Issue Number 3 March 2007

BioResource now !

Our monthly newsletter features a variety of information, highlighting current domestic and international issues concerning bioresources.

Resource Feature No.7

Messages from Committee Members of "NBRP Information"

Ongoing Column No.22

Visual Programming

Download the PDF version of this newsletter at
http://www.shigen.nig.ac.jp/shigen/news/

Other information on bioresources is available at

NBRP	http://www.nbrp.jp/
SHIGEN	http://www.shigen.nig.ac.jp/indexja.htm
WGR	http://www.shigen.nig.ac.jp/wgr/
JGR	http://www.shigen.nig.ac.jp/wgr/jgr/jgrUrlList.jsp

"2nd International Biocuration Meeting"
October 25–28, 2007
at Dolce Hayes Mansion, San Jose, CA, USA
Details are available at the following website:
http://biocurator.org/Mtg2007/

Cell Technology initiated a new series entitled " Let's Use! BioResource ". Bioresources in Japan will be introduced in a series of 14 volumes from November 2006 to December 2007.

The 1st stage of National Bioresource Project (NBRP) which started in 2002 will end this March. The 2nd stage of this project is due to start from April. As a conclusion to the 1st stage, we have received comments about the 1st stage and expectations for the 2nd stage from the "NBRP information" committee members.

Resource Feature No.7

Past and Present Bioresource Databases

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Long ago, the National Information System for Laboratory Organisms (NISLO) was established in Wako-shi, Saitama. They have various accomplishments in the following fields: in regard to experimental animals, a survey on the number of experimental animals used and the database of the Japanese Society for Laboratory Animal Resources; in microbiology, a database of standard properties of microorganisms; in botany, Okayama University's database of 4,023 strains of barley and an identification system for 510 species of Japanese timbers in the then Makino Herbarium at the Tokyo Metropolitan University; in algology, a microscopic image database of the mating of *Closterium* at the then Institute of Molecular and Cellular Biosciences of the University of Tokyo and the World Catalogue of Algae which comprises 11,000 strains from 39 institutes across 6 countries; in regard to animal cell culture, a library of reference material which was cited in *Tissue Culture*; and in regard to plant cell culture, a search system for 3,000 volumes of references. Most of these achievements, which were the result of substantial cooperation from experts belonging to the various fields, have now become antiquated and were not posted on the first generation (Web 1.0) of websites. More than 20 years have passed, and the National Bioresource Project (NBRP) Information Site now proudly holds approximately 100,000 accesses per month. In 20 years, will the NBRP Information Site still continue to grow in the midst of the second or later generations of Internet like the cherry blossoms in National Institute of Genetics which never fails to bloom every year? Figuratively, 20 years is just a moment for cherry blossoms, as with databases.

Toward a Better Relationship between Resources and Information

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A new tide of biology which was triggered by the discovery of DNA led to the dramatic advances in molecular biology and brought an innovative achievement – whole genome sequencing of model organisms – to the research community. During this period, a massive amount of information was produced and stored in databases to be utilized by researchers. It can be said that the time has finally come for biological phenomena, which has been a mystery for centuries, to finally be able to be described in the form of digitalized information that can be accessed by anyone.

In this regard, the "NBRP Information" which deals with the accumulation of resource information on model organisms is crucial. The consolidation of the project by centralizing information from the first 5 years, thereby acting as a single window to researchers, is an important achievement. However, biological information varies widely both qualitatively and quantitatively, depending on the resources, and its characteristics change on a daily basis. Therefore, an integrated administration of the information facility is not necessarily useful for the accommodation of users. Accordingly, the development of a framework that triggers the synergistic effect on both resource providers and researchers by reducing the distance between resources and information is a vital assignment to be conducted over the next 5 years. As a representative of the *Arabidopsis* project, I wish to tackle the development of superior networks with Dr. Yamazaki and other affiliates.

Evaluation of First-stage NBRP Information and its Second Stage

Hiroshi MIZUSAWA
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http://www.nibio.go.jp/seibutushigen/

Two factors that are indispensable for the development of life science research are the extensive and rapid distribution of biological genetic resource information and the maintenance of an environment in which many researchers can actively access research resources. The 5th-year evaluation of the NBRP project has been completed, and the activities of this "NBRP Information" have contributed toward the development of databases containing immense biological genetic resource information accumulated over these 5 years. Regarding the evaluation of this project, it is important to investigate the amount of information accumulated and the number of researchers who have used the resources. I think it was on this basis that it was regarded that a system which utilized the accumulated information was constructed. An additional crucial point is that this project differs from "research" since long-term maintenance and administration of the system should be considered.

