

マンガンクラスト及び海底熱水鉱床に存在する原核生物の群集構造の特異性と共通性 Uniqueness and commonality of prokaryotic community structures between ferromanganese crusts and hydrothermal polymetall

加藤 真悟^{1*}, 仁田原 翔太², 山岸 明彦²
Shingo Kato^{1*}, Shota Nitahara², Akihiko Yamagishi²

¹ 理化学研究所バイオリソースセンター, ² 東京薬科大学生命科学部

¹RIKEN BioResource Center, ²Tokyo University of Pharmacy and Life Science, Department of Molecular Biology

Approximately 70% of the surface of Earth is the seafloor. Metal deposits have been found on the seafloor in various areas. Sulfide deposits containing metals such as Fe, Cu and Zn, like chimneys or mounds, and iron-silica-rich deposits occur in the present and past hydrothermal fields (e.g., Kato et al., 2009; Hannington et al., 2011). Ferromanganese deposits rich in Co, Cu, Ni and Zn, in addition to Fe and Mn, are found on the deep seafloor of both hydrothermal and non-hydrothermal fields (e.g., Usui and Someya, 1997; Hein et al. 2000). Previous studies have revealed that diverse prokaryotes (Bacteria and Archaea) are present on and within the seafloor metal deposits (e.g., Kato et al., 2010; Nitahara et al., 2011). Considering the wide distribution of the metal deposits on the deep seafloor and the amount of metals concentrated in the deposits, the activities of prokaryotes in the metal deposits potentially contribute to elemental cycling and maintenance of ecosystems in the global ocean. However, our knowledge of prokaryotes (abundance, diversity, distribution, activity and productivity) on the seafloor metal deposits is still poor. Here, we summarize the recent data of diversity and composition of prokaryotic communities in a variety of metal deposits on the deep seafloor using the latest bioinformatics tools. This provides novel insights into the characteristics of prokaryotic communities on the deep seafloor metal deposits. In particular, we discuss the commonality and difference between ferromanganese crusts and other metal deposits on the deep-seafloor.

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