Issue Number 3 April 2007

BioResource now !

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

Resource Feature No. 8

The 2nd Stage of the NBRP Was Initiated !

Interesting Project

Cytoscape

Ongoing Column No.23

Let's record all screen activity on your computer !

"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.

Resource Feature   No.8

The 2nd Stage of the National BioResource Project Was Initiated !

The National BioResource Project (NBRP) is a project of the Ministry of Education, Culture, Sports, Science and Technology (MEXT) of Japan; it aims to consolidate a framework to systematically collect, preserve, and provide experimental biological resources necessary for life science research. The 1st stage of the NBRP was initiated in fiscal year 2002; it was promoted by 24 core resource facilities and 1 core information facility and was completed in fiscal year 2006.

A report on the overall achievements of the project has not been released yet. The amount of released resources was approximately 2 million and the number of information users per month was more than 100,000 individuals. However, rather than these quantitative results, the most significant achievement of the project is an increase in the awareness about the importance of a databank for biological resources. In particular, it has given rise to a new culture in the Japanese research community where instead of infighting, project administrators have unified to support the research community to promote the project; researchers have also supported the project by actively providing feedback. Although, "given rise" does imply that it is just beginning. Another achievement is the adoption of the concept of Material Transfer Agreement (MTA, a form of agreement regarding the distribution and usage of resources).

Considering these achievements of the 1st stage of the project, the MEXT decided to initiate the 2nd stage of the NBRP—a 5-year project starting from fiscal year 2007; the aim of the 2nd stage is to consolidate the world's best bioresources by 2010 and promote their application. Open recruitment for only the biological species adopted at the 1st stage of the project was conducted in February, and the accepted core institutes initiated the project on the 1st of April. Please refer to the public information website—http://www.nbrp.jp/—of the NBRP project for details.

The 2nd stage of the NBRP focuses on improving resource quality and aims at establishing the following programs.

(1) core institute consolidation program
(2) information center consolidation program
(3) genome information consolidation program
(4) fundamental technology consolidation program

Open recruitments for programs (3) and (4) and for new biological species for program (1) are scheduled.

Information Publication Site of the 2nd Stage of the NBRP: http://www.nbrp.jp/

(Yukiko Yamazaki)

Interesting Project：Cytoscape
Visualization of Biological Networks
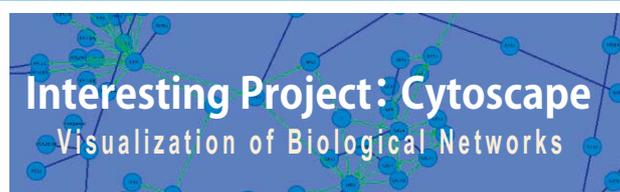
I would like to introduce a tool to visualize biological networks called Cytoscape. Cytoscape is a free open source written in Java and developed by institutes such as the University of California in San Diego and in San Francisco and by Agilent Technologies.

**Cytoscape public website :** http://www.cytoscape.org/

One of the developers of Cytoscape is a Japanese researcher. He explains the development and operating instructions of Cytoscape in detail on his blog in Japanese in a manner that facilitates easy operability of this tool. In addition, documentation of the project in Japanese was also initiated.

Cytoscape Information : http://cytoscape.seesaa.net/
Document in Japanese : http://cydoc.sourceforge.jp/

In a nutshell, the function of Cytoscape is to visualize "relational data (network data)" by using "a group of apexes called nodes" and "a group of lines connecting the nodes called edges" and to allow users to interactively manipulate them. Any type of data can be used as long as it is for networks.

For example, Cytoscape can be applied for the analysis of protein-protein interactions (PPI) (Fig. 1), phylogenetic trees, directed acyclic graph (DAG) structure of ontology (Fig. 3), haplotype network trees, and pathway data. Both data located locally or on the network can be imported.

Fig. 1: PPI Network
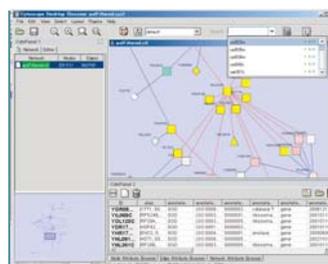
Any tool should be user-friendly and in this manner, the operability of Cytoscape is impressive. Using Cytoscape, it is possible not only to rotate, enlarge and reduce networks but also to automatically lay these networks out by selecting a template layout and change the layout by drag-and drop to add or edit nodes and edges.

In addition, it is also possible to search for nodes of your interest by using the filtering function, extract the results as separate network maps, and reuse them by excising and binding them with other networks.
The visualized network can be exported in PNG, PDF or JPEG format and the images can be edited and used in journal articles. Another feature of Cytoscape is its function to integrate appended information. Information called attribute data can be appended to each node, edge, and network.

