

Poster #22

Functional Analysis of Paralogous Estrogen Receptor Family Genes of Sea Snail, *Thais clavigera*

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Background: Accumulated evidence has shown that mollusks are very sensitive to certain types of environmental endocrine disruptors and their endocrine system is affected by exogenous estrogens. However, our knowledge on genes involved in the molluskan estrogen signalings is limited. Hence, we focused on estrogen receptor family genes.

Method: Neogastropods (*Thais clavigera*) were collected at Hiraiso seashore in Ibaraki, Japan, and total RNA was extracted from ganglia, gonads and feet. We isolated two different cDNA clones coding estrogen receptor family genes, using degenerated primers to amplify the DNA and ligand binding domains of the receptors, followed by the 5'- and 3'-RACE methods. To elucidate genomic and non-genomic functions of these genes as estrogen receptor, plasmid vectors coding these genes were introduced into mammalian cells. Activities of ERE-mediated transcriptional activation and repression of etoposide-induced apoptosis were analyzed.

Results: We cloned two types of estrogen receptor family genes, designated as tSHR13 (*Thais* Steroid Hormone Receptor) and tSHR14. tSHR13 and 14 did not elevated ERE-mediated luciferase activity. However, both tSHR13 and 14 functioned as estrogen-induced inhibitors against apoptosis of mammalian cells.

These results suggest that estrogen receptors of gastropod may function as non-genomic mediators of estrogenic signals.

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