

**C103** Ultrastructure of Spermatozoa in *Pungtungia herzi*  
(Teleostei, Cyprinidae)

Young Hwan Lee · Kgu Hwan Kim\* · Jung Ho Moon  
Department of Biology Education, Taegu University

The ultrastructure of *Pungtungia herzi* spermatozoa represents characteristics typical of cyprinid spermatozoa including the lateral insertion of the flagellum, the organization of the centriolar complex in shallow nuclear fossa, the occurrence and the asymmetrical arrangement of mitochondria. However its ultrastructure exhibits some differences including the number of the mitochondria and the orientation of the centriolar complex. *P. herzi* spermatozoon contains a single mitochondrion in the juxtannuclear pocket of the postnuclear cytoplasm. However in primary spermatocyte the mitochondria show 5 or more and fuse to form the single one in the mature spermatozoon. This aspect is different from the mitochondria in other cyprinid spermatozoa as they have a conventional aspect and never fuse to form a mitochondrial derivative. From the aspect of sperm evolution the fused mitochondria are considered as the apomorphic character in comparison with the separate mitochondria. The single mitochondrion is not reported in cyprinid spermatozoon with exception of *Rhodeus*. The use of spermatozoal morphology in the examination of taxonomic relationships of Cyprinidae is discussed.

**C104** Immuno- and Enzyme-Histochemical Studies on the n-Nitric  
Oxide Synthase in the Mouse Renal Cortex after High-Salt Diet

Ji Won Han\* and Han Hwa Kim  
Department of Biology, College of Medicine, The Catholic University of  
Korea

This study was designed to examine the changes in the expression of neuronal nitric oxide synthase (n-NOS) and the activity of NADPH-diaphorase in macula densa cells induced by high-salt diet in the mouse kidney. The morphological changes caused by the high-salt diet in the area of renal cortex and the density of renal corpuscles were studied as well. As the high-salt diet, 3% NaCl solution was provided as drinking water for 28 days. The immunoreactivity of n-NOS was prominent in macula densa cells, and the intensity of reaction was lower in the high-salt diet group than in normal group. The activity of NADPH-diaphorase was weaker in the high-salt diet group than that in normal group, and numbers of positive cells in macula densa were significantly decreased by 42% on the 4th day, 36% on 7th day and 27% on 28th day in the high-salt diet group compared to those in normal group. Areas of the renal cortex were significantly decreased on the 4th, 7th, 14th and 28th day in the high-salt diet group compared to those in the age-matched normal group. Densities of renal corpuscles in the cortex were significantly increased on 4th and 7th day in the high-salt diet group compared to those in the normal group. These results suggest that the changes in the density of renal corpuscles was induced in the high-salt diet mice as the renal cortex area was decreased, and the nitric oxide production in macula densa cells of the mouse kidney might be decreased in the high-salt diet condition.