DB 31

INDUCTION OF THE DIFFERENTIATION OF OVIDUCTAL EPITHELIAL CELLS IN THE NEWBORN GOLDEN HAMSTER BY ESTROGEN.

H. Abe and T. Oikawa. Developmental and Reproductive Biology Center, Yamagata.

In the golden hamster, the differentiation of oviductal epithelial cells, ciliated and secretory cells, occurs during postnatal period. In this study, the effect of estrogen on the differentiation of oviductal epithelial cells in the newborn golden hamster was studied by electron microscopy. The consecutive injection of estradiol 17-β (E_2) at a dose of 1μg/day from 1.5 days after birth induced various ultrastructural changes in the epithelial cells. Ciliogenesis, formation of some ciliary buds and ciliation were found in some epithelial cells on days 1 through 9 of E_2 treatment. On days 2 to 3, the remaining cells contained well-developed Golgi apparatus and extensive RER. Most of them possessed a few secretory granules in the cytoplasm on days 3 to 6 and showed the differentiation into secretory cells. On day 9, many fully mature ciliated and secretory cells were observed. In addition, quantitative data cleary demonstrated that exogeneous E_2 induced the differentiation of ciliated and secretory cells. These results suggest that estrogen is a possible differentiation inducing factor of the epithelial cells in newborn golden hamster oviduct.

DB 32

ANALYSIS OF PIG OVIDUCTAL GLYCOPROTEINS.

Y.Maruyama*, H.Abe, K.Takagishi, H.Hoshi and T.Oikawa. Bio Sci. Laboratory* and Devlop. & Reprod. Biol. Center, Yamagata.

In some mammals, the oviductal epithelial cells secrete some glycoproteins, which may play an important role for reproductive process. In this study, glycoproteins of the pig oviduct were studied by some immunolabeling techniques using a monoclonal antibody (C8B11) against the golden hamster oviductal glycoprotein (ZP-0). Western blotting analysis revealed that C8B11 reacted with at least three glycoproteins having different molecular weight in flushing fluid of the pig oviduct. Immunofluorescence tests showed that these glycoproteins associated with the zona pellucida of pig eggs matured in vitro. Moreover, C8B11 reacted with the epithelial cells of the pig oviduct. These results suggest that the pig oviductal epithelial cells secrete the zona pellucida binding glycoproteins. In addition, to establish the culture system of mammalian oviductal epithelial cell, we attempted to isolate pig oviductal epithelial cells. The oviductal cells isolated by collagenase were grown fast in the type I collagen coated dished with DME:Ham's F12 (1:1) supplemented with 10% FCS. These primary and secondary cultured cells contained the materials reacting with C8B11 in the cytoplasm and they were released into the culture supernatant.

DB 33

IMMUNOCYTOCHEMICAL CHARACTERIZATION OF NEURAL CREST-ASSOCIATED MARKERS APPEARING IN GOLDFISH ERYTHROPHOROMA CELLS UNDER DIFFERENTIATION in vitro.

J.Matsumoto[1], T. Akiyama[1] and K.Kitamura[2]
[1]Dept. of Biol., Keio Univ., Yokohama and [2]Dept. of Devel. Biol., Mitsubishi-Kasei Inst. of Life Sci., Machida.

Possible distribution of neural crest and melanoblast markers in goldfish erythrophoroma GEM 81 cells in vitro was examined by immunofluorescence using the antibodies, HNK-1 and 2A6. Examinations on cultured goldfish trunk neural crest disclosed that cells in the outgrowth were unequivocally reactive to these antibodies before pigmentation but became non- or less reactive after pigmentation. Assays on GEM cells with HNK-1 indicated that (1) their mother population contains a small number of positively reactive cells, (2) the numbers of such cells are markedly increased upon exposure to DMSO, and (3) their reactivity is gradually weakened with progress of melanogenesis and finally disappeared. Assays on the same cells with 2A6 indicated that their reactivity to this antibody appears transiently after induction of differentiation and soon disappears with the onset of melanogenesis. All these findings indicate that GEM cells are distributed with neural crest and melanoblast markers recognized by HNK-1 and 2A6, the expression of which is closely associated with an earlier stage of their cytodifferentiation.

DB 34

Study on migration and melanophore differentiation of neural crest cells by interspecific transplantation of Xenopus embryo.

M.Nagayosi and A. Suzuki, Dept. of Biology, Fac. of General Education , Univ. of Kumamoto.

In amphibian embryogenesis, neural crest cells are separated from neural fold during the formation of neural tube. They migrate and differentiate into melanophores, ganglion cells, and so on. We studied on migration of neural crest cells and their differentiation by using interspecific transplantation of albino Xenopus laevis and wild Xenopus borealis embryos. When a part of animal cap of wild X. borealis gastrula was transplanted onto the lateral presumptive neural fold region of albino X. laevis gastrula, many migrated cells with X. borealis nucleus were observed, but a few melanophores were observed at the dorsal region. The neural fold of early X. borealis neurula was transplanted on the same region of X. laevis neurula, most of the cells migrated and well-differentiated melanophores were observed. The neural folds transplanted on the lateral and ventral regions of same developmental stage also produced many migrating cells and well-differentiated melanophores. Mechanisms of migration and melanophore differentiation will be discussed.