
Lack of genetic differentiation among members of the morphologically diverse plexus of the tropical planktonic foraminifer *Globigerinoides sacculifer*

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Résumé

Globigerinoides sacculifer is an abundant element of modern tropical planktonic foraminiferal assemblages. The species is characterized by large morphological variability, which has led to the proliferation of taxonomic names attributed to morphological end-members within the plexus. In order to clarify the taxonomic status of its morphotypes and to investigate the genetic connectivity among its disjunct tropical populations, we carried out a global survey of the ribosomal DNA genes (SSU and ITS-1) in various morphotypes of the plexus collected throughout the (sub)tropical surface waters. Unexpectedly, we find an extremely

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reduced genetic variation within the morphospecies and no correlation between genetic and morphological divergence. The lack of genetic diversity within the plexus suggests that the morphological diversity within the species has been taxonomically over-interpreted and that shell morphology in planktonic foraminifera may not be a consistent predictor of taxonomic status. The genetic homogeneity within the morphospecies is unexpected, considering its partly disjunct range in the tropical Atlantic and Indopacific and its old age (early Miocene). A minor sequence variant in the rapidly evolving ITS-1 region is found exclusively in the Atlantic Ocean, suggesting an episode of recent (last glacial) isolation, followed by subsequent reinstatement of unidirectional gene flow from the Indopacific into the Atlantic. These findings indicate that the gene flow among (sub)tropical waters of the world oceans can be strong enough on geological time scales to prevent persistent genetic isolation and that mechanisms other than geographical isolation alone may be required for speciation in planktonic foraminifera to occur.