

Laboratory of environmental toxicology

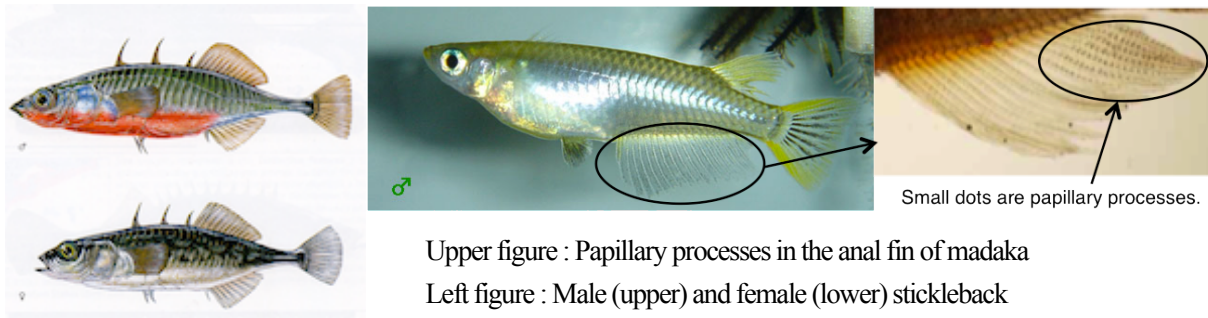
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Endocrine-disrupting chemicals (EDCs) interfere with the endocrine systems of animals. These disruptions can cause many functional disorders related to development, reproduction, behavior, and maintenance of homeostasis. Our laboratory focuses on the development of sensitive and precise testing methods that use small fish to evaluate the agonistic and/or antagonistic potency of various chemicals. In addition, we conduct field surveys in estuaries investigating environmental levels of EDCs, especially estrogens.

Evaluation of the androgenic or anti-androgenic potency of chemicals using the small fish, stickleback and medaka.

Both spiggin synthesis in the kidney of stickleback (*Gasterosteus aculeatus*) and papillary processes in the anal fin of medaka (*Oryzias latipes*) are specifically induced by androgenic stimulation. Therefore, these fishes can serve as effective biomarkers for the evaluation of the androgenic and anti-androgenic potency of chemicals. In our laboratory, we have developed testing methodologies using these biomarkers.



Upper figure : Papillary processes in the anal fin of madaka
Left figure : Male (upper) and female (lower) stickleback

Field survey of EDCs contamination in estuaries

Estrogen-like chemicals (environmental estrogens) can easily be found in aquatic environments. Since these chemicals strongly affect reproductive function in fishes, continuous surveying of their concentrations in estuaries is necessary. In our laboratory, serum levels of vitellogenin (an egg yolk protein produced in the liver as a result of estrogenic stimulation) in male common goby (*Acanthogobius flavimanus*) are examined in order to determine the biological impact of environmental estrogens.



Common goby (*Acanthogobius flavimanus*)



Capture of common goby by fishing and blood collection