BPT03-03   Room:104   Time:May 26 09:45-10:00

Cryptic diversity in planktonic foraminifera and the relationship between molecular and morphological classification

WEINER, Agnes[1]* ; KITAZATO, Hiroshi[2] ; KUCERA, Michal[1]

[1]MARUM, University of Bremen, [2]JAMSTEC

Planktonic foraminifera are marine single celled eukaryotes that are found globally in the ocean. They construct calcite shells that accumulate in the sediment and are used for micropaleontological studies to reconstruct past climate conditions. Modern planktonic foraminifera have been classified into about 40 species on the basis of morphological characteristics of their calcite shell. Molecular investigations however uncovered an unexpectedly high cryptic genetic diversity within these morphospecies, implying that their biodiversity has been largely underestimated. These cryptic species show distinct biogeographic distribution patterns and ecological adaptations. Therefore, understanding the extent of genetic diversity within a morphospecies as well as the ecological adaptations of its cryptic species is highly important in order to enhance the applicability of foraminifera as proxies in micropaleontological studies. We are applying a single cell approach to survey the extent of cryptic diversity within the SSU rDNA of individual morphospecies and to examine the biogeography, habitats and ecological adaptations of cryptic species. In addition, we are trying to establish a connection between genetic diversity and morphological variability of the calcite shells by morphometric analysis in order to taxonomically revise the morphospecies and to create a connection between living specimens and the fossil record.