

RPE ULTRASTRUCTURE OF SOME DIURNAL RODENTS

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In the retinal pigment epithelium of some diurnal rodents, an extended zone of decreased pigmentation is distinctly observed under microscope investigation. Location of this zone, the 'pale stripe', corresponds to position of the retinal visual streak of these animals [1-3]. Keeping in mind the significance of functional state of the RPE for the retinal health in general, and the dependence of the human central vision on the macular RPE state specially, different vertebrates, even birds (like japan quail) are considered as possible models for investigation of human ophthalmic diseases (like AMD, the age-related macular dystrophy). Diurnal rodents having the visual streak, that parallels in some sense the human fovea, come to first place because of simplicity of their rearing in vivaria [4-5]. The yellow stepp-lemming *Eolagurus luteus* and the Brandt's vole, *Lasiopodomys (Microtus) brandti* represent two diurnal species inhabiting open arid landscapes which predispose increased vision, rare among voles (Microtini), the group of numerous small crepuscular rodents inhabiting predominantly landscapes rich of shelters and high vegetation. Both voles have the retina with rich cone population and possess expressed pale stripe of their RPE, which enables investigation of RPE specificity in the zone that subserves the retinal visual streak. This is our reason to address their RPE ultrastructure in search for functionally significant differences in fine structure features inside and outside their pale stripe.

Our investigation is at initial stage, only few things worth mentioning having been found.

1. Both species have rich population of cones, the outer segments of which have usual clear fine-structural distinctions from rod outer segments.

2. No myeloid bodies, described in RPE cells of some other rodents (and different vertebrates in general) have been observed in our specimen. Myeloid bodies are supposed to be involved in lipid turnover bound to the photoreceptor disks' shedding.

3. "Instead" of myeloid bodies, which represent the dense stacks of enlarged membranes of smooth endoplasmatic reticulum, almost structureless electron-dense masses have been found in the pigment cells of *Eolagurus*. Inside such cloud-shaped masses, the rounded structures having regular fine periodicity of the order of 5 nm are regularly observed.

4. In RPE cells of the Brandt's vole, a rare kind of 'homogeneous inclusion bodies' described in human RPE cells (Bairati, Orzales 1963) as devoid of membrane, resembling lipid droplets and "frequently packed together in a close contact with mitochondria", have been observed. They decidedly have membranes and tend to compose dense groups in the basal part of cell. Further research is in progress.

References:

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