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Characterization of Nutrient Assimilation from Extraembryonic Intracapsular "Fluid" Reserves during Nonplanktonic Development of the Freshwater Snail *Physa* sp

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Poster Presentation P43

CHARACTERIZATION OF NUTRIENT ASSIMILATION FROM EXTRAEMBRYONIC INTRACAPSULAR 'FLUID" RESERVES DURING NONPLANKTONIC DEVELOPMENT OF THE FRESHWATER SNAIL *PHYSA* SP.

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Many species of gastropod snails undergo development from a zygote to a juvenile while enclosed within an egg capsule. Egg capsules are embedded within a discrete gelatinous mass that is deposited onto a substratum. Within each capsule, an embryo is bathed in a nutrient-rich intracapsular fluid. This fluid serves as the primary source of nourishment and is essential for the complete development of the embryo. My project explores the process of macromolecule acquisition and translocation during the encapsulated development of the freshwater pulmonate, *Physa* sp. Dextran compounds were carefully injected using a glass micropipette into capsules of newly laid egg masses and the embryos were observed over the course of development until they hatched. FITC-Dextran was used to evaluate the distribution of assimilated materials as development progressed in living embryos. Fluorescence microscopy revealed that all embryonic cells directly exposed to the intracapsular fluid at early stages of development incorporate the labeled molecule, thus there was no cellular specificity for the uptake of material. As the embryo develops into a juvenile, the fluorescent label was localized within a recognizable structure, identified as the visceral mass, irrespective of the stage the embryo was exposed to FITC-Dextran. This evidence is further supported by the results from an experiment examining non-living embryos exposed to iron dextran. Capsules were injected with iron dextran at the initiation of the cleavage stage and then fixed at daily intervals. The embryos were removed from the capsule and the iron incorporated in the embryonic cells was detected using the Prussian Blue Reaction.