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Transition of serum vitellogenin cycle in Sakhalin taimen (*Hucho perryi*)☆

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Abstract

A specific and sensitive enzyme-linked immunosorbent assay (ELISA) and a single radial immunodiffusion (SRID) were developed for measurement of serum vitellogenin (Vg) levels in Sakhalin taimen (*Hucho perryi*). Regarding specificity for serum Vg, an antiserum raised against lipovitellin of taimen (a-Lv) was adequate for both assays. ELISA and SRID could detect Vg in serum

at concentrations as low as 10 ng/ml and 25 μg/ml, respectively. In estrogen administration experiments, the level of serum Vg began clearly increasing within 12 to 24 hr after injection of immature females with estradiol-17β (E_2). The appearance and levels of Vg in males treated with E_2 were delayed and smaller, respectively, than for females. Vg levels varied throughout natural vitellogenesis from 0–4 μg/ml (3 years old) to approximately 30 mg/ml (5–6 years old). We observed an early transitory peak of serum Vg levels (primary reaction) at the time of early vitellogenesis and chronic high Vg levels (for 6–7 months) in winter period before ovulation. Changes of serum E_2 levels were correlated with Vg levels. However, E_2 levels decreased a month earlier than Vg levels near ovulation. It appears that the duration of vitellogenesis in taimen is considerably longer than that in other salmonids, lasting more than 2 years.

Keywords

Avidin
biotin
ELISA
lipovitellin
primary reaction
Sakhalin taimen
vitellogenin

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