

The Phylogenetic Affiliations of Radiolarian-like Environmental 18S rDNA Genes from the Northern South China Sea

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To determine the molecular taxonomic affiliations of radiolarian-like environmental 18S rDNA genes from the northern South China Sea, we constructed phylogenetic trees by the 18S rDNA sequences of identified radiolarian species, correlating environmental sequences from other sea areas with those full length 18S rDNA gene of representative clones from the northern South China Sea. In our previous work, a great number of our radiolarian-like sequences from the South China Sea were placed within the RAD-III, named by Not et al. (2007) of environmental sequences from the Sargasso Sea size-fractionated samples (< 2 micrometre). Now we found 18S rDNA sequences of two identified species *Arachnosphaera myriacantha* and *Astrosphaera hexagonalis*, collected from Okinawa Island by Yuasa et al. (2009) also belongs to RAD-III. There is a unique clade composed solely of environmental clone sequences formed basal to the Taxopodida. It does not belong to RAD IV or V, still remains unknown. Our *Nassellaria*-like environmental clone from the northern South China Sea was joined with the group of described Plagoniid species. And the clones from Cariaco Basin, Caribbean clustered with Pterocorythid and Theoperids groups. Comparison of our sequences with two recent survey of *Acantharia* 18S rDNA, the position of northern South China Sea clones was still difficult to distinguish. It belonged to the clade composed of subgroups *Arthracanthida*, *Sphaenacanthida* and RAD I (Unidentified Clade 1). These ambiguities may be because the genetic diversity of radiolarian in warm waters sea areas is still poorly known.