Effects of low environmental salinity on the cellular profiles and expression of Na^+/K^+-ATPase and $Na^+/K^+/2Cl^-$ cotransporter 1 of branchial mitochondrion-rich cells in the juvenile marine fish *Monodactylus argenteus*

Tsung-Han Lee and Chao-Kai Kang

Department of Life Sciences, National Chung-Hsing University, Taiwan

The goal of this study was to determine the osmoregulatory ability of a juvenile marine fish, silver moony (*Monodactylus argenteus*). The largest apical surface of mitochondrion-rich cells was found in the FW individuals. Immunohistochemical staining revealed that Na^+/K^+-ATPase-immunoreactive (NKA-IR) cells were distributed in the interlamellar region of the gill filaments. In addition to the filaments, NKA-IR cells were also found in the lamellae of the FW individuals. The number of gill NKA-IR cells of the FW fish exceeded that of the BW and SW individuals. The NKA-IR cells of FW and SW individuals exhibited bigger size than that of BW fish. The gill NKA profiles of the FW individuals were significantly higher than in the BW and SW groups. Additionally, the relative amounts of branchial $Na^+/K^+/2Cl^-$ cotransporter (NKCC1) were salinity-dependent in the species. Immunofluorescent signals of NKCC1 were localized to the basolateral membrane of NKA-IR cells in all groups. In the FW individuals, however, some gill NKA-IR cells did not exhibit a basolateral NKCC1 signal. In conclusion, the present study illustrated the osmoregulatory mechanisms of this easy- and economic-to-rear marine teleost with euryhaline capacity and proved the silver moony to be a good experimental animal.