Intracytoplasmic Cysts in Rat Duodenal Epithelium Treated with Colchicine

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We have reported that intracytoplasmic cysts (ICC) appear in the duodenal epithelial cells of rats treated with colchicine. In the present study, the intracellular transport of horseradish peroxidase (HRP), a cell surface binding tracer, in non-treated control and colchicine-treated rat duodenal epithelial cells was cytochemically investigated in conjunction with morphogenesis of ICC. In the control duodenal epithelial cells, the intravenously administered HRP was localized on the basolateral plasma membranes (BLPM), and it was endocytosed into the cytoplasm and transported toward their apical surfaces in a form of vesicles. After colchicine treatment, microvilli appeared not only on the apical surfaces but also on the surfaces of ICC as well as those of BLPM where the intravenously administered HRP was demonstrated. The endocytosed HRP through BLPM was transported toward both the apical surfaces and the surfaces of ICC. The HRP administered through the intestinal lumen, however, was confined to localize on the microvilli of the apical surfaces. These results suggest that the microvilli covering the surfaces of ICC which are morphologically and functionally identical to the apical ones might originate from BLPM.

Changes in Lectin Binding Patterns of Human Pulmonary Tissues in Association with Congenital Heart Diseases

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Lectin binding patterns in human pulmonary tissues obtained by biopsy on cardiac operation from 41 and 3 cases with and without congenital heart diseases, respectively, were studied by light and electron microscopy employing horseradish peroxidase (HRP)-labeling methods. Lectins used were ConA, WGA, RCA, DBA, PNA, SBA and UEA-1.

By light microscopy, all the lectins used stained the capillary endothelial cells and alveolar epithelial cells. The luminal surface of the arteriole endothelium was positive for all the lectins used except for DBA. PNA and SBA staining became more intense in the cases accompanied by pulmonary hypertension. Electron microscopy further revealed that positive sites under the light microscope were the plasma membrane and Golgi membranes. In addition to these membranes, ConA was positive in the endoplasmic reticulum and nuclear membranes also.

Increase in PNA and SBA staining in association with pulmonary hypertension seems to be closely related to structural changes of the arteriole endothelial cells.

Immunohistochemical Localization of Laminin and TypeIV Collagen in Human Pulmonary Adenocarcinoma

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Using an indirect immunoperoxidase method, the distribution of laminin and type IV collagen in the basement membrane of pulmonary adenocarcinoma in 14 patients was examined.
Histopathologically,well,moderately and poorly differentiated types were 2,6 and 6 cases, respectively.
In one of well differentiated type tumors, distinct basement membrane was revealed by laminin and type IV collagen, but in remaining cases,the boundaries between tumor cell masses and the mesenchyme were not always demonstrated as continuous line by laminin and type IV collagen. In most cases of moderately or poorly differentiated types , laminin were sparsely located adjacent to tumor cell masses or restricted to the basement membrane surrounding the blood vessels. Type IV collagen was mostly lost from tumor masses of these types. The results indicate that the basement membrane of lung tumor masses was progressively disorganized as tumors became histopathologically poorer. (Supported by Grant-in-aids,60S,from the Ministry of Halth and Welfare, the Government of Japan)

Preparation of and Immunoelectron Microscopy with a Monoclonal Antibody to the Structural Protein of a Retrovirus Produced in a Human Lymphoblastoid Cell Line

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To investigate the properties of a retrovirus produced in a human lymphoblastoid cell line (HLB), we prepared a monoclonal antibody (MAb) against the major gag protein (p34) of the retrovirus. MAb was prepared by the conventional cell fusion method with a purified virus fraction as antigens. Screening for the MAb was done by the dot-blot assay using an avidin-biotin system and immunoprecipitation with the purified virus as antigens. Using the anti-p34 MAb and the peroxidase-labeled second antibody, we performed an immunoelectron microscopy on paraformaldehyde-fixed and frozen-sectioned HLB cell specimens.

The MAb immunoreacted specifically with the core of this virus, which confirmed that p34 was a core protein. It could be attributable to the high specificity of a MAb that this anti-p34 MAb reacted only with the virus core, but neither with the virus envelope nor with cellular components. So the immunoelectron microscopy using MAbs is considered to be a powerful method for the localization of antigens.