C117 Fine Structural Characteristics of Apoptotic Cells During the Tail Degeneration in the Black-spotted Frog, *Rana nigromaculata*

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Fine structural modification of apototic cells during the programmed cell death in the tail parts of black-spotted frog, *Rana nigromaculata* was investigated by the TUNEL(terminal deoxynucleotidyl transferase-mediated biotinylated d-uridine triphosphate nick end labeling) method and electron microscopical observations. The TUNEL-positive cells were not observed during the stage of 31, however a number of apoptotic cells were identified in the epithelium of tail from the stage of 32 to 33. At the stage of 32, the initial TUNEL-positive cells were randomly scattered among the epithelial cells. The nuclei of the apoptotic cells were compactly condensed and sharply delineated by the aggregation of nuclear chromatin. Following the nuclear convolution, production of discrete nuclear fragments of varying size appeared by the budding of the cell.

C118 Fine Structural Analysis of the Hemocytic Differentiation in the Spider, *Araneus ventricosus*

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The fine structure of the hemocytes in the spider, *Araneus ventricosus* and cellular differentiation during the molting cycle are observed using electron microscopes. Spiders have opened-circulatory system, and exhibit a large variety of blood cells in the hemolymph. In this experiment, we have observed four different types of hemocytes such as, prohemocytes, plasmatocytes, granulocytes and spherulocytes. Prohemocytes are the smallest in size and have relatively large nucleus compared with cytoplasm, whereas the plasmatocytes have well developed and extensive rough endoplasmic reticulum. Granulocytes contain round electron-dense granules within the cytoplasm. The spherulocytes are filled with spherules (1.2 ㎛) which have helical materials in the cytoplasm. In addition to these, another type of hemocytes - the molting hemocytes which have reported by Wagner(1888) - are also identified in this spider during the molting period characteristically.