In the past, the construction of databases containing resource information has been attempted under the plea of a "research project." Most of the projects were terminated once the databases were developed, and the databases became obsolete the subsequent year; nevertheless, this process has been repeated.

I think highly of the fact that this project has considered maintaining and administrating biological genetic resource information in real-time. Thus, the establishment of a foundation to maintain these achievements for a long period would be a task in the second stage.

Expectations for Portal Sites

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http://egtc.jp/view/index

What I expect the most from the NBRP Information project is the construction of an international portal site for bioresources which focuses on Japan. I hope that the project plays a role not only in (A) integrating information on the location of bioresources available in Japan but also in (B) marketing the bioresources developed in Japan to the world. I believe that an increase in the number of users will boost the value of the resource centers that are providing information on the Internet, and this will lead to better activities.

For example, in the case of research on mice, although the Japan Mouse Strain Resources (JMSR) listed in the SHIGEN database integrates data from 5 institutions in Japan, other mouse resources still exist. The construction of a portal task is expected to be a heavy task since several factors have to be considered such as how to increase the number of participating institutions, or which type of search menu to prepare, or how to simultaneously search for related resources of other species. Furthermore, function (B) which I have described preciously should not be forgotten.

Expectation for the 2nd stage "NBRP Information"

Kaoru FUKAMI
RIKEN Bioresource Center http://www.brc.riken.jp/

In order to maintain this bioresource project, information that is necessary to the research community should be provided and requests from researchers should be reflected in this project. If it is a small community, this would naturally be conducted through personal interactions. However, with a project as large as NBRP, this would be difficult without a proper system. In the first stage of NBRP Information, websites and search engines were developed and a structure was set up. I think for the next stage, we have to utilize this structure to reduce the gap between the research community and the resource centers. I also think that the data for websites and search engines should be updated more frequently. There is a limit to the tasks that NBRP Information can handle alone. Therefore, resource centers should be given support so that they will be able to carry out these tasks by themselves.

I hope that by the end of the second stage, NBRP develops an environment in which all affiliated institutes will be able to transmit information on their own.

Necessity of Full-fledged Bioresource Information

Katsumi ISONO
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From the beginning, there were many questions related to the diversity of biological phenomena in life science research, such as, whether a phenomenon discovered in an organism can also be observed in other organisms or how much in common does a mechanism behind a biological phenomenon have to those underlying other phenomena. Hence, right from ancient times, it is important to obtain good biological samples in order to conduct a fruitful research. This is currently the focus in biological research. Resources, not only biological samples but also information related to samples, play a significant role in the advancement of research. This refers to resources such as genomic information or microarrays developed based on genomic information along with articulate strain information of biological species. Accordingly, the consolidation and distribution of these resources for researchers to use will support their research and be a significant driving force to develop research via novel approaches. This is a reason to further enrich bioresource information in the country.

Looking Back at the Activities of 1st-stage NBRP Information

Syunichi KIKUCHI
Japan Science and Technology Agency http://www.jst.go.jp/

The Japanese Science and Technology Agency was in charge of developing the database of "Yeast" and "Pathogenic Microorganisms" for a consolidation program at the NBRP Information Center. Dr. Yukiko Yamazaki, an associate professor at the National Institute of Genetics, who is the leader of the program proposed a policy: "One should go to the place where the resources are located to grasp the actual situation of resources and information." She then traveled to numerous labs across the country since the initiation of the project in 2002 until 2003. From her travels, she found out that it was difficult to continuously maintain not only the resources but also the information. Although each resource center kept the list of their resources in files, there were inconsistencies in nomenclatures and garbling and she had to start with the cleaning of the data. The files contained typos, transitions of codes, lists with mixtures of full- and half-sized characters that could not be distinguished at first glance and structurally garbled characters that were a result of the data being transferred from NEC's PC98 series computers. Data updates and errors had not necessarily been reflected in the files. The lists in paper format were authorized and the information was retrieved by asking researchers. Even if we tried to resolve the structurally garbled characters, the medium of the files was sometimes 5 inch floppy disks. Now, looking back at this, it brings back fond memories.

