



Fig. 1 Acquisition process of antibiotic resistance



Fig. 2 Blue-green algae

## Content:

Since the life was born on the earth, the living thing has adapted and evolved to various environments. Now, there are no less than 30 million sorts of living thing in the earth in case of including small living things like bacteria. And they have lived for a long time with interacting mutually, and support each other at a certain time, but attack mutually at other times

Our group analyze that the mechanisms of adaptation and evolution which occur as a result of involving the various living things in such SEITAI (a living body and ecology) in detail on the genetic level, and want to know the mystery of biodiversity. Finally, we aim at using those knowledge for artificial control of a microbe such as effective production of useful substances and control of bacterial infection.

We are enhancing the following researches; ① Analysis of adaptation and evolution mechanism of bacteria to antibiotics, and ② Analysis of co-evolution of the production gene of toxin in cyanobacteria and its specific degradative gene in bacteria.

Keywords: adaptation, evolution, resistance, toxin

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