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COMBINED ENZYME-HISTOCHEMISTRY AND X-RAY MICROANALYSIS ON IRON-CONTAINING ORGANELLES IN HEPATOCYTES OF PATIENTS WITH HEMOSIDEROSIS

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Ferritin particles can be seen in the liver parenchymal cell of patients with hemachromatosis, patients treated by desferoxamin or phlebotomy, and patients without iron-loading diseases. Ultrastructurally there is an enormous heterogeneity in the ferritin-containing structures, which do not always comply with the morphological criteria of lysosomes.

An element analysis on these structures has been done combining enzyme-histochemistry--cerium phosphate being the marker for the lysosomal enzyme acid phosphatase--and X-ray microanalysis. The amount of lysosomes with or without iron and the number of residual bodies without acid phosphatase activity is distinctly different in the three aforementioned groups. A working hypothesis in which iron withdrawal accounts for a reactivation of the cells' lysosomal apparatus is postulated.

DETECTION OF ROTAVIRUS AND "CORONA-LIKE VIRUS" IN STOOL SAMPLES OF INFECTED PIGS BY SOLID PHASE IMMUNE ELECTRON MICROSCOPY (SPIEM). COMPARISON OF SPIEM WITH DIRECT ELECTRON MICROSCOPY AND ENZYME-LINKED IMMUNOSORBENT ASSAY (ELISA)

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Rotavirus and coronavirus infections in pigs have been associated with recurrent outbreaks of diarrhoea. The role of these agents has been proved by inoculation of faeces samples containing the agent into gnotobiotic or colostomum deprived animals. Many of the viruses primarily found by EM of faeces samples have not yet been cultivated in cell cultures (for instance porcine coronavirus 3 = corona-like virus). Therefore, direct electron microscopic examination of faecal material remains the standard diagnostic technique for intestinal infections.

The trapping of viruses on EM grids coated with specific antiserum via protein A (solid phase immune electron microscopy or SPIEM) increases the number of virions that adhere to the grids. With SPIEM, adsorption of cellular debris is greatly diminished, increasing the sensitivity of the EM method for diagnosis.

Diagnosis of porcine coronavirus 3 and rotavirus infections was facilitated by the use of the enzyme-linked immunosorbent assay (ELISA-IDAS variant). The results need confirmation by EM.

Trapping of rotavirus particles in SPIEM led to detection of particles in a 50-fold higher dilution of a stool sample as compared with standard EM comprising a low speed centrifugation step to detect the particles in the cellular debris. An indirect ELISA (IDAS) was applied for the examination of daily stool samples of young pigs that were examined in parallel by SPIEM. The results of both methods coincide fairly well. However, some samples were scored positive in SPIEM and negative in ELISA.

SPIEM of the corona-like virus present in the colon content of gnotobiotic pigs showed good preservation of peplomer morphology. However, SPIEM of stool samples was hampered by an ill-defined peplomer morphology. Colloidal gold was introduced as a label to identify "naked" particles in specimens as corona viruses.

INFLUENCE OF HYPOKALEMIA UPON THE ULTRASTRUCTURE OF RAT GASTROCNEMIUS MUSCLE. A SEMI-AUTOMATIC MORPHOMETRIC STUDY

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Male Wistar R rats were treated during 12 weeks with furosemide (Lasix - Hoechst), .12 ml/100 g each 2 days. Each two weeks 3 animals were sacrificed and compared with a control group. Gastrocnemius muscle was examined by EM
and quantified by semi-automatic image analysis. No data on sarcoplasmic reticulum variations are available today. Measurements were made on Z disc (Z), mitochondria (M) and tubular system (T) profiles. Of each individual structure area and perimeter was measured. As determined elsewhere it was necessary to introduce a 5% correction factor to eliminate extreme values. No quantitative difference in fiber types was found. With control values = 100%, results at the end of the experiment are as follows:

| No. of counts | (Z) | (M) | (T) |
|---------------|-----|-----|-----|
| (30 photographs) | -3.2% | -61.82% | -47.72% |
| Mean area | +55.37% | +28.25% | +179.57% |
| Minimal value | -7.52% | +46.67% | +51.25% |
| Maximal values | -14.69% | -77.68% | +66.12% |
| Mean perimeter | +19.84% | +4.69% | +42.31% |
| Minimal value | -15.23% | +1.3% | +48.17% |
| Maximal value | +1.9% | -41.20% | -35.25% |

Serum potassium concentration averages $5.4 \pm 0.2$ in control rats and $3.9 \pm 0.3$ in the experiment.

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1. De Coster et al., Acta Neuropath (Berl.) 64 (1984) 108-113.

SOME CONSIDERATIONS OF EXPERIMENTAL LENs IMPLANT AT THE RABBIT EYE, A SEM STUDY

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Introduction: Scanning electron microscopy has proved to be an effective method for clinical and pathological survey of ocular tissues in experimental conditions. The present study deals with some aspects of intraocular lens implant in the rabbit eye under experimental conditions: (a) a general view of the implanted lobster-claw type lens after 6 months, (b) the relation of stainless steel sutures with the corneal endothelium.

Results and conclusions: The lobster-claw type lens uses iris-bridges, enclavated into a small claw-shaped structure. Two months after implantation the connection between lens and iris became detached at one side because of faulty manufacturing, which resulted in a long-term endothelium touch, leading to local corneal edema. This was first observable as a complete disruption of the normal hexagonal endothelium pattern and exposure of the sometimes