BioResource Now !

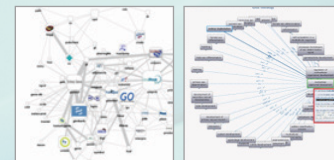## Issue Number 6 November 2010

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Hot News 〈NO.33〉

Report on the 4th International Biocuration Conference

— October 11-14, 2010   Odaiba, Tokyo, Japan —

The 4th International Biocuration Conference (October 11 to October 14, 2010) was organized at the Tokyo International Exchange Center in the Odaiba area of Tokyo.
Previously, I had participated in the 2009 Biocuration Conference held in Berlin. This year's conference included many rewarding presentations, for example, three plenary talks, six sessions, four workshops, and a poster session. Below, I introduce three of the most interesting events.

1. Ontology Widgets

Ontology Widgets were introduced by Dr. Patricia Whetzel, Stanford University, USA, at Workshop 2, "Curation Interface and Software," on October 12. Ontology Widgets[*1], as used in the information science of ontology, were developed as a tool in Bioportal[*2]. Bioportal provides 230 types of ontologies using Web Ontology Language (OWL) and Open Biomedical Ontologies (OBO) collected from over 50 projects[*3]. Ontology Widgets can be used in all of these applications.

*1   Applications that can be built into webpages and on desktops.
*2   Portal site of ontology
*3   Projects such as Gene Ontology Consortium, Cell Line Ontology, WormBase, TAIR, and Gramene

Ontology Widgets include the following five tools: "Visualization," "Tree Widget," "Jump To," "Auto-complete," and "RSS Feed." "Visualization" helps visualize a relationship amongst terms. By clicking on the "+" symbol next to a term, users can surf the related terms. Layouts such as circular, tree, or grid forms and colors can also be changed easily.
"Tree Widget" displays a tree-structure layout, "Jump To" is a search form, and "Auto-complete" provides navigation for the search form.
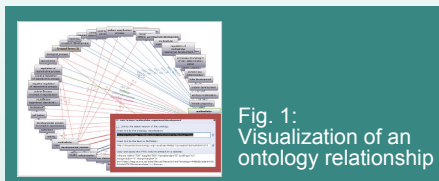
Fig. 1:
Visualization of an ontology relationship

Users can add widgets to their local sites by simply copying and pasting the provided source codes into the HTML code of their own website. The source codes are displayed when the user right-clicks on a term, as shown in the red box in Fig. 1. The user-friendly feature of these widgets is quite impressive.
To help demonstrate this process, Fig. 2 shows the result of incorporating the "Ontology Widgets" into "Oryzabase," an integrated rice science database that is developed by our group at the National Institute of Genetics. This will enable easy sharing and intelligent display of the gene ontology (GO) data in Bioportal.
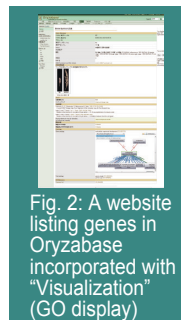
Fig. 2: A website listing genes in Oryzabase incorporated with "Visualization" (GO display)

2. Bio2RDF

The "Bio2RDF Project" was introduced by Dr. Marc-Alexandre Nolin, Laval University, Canada at Workshop 4, "New Approaches Towards Database Integration," on October 13. Many presentations in this workshop concerned Semantic Web(※). Semantic Web seems to be useful in resolving the situations when desired information cannot be found by simply using search engines due to too much searchable information, or websites containing mutually related information are not efficiently associated with each other.

※ Semantic Web
"Semantic Web is a group of technologies to allow computers to autonomously process information resources without human intervention by annotating the meaning – or "semantics" – to them" (coined by Tim Berners-Lee in 1998).

Resource Description Framework (RDF) is a framework used to describe information resources and is necessary to realize the Semantic Web vision. In particular, a combination of subject (S), predicate (P), and object (O) is used as a functional unit of information to describe the meaning of a webpage. The Bio2RDF project standardizes the S, P, and O combination to be described in the Uniform Resource Identifier (URI) form （http://bio2rdf.org/ namespace:identifier; for example, described as namespace=pubmed identifier=11992264).

In reality, Linked Data DBpedia, which was used for the intelligent linking of 7 million articles in Wikipedia, is a popular example of Semantic Web.
The RDF dataset in the Bio2RDF project is said to contribute to the link between DBpedia and the life science domain (Fig. 3).
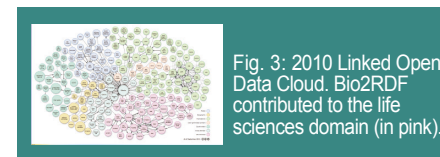
Fig. 3: 2010 Linked Open Data Cloud. Bio2RDF contributed to the life sciences domain (in pink).

The Bio2RDF project provides a conversion tool and a service that associates 40 related databases, including PubMed, GeneId, KEGG, Uniprot, and SDG, by actually using the tool.

▸ Download URL of the conversion tool http://sourceforge.net/projects/bio2rdf/
▸ URL of the service：http://bio2rdf.org/

With the help of SPARQL (RDF query language), users can execute a search using complex query expressions such as "diseases involving gene A" or "whether gene A inhibits gene B."

