

**Synthesis of vitellogenin  
in the Pacific oyster  
*Crassostrea gigas***

UJNR Scientific Symposium  
October 29-30, 2007

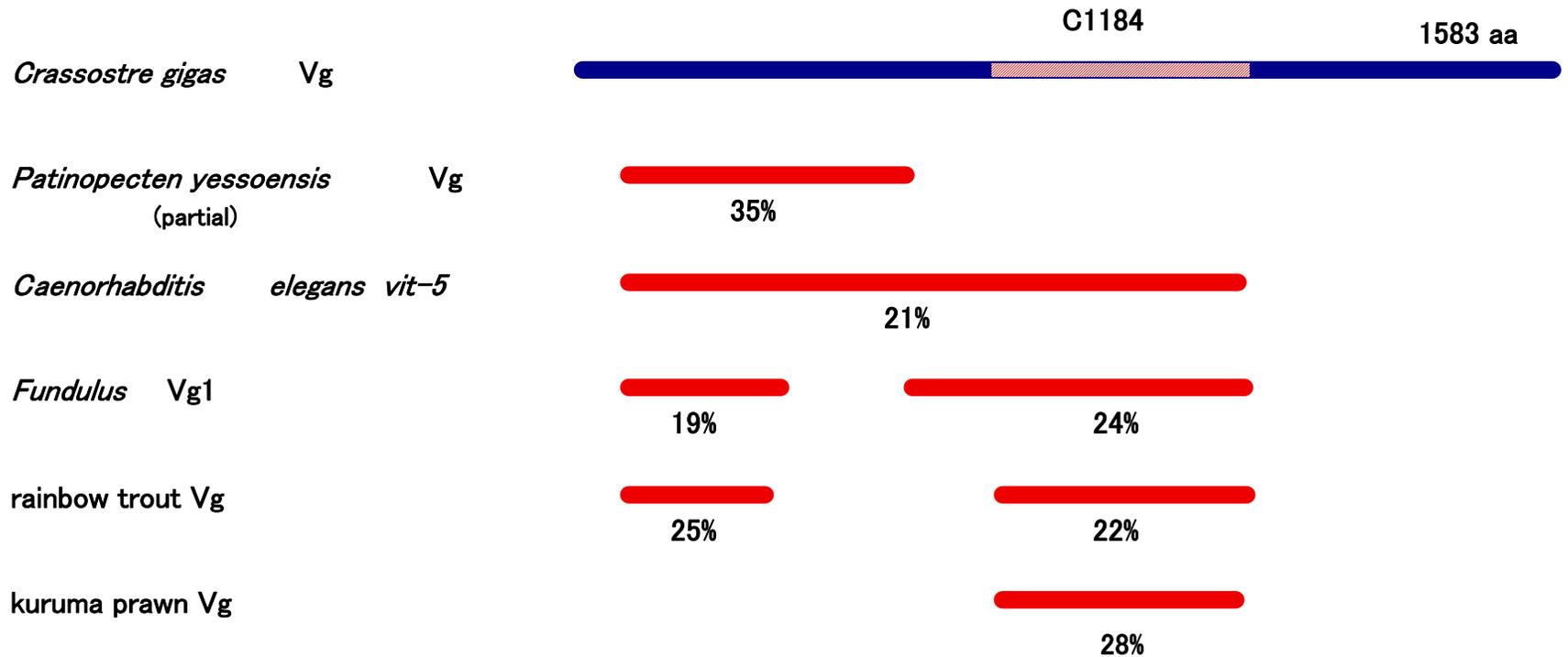
**Toshie Matsumoto**  
National Research Institute of Aquaculture, JAPAN

