

Data infrastructure for innovation in life sciences and biotechnology

Juncai MA, Linhuan WU, Di LIU, Guanghui GUO

Information Network Center, Institute of Microbiology, Chinese Academy of Sciences, No. 1 West Beichen Road, Chaoyang District, Beijing 100101, P. R. China. ma@im.ac.cn

Abstract

The report introduces Asian models of microbial resource information network, including the development of Asian Biological Resource Center Network, Research Network for Applied Microbiology and Barcode of Life data system.

Based on the microbial resources of China General Microbiological Culture Collection Center (CGMCC), Institute of Microbiology, Chinese Academy of Sciences (IMCAS) established the China Information Network of Biological Resource Center (BRC), aiming at integrating the numerous data and facilitating the effective utilization of the resources. In 2005, CGMCC of China, NBRC of Japan, KCTC of Korea and BIOTEC of Thailand completed Asian Biological Resource Center Network (ABRCN), and a data portal for public was set up. Now data of more than 30,000 strains has been integrated. More collections are invited to join this Asian BRCs network.

In 2010, Chinese Academy of Sciences (CAS) launches the establishment of Research Network for Applied Microbiology (RNAS) to solve key scientific and technique issues in the field of microbiology. One of its tasks is setting up Information Center for RNAS. The Information Center will set down data specification of microbial resources, unify data standards, develop data warehouse for applied microbiological study, collect and utilize microbial resources data. It will develop virtual laboratory and network platform for joint research. It will also establish the project management platform of RNAS, transforming important immaterial assets such as scientific achievements, expertise, and management experience into information network resources, knowledge base and think-tank which can be managed, shared and used. Moreover, it will develop CAS Information Portal of RNAS, enhancing scientific exchanges and research achievements transformation, so as to promote applied microbiology research.

Barcode of Life is an international collaborative program aiming at collecting and identifying as much as possible creatures via relatively short DNA segments (DNA barcodes). As a central node, China is setting up the data system that will be an important complement to BOLD systems in Canada. The barcode of life data systems in China mainly comprises two aspects. The first

is a mirror system of BOLD systems (BOLD Mirror), whose task is to help to distribute the published data to the whole world, especially in Asia. The second part of the barcode of life systems in China is the barcode data submission system, which is designed as data submission system for the DNA barcode data by Chinese scientists.