Z205 **Modification of the Gastrointestinal Secretory Cells after Starvation of the Toad *Bombina orientalis***

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Histological and fine structural changes of the amphibian gastrointestinal tract in Korean fire-bellied toad, *Bombina orientalis* were analysed after inducing long period of starvation. In the normal gastric tissue, the epithelial cells had abundant microvilli, and the mucous neck cell had large secretory granules in the apical cytoplasm. In addition, the enterocytes of the normal intestine had numerous mitochodria and highly infolded microvilli along the brush border. After starvation, the number of apical mucous granules were gradually increased, however the number of mitochondria of the enterocytes in the small intestine were somewhat diminished. Moreover, thickness of each mucosa and submucosa layers in the small intestine were remarkably decreased by the long duration of starvation.

Z206 **Fine Structural Analysis of the Heart Muscles in the Mealworm Beetle, *Tenebrio molitor***

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Fine structure of the heart muscles in *Tenebrio molitor* were studied with light and electron microscopes. As the insects have the aorta at the thorax region, so the heart is restricted to the abdominal region. The heart was consisted of three types of layers: epicardium, cardiac muscle, and endocardium. Both of the epicardium and the endocardium encircling the free surface of the heart, and they commonly composed of a single layer of flattened cells. The heart of the adult beetle has a chambered appearance and bounded to the dorsal body. The intercalated disk, one of the peculiar structure of the cardiac muscles in higher animals also appeared in this beetle. Moreover, the substructure of the sarcomere, the regular arrangement of sarcoplasmic reticula, and special banding patterns of cardiac muscles were also observed, and they were analyzed with the aids of high magnification electron microscopes.