Fig. 2 : Automatic Layout Samples
(From left: organic, circular and hierarchical layouts)

The color and shape of the nodes can be selected based on the attributes, and the features of the networks can be confirmed. In the case of the PPI network, each node corresponds to a protein. Gene Ontology (GO) terms and microarray data can be appended to the nodes to conduct data mining by using functions such as filtering based on microarray expression data, and the color-coding of nodes can be performed according to the GO terms.

Fig. 3: DAG Structure (Left) and GOALL Viewer (Right) of Ontology
Although Cytoscape is similar to SHIGEN's GOALL viewer, I am impressed with its stress-free operations and high versatility.
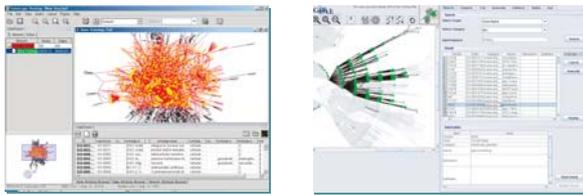
Several features of Cytoscape were introduced this time. When I created a text file describing the relationship between journal articles on rice in PubMed and rice genes and imported this file into Cytoscape, I could easily visualize a network diagram (Fig. 4).

In addition, various analysis and visualization functions can be added by using an expansion software called plug-ins, and individual mining algorithms can also be supplemented by programming the drawing function of Cytoscape. Please use the software if you are interested.
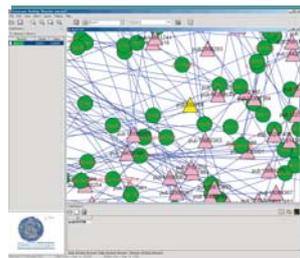

Fig. 4 :
Relationship between Journal Articles in PubMed and Genes

(Rie Tsuchiya)

Advance Notice :

Participation Report at 2007 AUTM Annual Meeting

Mutsuaki SUZUKI   Director, Intellectual Property Unit, National Institute of Genetics

I participated in the annual meeting of the Association of University Technology Managers (AUTM) held at San Francisco in the US for 3 days between March 8 and 10, 2007. This is an event in which individuals involved in the transfer of technical information in many universities come together. The meeting consisted of a symposium by Senator Birch Bayh who is famous for the Bayh-Dole Act, educational sessions, and sectional sessions. The total number of participants was 2,050, and apart from the US, the meeting attracted participants from all over the world, including individuals affiliated to centers concerned with the management of the intellectual property of Japanese universities.

I participated in the meeting with the following aims: (1) to understand the issue of MTA in the US and communicate with affiliated individuals and (2) to collect information regarding industry-university cooperation in the US. I will discuss the topics focusing on MTA in the next issue of the newsletter.

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10 minutes
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Let's record all screen activity on your computer!

Have you ever wanted to record the activities on your monitor screen? You can use a free movie creation software called CamStudio to do so. I would also like to try to edit the recorded video file.

Downloading CamStudio

Download "CamStudio 2.0t Japanese Version Download" from the website below and unzip the file.
URL : http://nonn-et-twk.dnsalias.net/twk/CamStudio/

Making the Movie File

① Go to the unzipped folder and sequentially click "CamStudio20t_jp_20050619" and "Recorder.exe" to start the recording application. Now, let us record screen activities.

② Select the "Select Region" from the "Region" tab, press the red recording button, and specify the region on the screen to be recorded; recording of the selected region on the screen will then begin. Let us start some operations on the screen that you would like to record. When you want to stop recording, click on the blue stop button.

Stop button

record button

③ After clicking the stop button, a window will open to allow you to save your recorded movie file. You should save the file with an arbitrary name.

Editing the Movie File

You can use Windows Movie Maker which is included in Windows XP or Vista to edit your movie file. Drag and drop your movie file into the Movie Maker application and then drag and drop the file onto the timeline at the bottom. Finally, edit the file by following the editing procedure on the left menu; include some explanations and save the file. After editing, click "File" and then "Save movie file" to output the edited movie file.

If you explain with a movie, you might be able to avoid complicated explanations. Please use this opportunity to try to create movie files.

① Drag and drop the prerecorded movie file

② Drag and drop the file in ① onto the timeline

③ Edit the file according to the menu

(Tohru WATANABE)

Editor's Note: We had to start from the scratch for the 1st stage of NBRP. The 2nd stage will be a time to improve on the developed system. I plan to set my goals higher, brace myself and strive to effectively disseminate information. (Y.Y.)