

Z201 **The Glandular Units of the Female Accessory Gland in Mealworm Beetle, *Tenebrio molitor***

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The fine structure of the reproductive accessory gland of the female mealworm beetle, *Tenebrio molitor* is studied with light and electron microscopes. The female accessory gland is a simple tubular organ which composed of epithelial secretory cells, duct-forming cells, and cuticular intima. The lumen is lined with a thin cuticle and filled with dense secretion materials. The columnar epithelial cells have the basal infoldings and end-apparatus which made up of canaliculization of apical microvilli. Each secretory cell has well developed rough endoplasmic reticula, mitochondria and secretory vesicles. The duct forming cells, which delimiting the gland lumen are very small in size and flat with their inner margins. The glandular secretions of the epithelial cells are synthesized via rER to Golgi apparatus, and are drained to the lumen through the end apparatus. Histochemical reactions reveals one of the major component of this glandular secretion is a mucopolysaccharides.

Z202 **Fine Structural Modification of the Epithelial Apoptotic Cells during the Tail Degeneration in the Frog, *Rana nigromaculata***

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The apoptotic cells during tail degeneration in the black-spotted frog, *Rana nigromaculata* were identified by TUNEL (*terminal deoxynucleotidyl transferase - mediated biotinylated d-uridine triphosphate nick end labeling*) stain and their fine structural modifications were analyzed by transmission electron microscopy. The epithelial cells of the Shumway stage number 31 to 33 were observed at this experiment, and the apoptotic cells were observed at the stages of 32 and 33. The early apoptotic cells shown in the epithelium demonstrated condensation and margination of the chromatin material at the nuclear periphery. Another epithelial apoptotic cells were shown nuclear fragmentation, membrane blebbing and vacuole production. In spite of these nuclear modification, the early stage of apoptotic cells had intact mitochondria, Golgi apparatus and rough endoplasmic reticula in their cytoplasm.