

Title: Thermostability of Pleuronectid yolk protein, lipovitellin

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Abstract: Marine teleosts are oviparous animals that utilize yolk proteins as a major source of nutrition for their growing embryos. The biggest source of nutrition is the yolk protein lipovitellin (Lv). Recent studies have also linked Lv to the osmotic uptake of water which allows them to produce pelagic eggs. Despite Lv's importance, the majority of research has centered around the yolk pre-cursor, vitellogenin. This focus has occurred mostly because yolk proteins are difficult to isolate from everything else in the maturing oocyte. Lv is a large glyco-phospho-lipo-protein ca. 200 kD and might be expected to easily denature. However, prior evidence shows that the major peptide of winter flounder, *Pleuronectes americanus*, Lv is thermally stable. It is hypothesized that due to Lv's high lipid content, the protein retains its subunit integrity when subjected to heat denaturation. We used this thermal property to efficiently purifying Lv from a broad range of the Pleuronectid family. We then quantified the heat stability using differential scanning calorimetry. All pleuronectid family members displayed the same melting point and retained their immunological characteristics. This technique will lead to species specific immunological assays based on the heat-stable-Lv-peptide.