

# Ultrastructural metamorphosis of the apostome ciliate *Vampyrophrya pelagica* in the phoront stage during and after infection to pelagic copepods

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## SUMMARY

The life cycle of the apostome ciliate *Vampyrophrya pelagica* is composed of four stages with different morphologies and cell functions. The phoront stage is characterized by formation of an anchoring stalk for adhering to the surface of a host copepod and concomitant formation of the cyst wall. In this stage, multilamellar membranous structures are also formed in the cytoplasm. In this study, we examined transformation of cytoplasmic structures in this particular stage of the cell cycle. As the result, in the early period of the phoront, membrane-bound vesicles of different size and appearance were found to be formed in association with the inner surface of the cell cortex, which may be involved in the formation of the stalk and the cyst wall. We also found that the multilamellar membrane structure were formed from oil droplets in the cytoplasm between the middle and late periods of the phoront stage.