Toward "Useful" Resource Information

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Resources do not signify anything if they merely exist. I think that they can only be called resources when there are means to access them and when they have been utilized in research to produce results. Therefore, the location of the resources, the methods to access them and a search engine for research achievements are crucial. It can be said that this criterion has been fulfilled by constructing the foundation of resource portals and search systems in the first stage of NBRP Information. A future task will be its stable administration over a long period. It is important to keep the stages that will come after the second stage in mind when planning an approach for administration. Thus, in addition to managing the resource locations and research achievements, I think we could also actively produce new information. By providing information that correlates resources with other resources or information that correlates resources with research achievements to users, resources would have added value. Then, information would be treated as important as resources. I think the key to this idea lies in the collection of information on research achievements and the categorization and consolidation of the collected information.

10 minutes

Information Technology - 22 - Visual Programming

How useful it would be if we can write a program that we want to by merely combining parts as if stacking blocks. Yahoo Pipe is a service that sufficiently meets this demand, although its function is limited by the development of RSS. Let's try it out now.

[Let's try visual programming with Yahoo Pipe!]

Preparation

① A Yahoo US account is necessary to use Yahoo Pipe! Please obtain an account from the following URL: http://www.yahoo.com/

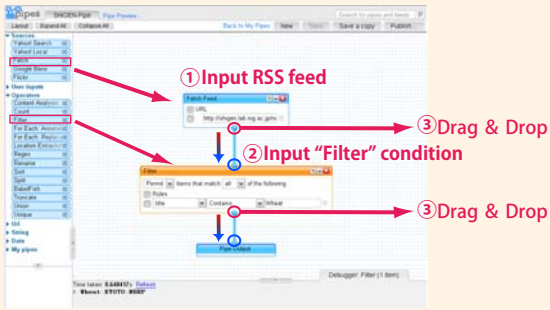
② Once a Yahoo US account is obtained, please go to the Yahoo Pipe! site and click on "create a new pipe." Yahoo Pipe: http://pipes.yahoo.com/pipes/

The actual programming

Let's try using the RSS from a website that compiles information on new resources of various species to make a program that displays biological resources according to their species.

① The region with grids is the working space. Each block indicates a different function. Move the blocks from the left menu into this space and use a pipe to join them together to create a program. First, click on "Source" –> "Fetch" from the left menu and drag and drop it into the working space.
Next, type the URL of the SHIGEN New Resources feed into the Fetch block.
http://shigen.lab.nig.ac.jp/newresources/rss/repositoriesEn.xml

A screenshot of the visual programming
(Instead of writing codes, you can create a program by simply combining blocks with functions that you want.)



② Select "Operators" –> "Filter" from the left menu and drag and drop it into the working space.
Next, type a condition to select the feed from "Filter". This time, we only want the "Wheat" related feeds so we will type "title" – "Contains" – "Wheat" as the condition.

③ Drag the dot located below the "Fetch" box to connect it with the dot above the "Filter" box. Next drag the dot located below the "Filter" box to connect it with the dot above the "Pipe Output" box. By connecting the blocks with pipes, you are actually directing the flow of the data processing. In this program, "Fetch" loads the RSS feed and after "Filter" sorts them out, "Pipe Output" displays the results.

④ Click on "Save" at the top right to save your program. After you have saved it, click on "Pipe Preview" which will appear at the top left and the results of your program will be displayed as an RSS. Since the output results are to be distributed as RSS, you can register them in your RSS reader.

How did you like it? I hope you have enjoyed visual programming. As a reference, I have released this program on the following website:
http://pipes.yahoo.com/pipes/pipe.info?_id=TAKSCmDc2xGO5CdHouNLYQ

(Tohru WATANABE)

Editor's Note: The first stage of the information consolidation program in NBRP has ended successfully due to the strong support from the administrative committee members and it has received excellent reviews. I would like to take this opportunity to express my sincere appreciation for the valuable comments that I have received despite the word limitations. I have received a notice concerning the adoption of the second stage of NBRP today! (Y.Y.)

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