

## The rudimentary eye of the fossorial reptile *Amphisbaena alba* (Amphisbenidae, Squamata)

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The low luminosity of some environments, such as the deep ocean, dark cavities and underground tunnels, propitiate the involution of the eye, which may become rudimentary, vestigial and even disappear. Morphological studies of this rudimentary organ may consolidate the knowledge on its particular functions and evolutionary adaptations. To analyze the eye of the fossil reptile *Amphisbaena alba*, six specimens were provided by the Laboratory of Cellular Biology - Instituto Butantan. Euthanasia was performed by injecting a lethal dose of sodium thiopental (30 mg.kg<sup>-1</sup>). The whole heads were fixed in Bouin's solution, decalcified in 7% EDTA, phosphate buffer, p H7.4, in microwave for 3 days and embedded in paraffin for inspection under light microscopy; 4 mm sections were stained with three different methods: hematoxylin-eosin, modified Masson's Trichrome plus orcein and Kluver-Barrera. For the analysis under transmission electron microscopy, the eyes were removed, fixed with Karnovsky's solution and embedded in Epon resin. The thin sections were stained with 1% blue toluidine in sodium borate solution and were also observed under light microscopy. For the scanning electron microscopy analysis, sagittal sections of the head were fixed with Karnovsky's solution, following routine procedures. Electroretinography with needle-electrodes was performed in three animals. the eyes presented a vesicular shape, similar to the optic cup. The three tunics could be observed. It was even possible to identify the three layers of the retina in the inner tunic. Screening electron microscopy revealed that the cornea is covered by a squamous-like epithelium and that the lens presents a vesicular aspect. The anatomical position of the eye may be related to its little functionality, since the scale that cover the eye precludes light penetration by dioptric means. On the other hand, the structure of the retina is still compatible with light perception and sensitivity, which indicates the necessity of other studies on brain projections and unicellular registers, to answer some questions on the biological role of the rudimentary eye.

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