Quantification of Vitellogenin in Several Developmental Stages of Medaka (Oryzias latipes) S-rR Strain

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(Received April 2, 2004; accepted June 17, 2004)

Key words: medaka, vitellogenin, developmental stages, endocrine disrupting chemicals

Concentrations of vitellogenin (VTG) in different developmental stages: embryo (on the day of fertilization); yolk-sac larva (on the day of hatching); 2, 4, 6 and 8 weeks posthatching; were determined in medaka (Oryzias latipes) S-rR strain. Both sexes were bred separately from 1 week after hatching and fed only Artemia nauplii to avoid contamination by xenoestrogen from females and feed. Whole bodies of ten test fish/group were homogenized individually and the supernatants were quantified. Quantification of VTG was performed by an enzyme-linked immunosorbent assay (ELISA). In most males, VTG levels were less than 1 µg/g body weight and no fluctuation was observed throughout the developmental stages. In 2-week-old females, five had no detectable VTG, and the others had 5.18±2.37 µg/g of VTG. The 4-week-old females had 16.3±12.0 µg/g VTG, and the concentrations increased with maturity to 5.54±3.09 mg/g in 6-week-old and 8.99±3.10 mg/g in 8-week-old specimens. These results show that the concentrations of VTG in males are routinely close to the detection limit independent of the developmental stages in an environment with low contamination by xenoestrogen derived from artificial feed and females. Females have detectable VTG levels even in the juvenile phase, and the level increases markedly with maturation.

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