

WHAT CLOAKED BIVALVE OOCYTES TEACH US ABOUT REPRODUCTIVE BIOLOGY, EVOLUTION, AND SCIENTIFIC AWARENESS

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Study Description

Most bivalve researchers have never heard of, or seen, planktonic bivalve oocytes surrounded by a thick, transparent coat in which fertilization and development take place, probably because it is not present in the few commercially important species which are the objects of most research. We recently observed such a coat in the cockle, *Cerastoderma edule*, following close inspection of histological sections. Its presence appears to be unrelated to either phylogeny or the major marine ecological variables. Potential advantages include protection from abrasion, predation (pre- and post-ingestion), and microbial attack. The research perspectives for reproductive strategy and sperm competition are also intriguing.

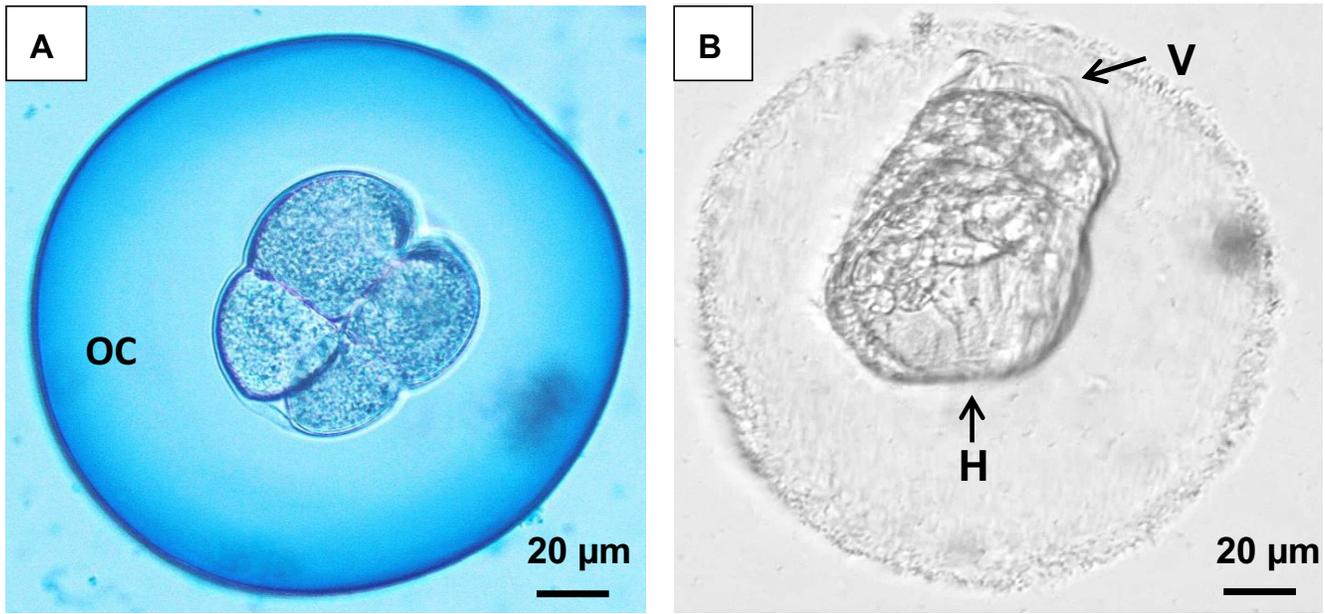


Photo 1. (A) Cockle *Cerastoderma edule* zygote, 4-cell stage. The thick oocyte coat (OC) is stained with Alcian Blue, revealing the acid mucopolysaccharide composition; a highly viscous substance with bacteriostatic properties. (B) Early veliger larva, 24 h after fertilization. The oocyte coat does not decrease in size over larval development, indicating that it is not used as a trophic resource. H, shell hinge (the thin shell is transparent at this stage); V, velum composed of ciliary tracts used in swimming and feeding. Photo credit: D. Chérel.

These photographs illustrate the article “Cloaked bivalve oocytes: lessons in ecology, evolution, and scientific awareness” by P. G. Beninger and D. Chérel published in *Ecology*. <https://doi.org/10.1002/ecy.2818>