

Activities of MBIC culture collection

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The Biological Resource Center at MBI has been collecting many kinds of bacteria, fungi and microalgae from open sea, coastal and estuarine waters to establish a comprehensive culture collection (MBIC). About 20,000 strains of prokaryotes have been cryopreserved and 1,000 strains of eukaryotes subcultured. MBIC started to distribute microorganisms, *ca.* 700 strains of marine bacteria and 300 microalgae, through the web (<http://www.mbio.jp/mbic>) on October 1, 2001. The number of distributing strains is going to increase in 2005.

MBIC is unique among world culture collections because almost all strains are of sea-water origin and useful information for industrial application is provided with every strain. The SSU rDNA sequences of all strains were determined to construct a database, including pheno- and genotypic characteristics, which was then opened to public use. SSU rDNA sequences are widely used and a large database has been constructed on the web. However, the rate of evolution of this molecule is not very high. We chose the DNA gyrase beta-subunit gene (*gyrB*) as a phylogenetic marker molecule because it is a housekeeping gene with a higher rate of evolution than SSU rDNA. A phylogenetic tree based on *gyrB* possesses 10-fold greater resolution than a tree based on SSU rDNA. Two databases, the strain database and *gyrB* database (<http://www.mbio.jp/icb>), are closely related and powerfully support both basic scientific and industrial applications.