1 and 2).

Discussion. There is no phosphorylase a) in the prepubertal human testis, whereas phosphorylase b) is present in small quantities in all the tubules. This finding which differs from the behaviour in normal human adult testis, appears to confirm the correlation between glycogen, phosphorylase and nuclear synthesis of DNA. It is

fosforilasi b) non sia attivata poiché non c'è necessità di energia fornita dalla scissione del glicogeno per la sintesi del DNA.

M. RE, V. SANTIEMMA, G. FRAJESE, M. SAVIOLI and A. FABBRINI

Istituto di Patologia Speciale Medica e Metodologia Clinica 2a dell'Università, Policlinico Umberto 1, I-00100 Roma; and Clinica Medica Generale, Istituto Universitario di Medicina e Chirurgia, I-67100 L'Aquila (Italy), 20 March 1972.

¹ M. RE, V. SANTIEMMA, G. FRAJESE, M. SAVIOLI and A. FABBRINI, *Experientia* 28, in press (1972).

² A. E. F. H. MEIJER, *Histochemie* 12, 244 (1968).

³ D. BULMER, *Stain Technol.* 34, 95 (1959).

Increase in Rabbit Hypothalamic Histidine Decarboxylase Activity after Oophorectomy and Thyroidectomy

Brain histamine and histidine decarboxylase are preferentially associated with the hypothalamus¹⁻³. Their cellular localization is as yet unknown. Because of the intimate functional relationship between the hypothalamus and the pituitary, it was considered worthwhile to examine whether major alterations in the endocrine functions

of the adenohypophysis, induced by thyroidectomy and oophorectomy, would cause changes in hypothalamic histidine decarboxylase activity.

Female adult albino rabbits (2-3 kg body weight) were used. Hypothalamic histidine decarboxylase activity was assayed 20 days after removal of the thyroid gland, bi-