

Acquisition of kleptoplast in *Planogalbratella opercularis* (foraminifer) and its putative function

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A rocky-shore benthic foraminifera, *Planogalbratella opercularis*, constructs specific host-symbiont relationships that has chloroplast as kleptoplast. The "kleptoplast" means "stolen chloroplast" or "symbiotic chloroplast", and refers to a chloroplast originating from a separate organism. Host organisms may have some benefit from kleptoplast, such as organic matters, or amino acids. To understand the functions of kleptoplast, we conducted molecular phylogenetic analyses of kleptoplasts, culture experiment and stable isotope analyses. The trophic position of individuals with or without kleptoplast, we measured stable isotopic composition of amino acid to understand whether their nutritional requirements come from kleptoplast or not. As a result, trophic position (TP) of the individual with kleptoplast shows 1.2. In contrast, TP of cultured individual specimens that digested kleptoplast shows 2.0. It is possible that *P. opercularis* behave as a primary producer, "phyto-benthos", in nature.

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