

Evolution of symchlosomes driven by endosymbiosis of zoochlorellae in freshwater protozoa and metazoa

Masashi Hayakawa^{1*}, Suzaki Toshinobu¹

¹Department of Biology, Graduate Schlool of Science, Kobe University

Freshwater micro-predators bearing zoochlorellae (intracellular symbiotic green algae) have been reported in various protozoan and metazoan groups. In order to extract common features among endosymbiosis of zoochlorellae in various host organisms, four 'green' species, *Mayorella viridis* (amoeboid protozoan), *Paramecium bursaria* (ciliated protozoan), *Stentor polymorphus* (ciliated protozoan), and *Hydra viridissima* (Cnidaria) were observed with a transmission electron microscope by freeze-substitution technique. Their endosymbiotic zoochlorellae formed very regulative membrane-bound photosynthetic organelles, which we named **symchlorosomes**. Symchlorosomes can be found in many freshwater micro-predatory species with a very wide genetic variety, which are ecologically important as they can provide a new niche for such mixotrophic organisms in freshwater micro-environment. We are going to introduce a possibility of ecological and evolutionary researches on symchlorosomes through our resent ultrastructural study.

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