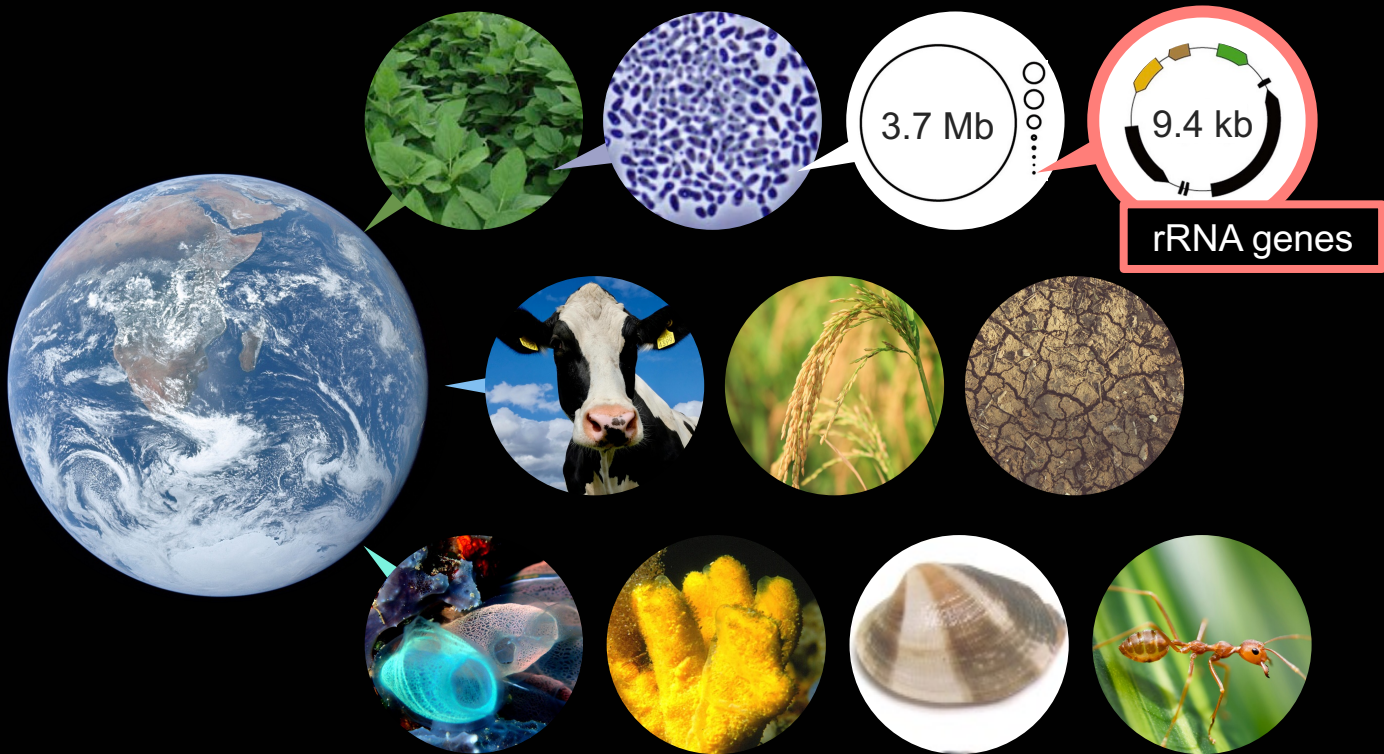


Microbial Genomics RIKEN ECL Research Unit

In bacteria, essential genes are typically located on the chromosome, while plasmids carry accessory genes—such as those conferring antibiotic resistance—that are advantageous under certain conditions but not indispensable for survival. We have been studying bacteria that defy this conventional genome organization, in which ribosomal RNA genes are located exclusively on small plasmids. Initially considered exceptional, these bacteria were later revealed through genomic database exploration to be phylogenetically diverse and to share a similar genome organization. We also showed that this seemingly unstable organization has been stably maintained for hundreds of millions of years. However, the mechanisms underlying this long-term stability and the biological significance of such a genome organization remain largely unknown. This research unit aims to address these fundamental questions and, by exploring the generality of newly uncovered "exceptions" identified during this research process, to open up new perspectives in microbial genomics.



Isolation environments of bacteria carrying rRNA genes exclusively on plasmids

Research opportunities

This research unit can accept Japan Society for the Promotion of Science Research Fellows, RIKEN Special Postdoctoral Researchers, and Junior Research Associates. If you are interested in our research contents, please contact me.

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