

Title: Purification and characterization of a novel incomplete-type vitellogenin protein (VgC) in Sakhalin taimen (*Hucho perryi*)

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Abstract: A novel, incomplete-type vitellogenin (VgC) and its derived yolk lipovitellin (LvC) were immunologically detected in female serum and egg extracts, respectively, of Sakhalin taimen (*Hucho perryi*) using a subtype-specific antiserum against LvC of grey mullet (*Mugil cephalus*). The taimen VgC was purified from the sera of vitellogenic females by a combination of gel filtration, anion exchange, and immunoabsorbent column chromatography. Gel filtration of the purified VgC revealed that it had an apparent native mass of ~380 kDa, while the mass of the VgC polypeptide that appeared following SDS-PAGE was estimated to be ~140 kDa. An antiserum was raised against the purified VgC and utilized for the development of a subtype-specific immunoassay for VgC. Levels of VgC in the serum of female taimen increased from 25 µg/mL to ~1 mg/mL, with an increase of GSI. Levels of complete-type Vg and estradiol-17β (E2) in the serum of E2-administered juvenile taimen increased and reached peak levels similar to those found in vitellogenic females. Although VgC could be induced in the serum

of E2-administered taimen, it stayed at levels (35.5-73 µg/mL) lower than those obtained in females. This is the first report on the presence of serum VgC and yolk LvC in a salmonid species; these findings indicate that for Sakhalin taimen, like other highly-evolved teleost species, this minor subtype of Vg is significant in the formation of egg yolk.

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