DB 94

ON THE FORMATION OF THE CYCLE OF THE SEMINIFEROUS EPITHELIUM IN THE MOUSE.

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A survey was made in order to ascertain when and how the first normal cycle of the seminiferous epithelium becomes established in the mouse. Testes at 10, 20 and 30 days were fixed in Bouin's, embedded in paraffine and cut serially at 10μm. Mallory's stained the basement membranes of the tubules distinctly. Two-dimentional reconstruction maps of tubules were made through serial photomicrographs. The site in meiotic metaphases was used to discriminate the limits of the spermatogenic waves in the tubule. A reconstruction of a tubule from a 30-day mouse, in which the descent of the testis had already taken place, showed the normal stages in spermatogenesis. The site of reversal of the waves was found in the vicinity of a large blood vessel situated opposite to the rete and beneath the tunica albuginea. The mean length of the waves on both sides of the site of reversal (11220μm) was much longer as compared with the average length of the waves measured elsewhere (5760μm). This suggests that the spermatogenic waves progress in the distal direction in the tubule, e.g. toward the site of reversal and the first normal cycle of the seminiferous epithelium becomes gradually established after the descent of the testis.

DB 95

ULTRASTRUCTURAL OBSERVATIONS OF THE EMBRYONIC TESTIS IN THE LIZARD, TAKYDROMUS TACHYDROMOIDES.

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The development and differentiation of the testes were observed by light- and electron- microscopy in Takydromus embryos incubated at 28 C and 30 C. Dark and light Sertoli cells were recognized. The organelles of both cells were similar, but those of the light cells were more dispersed than those of the dark cells. The endoplasmic reticulum of these cells was in the tubular form. From stage 36 to stage 38 the amount of endoplasmic reticulum increased. The membranes of the endoplasmic reticulum were partly smooth but they were occupied widely by clusters of ribosomes. Ultrastructural alterations of the endoplasmic reticulum in this study were coincided with the increase of 3ß-hydroxysteroid dehydrogenase activity in Lacerta(Morat, 1971). However, it is currently believed that much of the enzyme consists in the membranes of the smooth reticulum. The typical smooth reticulum could not observe during testicular differentiation in Takydromus. The interstitial cells did not show major cytological alterations as differentiation proceeded, except for a little increased amount of rough reticulum.

DB 96

AUTORADIOGRAPHIC STUDY OF THE ORIGIN OF THE MEDULLARY CELLS IN THE PRIMORDIAL TESTIS OF RHACOPHORUS ARBOREUS.

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The medullary cords of the primordial testis are formed by the cells which line the ovarian cavity of the ovary-like primordial gonad in Rhacophorus arboreus (Takasu and Iwasawa 1983). Mitotic activity in the somatic cells of the primordial gonads was examined throughout the process of testicular differentiation in the present study. Tritium thymidine (Spec. Act. 58 Ci / mMol) of 1μCi / g body weight was injected intraperitoneally into larvae in stages 40-46 (Iwasawa and Kawasaki 1979). After 2hrs the gonadal regions were fixed in Karnovsky's solution and osmic acid, and embedded in Epok 812. In stages O_2-O_4 and T_1-T_2 (Iwasawa's stages of gonadal differentiation in this species, 1969), in which testicular differentiation was occurring, each 4 blocks at one stage were sectioned serially at 1 μm and examined autoradiographically. An increase in the labeling index was observed in the ovarian cavity-lining cells at stage T_1, and the laveling index in the mesenchymal cells increased at stage T_2. These results support those of our previous study.

DB 97

AN ELECTRON MICROSCOPIC STUDY ON THE BLOOD-TESTIS BARRIER IN THE TELEOST, ORYZIAS LATIPES

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In mammals, the presence of the blood-testis barrier (BTB) between leptotene and zygotene spermatocytes has been demonstrated by electron microscopy. Recent studies revealed that the BTB in lower vertebrates exists at later stages of spermatogenesis. The present study was carried out in order to clarify the existence of BTB in the teleost Oryzias latipes. We used horseradish peroxidase (HRP) and lanthanum chloride (La) as tracers and introduced them into the testis by the following two methods. IN VIVO STUDY: HRP was injected into the heart of the fish. IN VITRO STUDY: the testes were dissected out and immersed in saline containing HRP or La. The testis is composed of cysts of germ cells, and the differentiation of germ cells proceeds synchronously in each cyst. The tracers penetrated all cysts and were observed between spermatogonia, spermatocytes, and spermatids, but were not noticed in the lumen of the efferent duct where the spermatozoa are located. These results indicate that the BTB exists in the wall of the efferent duct. The role of the BTB in O. latipes seems to be different from that in mammals.