Department of Life Science

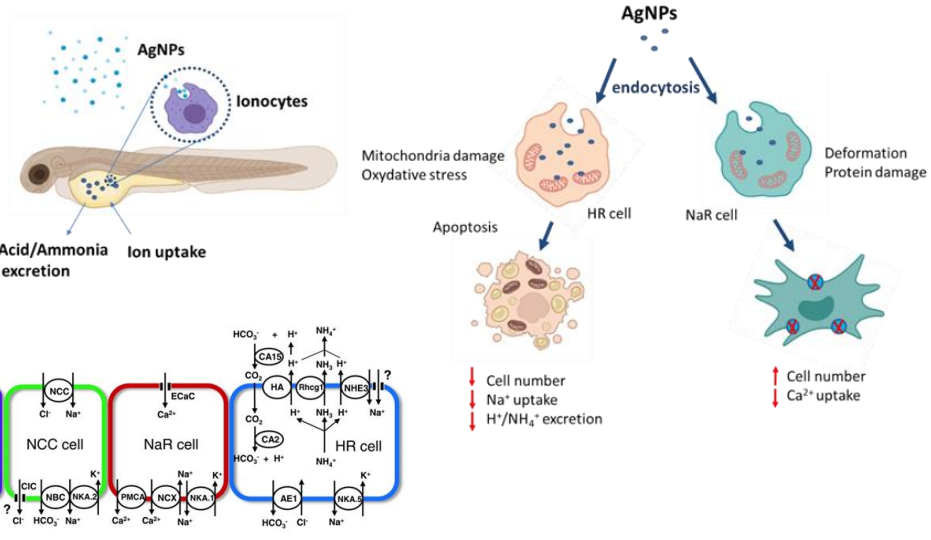
Fish Physiology and Toxicology

My research interests focus on how environmental factors (salinity, ion level, pH and temperature) and pollutants (metals, drugs, nanoparticles, and nanoplastics) influence physiological functions of fish. We use zebrafish and medaka as freshwater and seawater fish models, respectively. Our approches include gene expression analysis, cell function (ionocytes and hair cells) analysis, ultrastructure analysis, and fish locomotion and behavior analysis.

Techniques used in study

Zebrafish locomotion and behavior analysis
Electronic microscopy
Immunofluorescent staining
Scanning ion selective microelectrode
Quantitative PCR
Gene knockdown

Illustration of the toxic effects of silver nanoparticles (AgNPs) on the skin ionocytes and ion regulalatory functions of zebrafish.



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Funding:

Ministry of Science and Technology

Publications

1. Hung GY, Wu CL, Chou YL, Chien CT, Horng JL, Lin LY*. (2019). Cisplatin exposure impairs ionocytes and hair cells in the skin of zebrafish embryos. Aquatic Toxicology, 209:168-177.
2. Lee CY, Horng JL, Chen PY, Lin LY* (2019). Silver Nanoparticle Exposure Impairs Ion Regulation in Zebrafish Embryos. Aquatic Toxicology, 214:105263.