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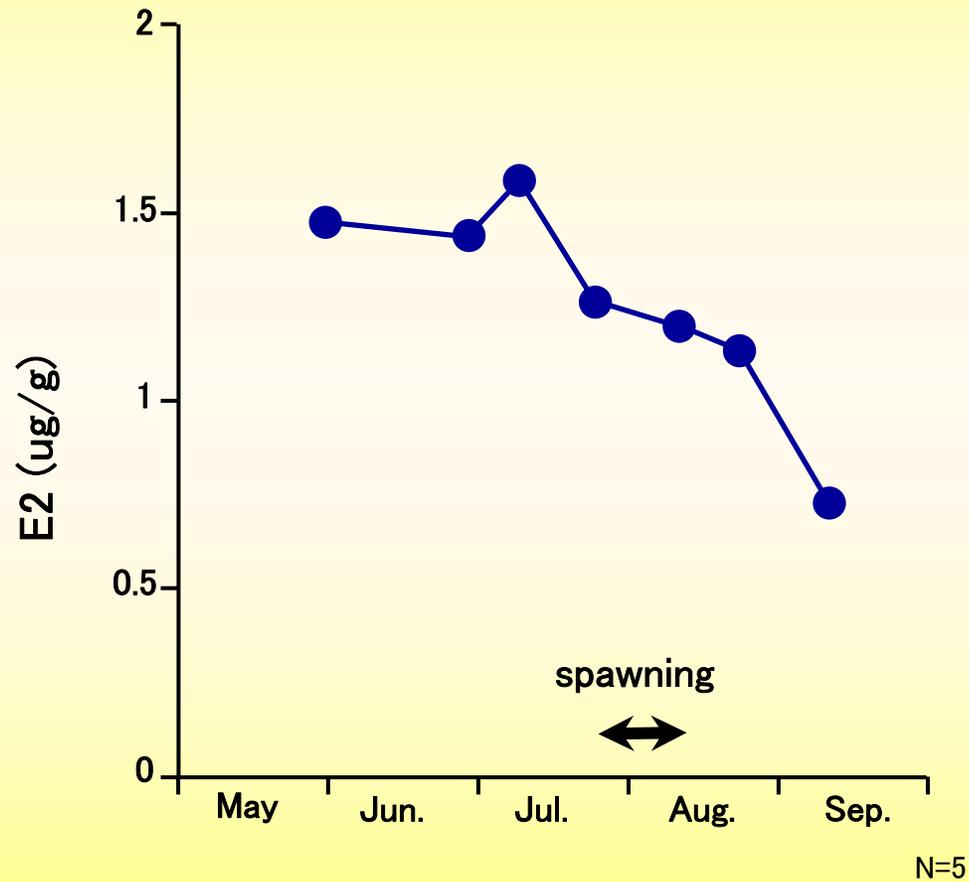
1. Vitellogenin
2. Steroids
3. Effect of estrogen
4. Estrogen receptor



