

The genetic explanation for moles' poor eyesight

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Image: University of Aberdeen

Due to their underground habitats, moles' eyes have been modified by natural selection in ways very different from those of surface-dwelling animals. New research, published in the open access journal *BMC Biology*, features a detailed anatomical and genetic examination of the changes that result from living life in the dark.

A team of researchers led by J Martin Collinson from the University of Aberdeen has carried out the first molecular study of the entire process of lens development in a subterranean animal - the Iberian mole, *Talpa occidentalis*, which has permanently closed eyes unlike the closely related European mole found in gardens throughout Britain.

According to Collinson "Our results show that there are primary developmental defects in the lens of this insectivore. As a result, the

adult lens is composed of a disrupted epithelium and a disorganised mass of immature and nucleated fibre cells."

The genetic information the authors amassed shows that the internal defects in the animals' eyes are not the result of an adult degenerative condition but because development of the eye lens fibres, which starts normally, is not completed. The expression of some genes that are central to eye development is also abnormal.

Citation: The molecular basis of defective lens development in the Iberian Mole, Francisco David Carmona, Rafael Jiménez and Jon Martin Collinson, *BMC Biology* (in press)

www.biomedcentral.com/bmcbiol/

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