

A cDNA from the fresh water mussel (*Elliptio complanata*) with homology to vertebrate steroid receptors.

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A variety of invertebrates appear to synthesize classical vertebrate gonadal steroids, but no receptors have been identified. In the fresh water mussel, as in other invertebrates and vertebrates, vitellogenin is synthesized but its regulation is not understood. As part of a study using the fresh water mussel as a sentinel species for xenobiotic impact, we have identified the yolk proteins and are currently investigating their regulation (Won and Callard, 1999 Biol. of Rep., 60:1, 293). In this study we cloned a 500bp RT-PCR product which was generated using ER degenerate primers designed to the DNA binding domain. Sequence analysis of the RT-PCR product shows high homology (~78% - 62%) to the DBD region of the steroid receptor superfamily (PR, GR, AR, ER) but no homology to ROX, RXR or, RAR. The cloned fragment was used in Northern blotting analysis experiments with hepatopancreatic total RNA from control and estrogen treated mussels. These studies suggest increased expression of the putative *Elliptio complanata* steroid receptor (esr) mRNA upon exposure to estradiol. These observations may be of value for the future development of this species in studies of xenobiotic contamination of fresh water lakes and ponds.

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