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AN EELS STUDY OF THE INTRANUCLEAR INCLUSIONS OF THE EPIDIDYMIS PRINCIPAL CELLS IN THE GARDEN DORMOUSE, *ELIOMYS QUERCINUS* L.

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Résumé : Les inclusions intranucléaires des cellules principales de l'épididyme du lérot contiennent C, N, O, Mg, P, S et Fe.

Abstract : In the intranuclear inclusions of the epididymis principal cells of the garden dormouse, C, N, O, Mg, P, S and Fe are found.

Hammar was the first to report, in 1897, globular inclusions in the nuclei of the columnar epithelial cells lining the ductus epididymidis. He observed them in the dog where they are very abundant. They are also present in man and in the stallion but are absent from sheep, cat, rabbit guinea pig, rat and mouse. We have now found them in an ascrotal hibernator, the garden dormouse, *Eliomys quercinus* L., but we have been unable to detect them in another hibernator, this time a scrotal mammal, the thirteen-lined ground squirrel *Spermophilus tridecemlineatus*.

Epididymis principal cell. The nuclear inclusions (arrow) are globular.
x 8,000.

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The granules are found in the perinuclear space before their passage into the nucleus. It seems that the endoplasmic reticulum sacculae which stock them after their synthesis, fuse with the outer nuclear envelope. Indeed, many of our observations have shown a continuity between the cisternal lumen and the perinuclear space. The granule are then invested by the inner membrane of the nuclear envelope and transferred into the nucleus. They later disintegrate into a finely particulate material and the vacuole is finally left with an electron transparent content.

The number of intranuclear inclusions varies with the hormonal state of the animal. A careful study over four years in which several animals were examined each month leads us to conclude that the granules are always present just before a rise in plasma testosterone ; they are found in January, June and September.

EELS analysis of a nuclear inclusion.

Outside of the nuclear inclusion.

The EELS analyses were performed with an Ω -filter fitted to the Toulouse 1.2 MV microscope. We worked at 1 MV. The selected areas were about 100 nm in diameter and we were, therefore, always analysing only the granules. The spectra were traced with a Tracor TN-11. We detected C, N, O ; Mg was identified by its K line at 1305 eV, P by that at 2140 eV, S by that at 2470 eV ; Fe was identified by its L_{23} line at 730 eV. This suggests that the granules are made of protein associated with phosphorus, sulphur, iron and magnesium.