# Alignment of oyster Vg with other animal Vgs



# Change in E<sub>2</sub> levels on the ovary



E<sub>2</sub> promotes vitellogenesis

# The complete cDNA sequence of oyster ER

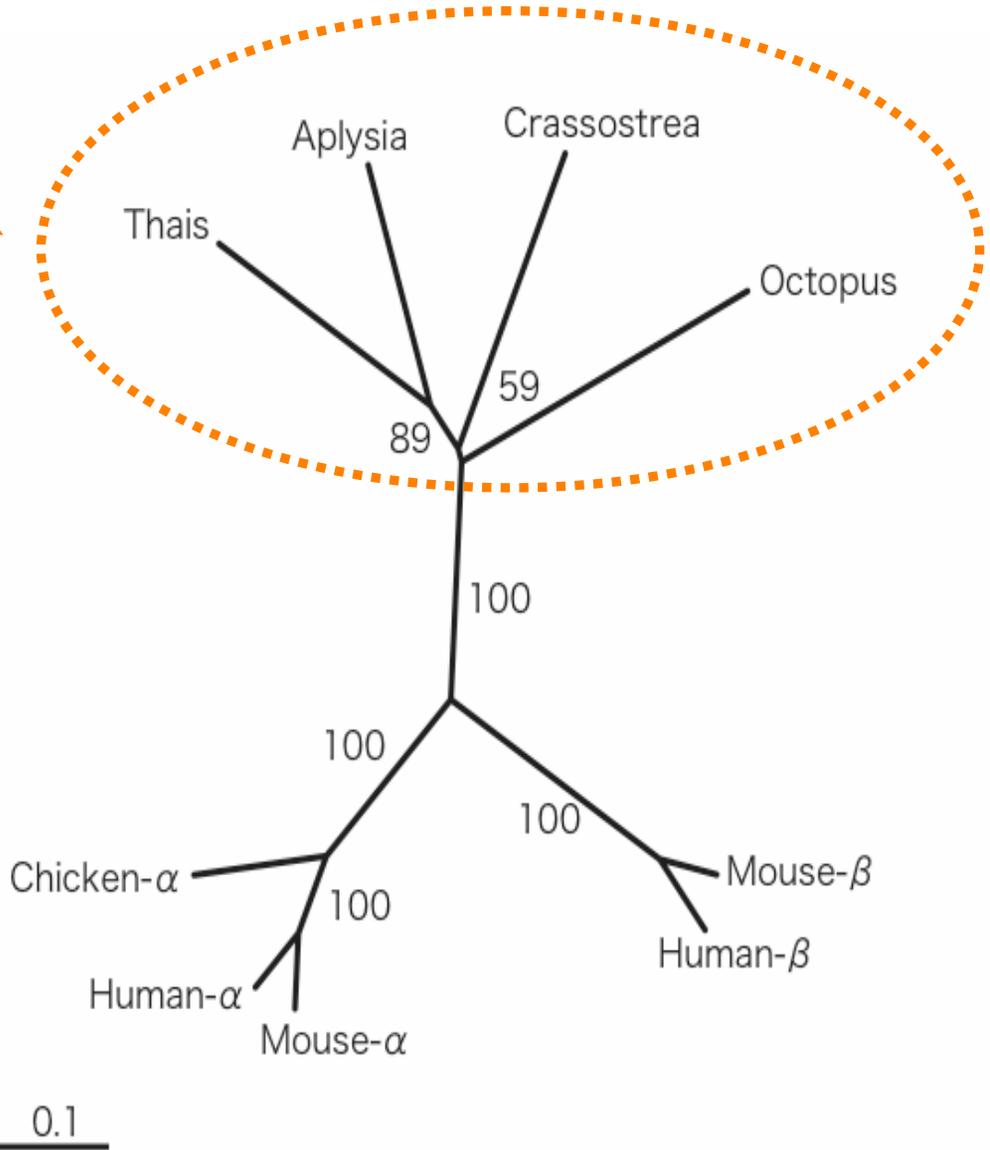
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X: DNA-binding domain ; X: ligand-binding domain ; EGCKA : P box ; X: two zinc finger motifs

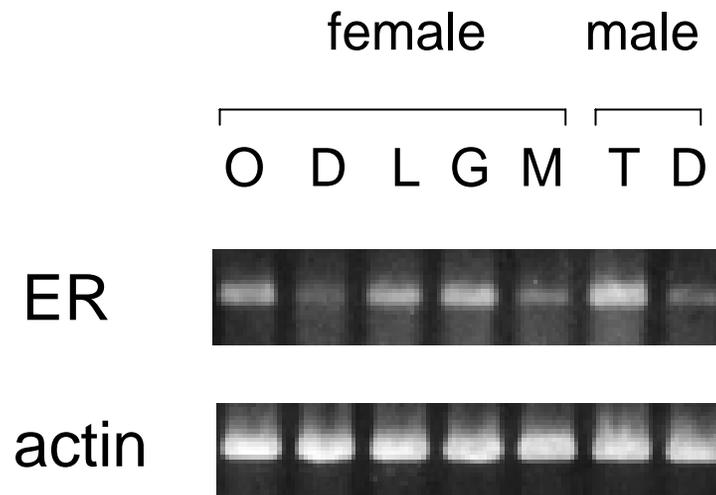
## Comparisons of oyster ER with mollusk ERs and human SHRs

		C domain	E domain
mollusk	cgER	100	100
	Octopus ER	97	56
	tcER1	95	66
	Aplysia ER	97	65
	Human ERa	86	45
	Human ERb	89	45
	Human GR	55	27
	Human PR	51	32
	Human AR	55	30

Mollusk ER

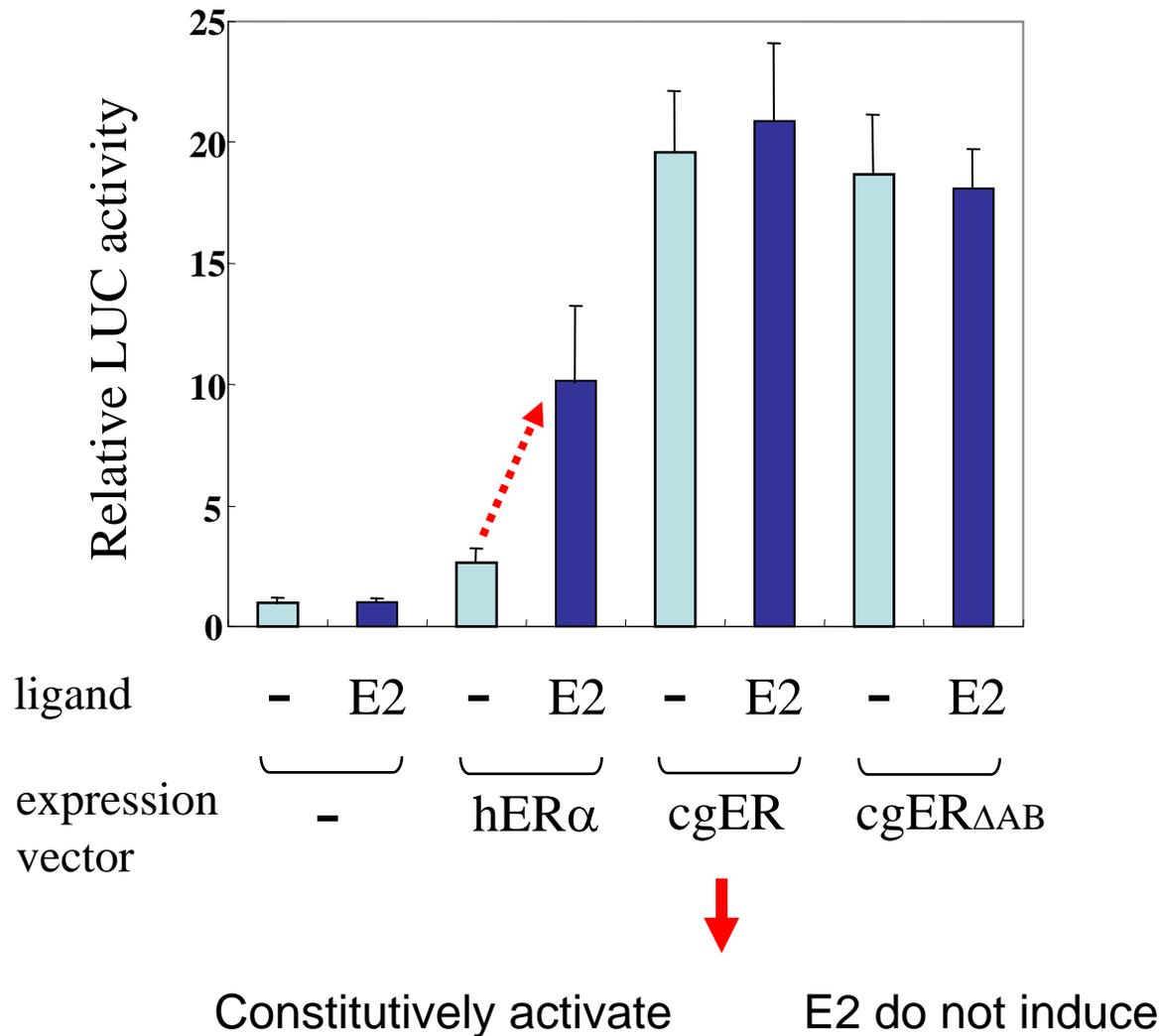


# The levels of ER mRNA in various organs



RNA was prepared from ovary, digestive gland, labial palp, gill and mantle from female oyster, and testis and digestive gland from male oyster.

# Functional analysis of oyster ER protein



# ERs are unresponsive to E

BUT

- marine snail ER in ovary, cerebral ganglia
- Octopus ER in both sexes
- oyster ER in all tissues

importance of ER

# Summary

- E<sub>2</sub> was detected in the ovary.
- E<sub>2</sub> induced the Vg gene expression.
- The cgER was not active.
- The cgER was localized in the nuclei of follicle cells.
- The Vg mRNA was expressed in the follicle cells.

oyster ER could regulate the transactivation of Vg  
in the nuclei of follicle cells