▸ URL for downloading datasets of Bio2RDF http://sourceforge.net/apps/mediawiki/bio2rdf/index.php?title=Namespace

3. Utopia Documents

Finally, "Utopia Documents" was introduced by Dr. Steve Pettifer, University of Manchester, UK, during Session 6, "Future Directions and Challenge for Biocuration," on October 14.
Dr. Pettifer took an elephant as an analogy for PDF: since the information on PDF files are confined to journals lacking an external connection, researchers often repeat experiments already performed by other researchers or attempt to validate the hypotheses already rejected by other researchers, without any awareness of doing so. "Utopia Documents" has been developed to address these issues.

"Utopia Documents" is a novel PDF reader that can link the articles in PDF format with external data. It has already been trialed by the Biochemical Journal, and issued as the Semantic Biochemical Journal by Portland Press.

After downloading and using the PDF reader, I was able to experience how "Utopia Documents" can display relevant information linked from images, figures, and tables in the articles, all while retaining the original PDF format. In addition, external websites, terminologies, and databases can be directly referenced from the articles.

▸ Utopia Documents
  http://getutopia.com/documents/

The conformational structure of proteins can also be displayed and rotated via a tool (Fig. 4). Moreover, a link to a tool that converts numerical data into 2D scatter plots is also provided.
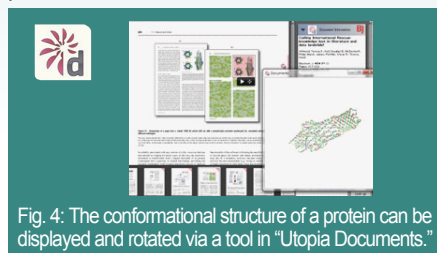
Fig. 4: The conformational structure of a protein can be displayed and rotated via a tool in "Utopia Documents."

Accordingly, "Utopia Documents" will realize more advanced research speculations and analyses, and hence, further development is awaited with great anticipation.

4. Closing

The projects introduced in this issue of the newsletter concerned the effective use of scattering information and data sharing. Since I am assured of the continuous advancements of these technologies, I would like to provide even better services by using these tools. Furthermore, many tools presented at the conference included links to social networks such as Twitter, presumably due to the prevalence of smart phones. This may be a reflection of the recent increasing transparency of the opinions of developers and users. ■

(Rie Tsuchiya, Genetic Informatics Laboratory, Center for Genetic Resource Information)

A procedure to open multiple Windows Excel files in separate windows

Users may face the following problem while using a computer. When multiple Windows Word files are opened by double-clicking on the files in the Explorer (not the Internet Explorer), as many new windows as the opened files will appear. However, in Windows Excel, multiple sub-windows will appear in a single window instead.
It is often more convenient to have separate windows than to change the dimension of sub-windows when multiple data sheets have to be manipulated. This is especially relevant when multiple monitors are used with a single computer (Fig. 1).

Below, a procedure to open multiple Windows Excel files in separate windows will be introduced. The following process is based on the use of Excel 2007 using the Windows 7 platform.

Fig. 1: Two sub-windows are displayed in a single Excel window

1 Instead of double-clicking on an Excel file, open a new blank Excel file containing no data on a sheet (Fig. 2). This can be done by left clicking on "Microsoft Office Excel 2007" in the start menu or right-clicking on the Excel icon in the task bar and left-clicking on "Microsoft Office Excel 2007" in the jump list.
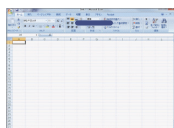
Fig. 2: A newly opened Excel file

2 In the Explorer, open the folder containing the Excel file that you would like to work on (again, not the Internet Explorer but the Explorer that displays files) then drag and drop the file onto the newly opened Excel window (Fig. 3).
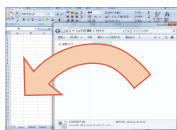
Fig. 3: Drag and drop an Excel file onto the blank Excel window

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3 Repeat steps **1** and **2** for as many Excel files as you would like to work on simultaneously. This will enable the display of data for each Excel file in independent windows, as shown in Fig. 4.
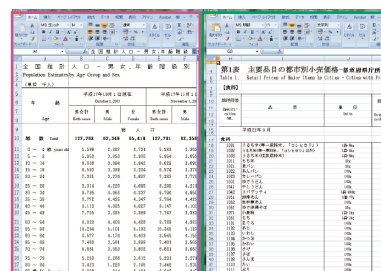
Fig. 4: Two Excel files opened in two separate windows.

Although new Excel files need to be opened when using the procedure described, this method can also be used when working with multiple Excel files and switching the windows.

Meanwhile, there is a way to open multiple Excel files in separate windows by double-clicking on Excel files in the Explorer without opening a new blank Excel file. However, this requires modification of the registry in Windows 7, which is an internal database containing fundamental information of Windows and extension information of software.   (Gaku Kimura)

Announcements

BMB2010
(The 33rd Annual Meeting of the Molecular Biology Society of Japan and the 83rd Annual Meeting of the Japanese Biochemical Society
NBRP Panel Exhibitions with Realia: "Full Array of Bioresources"
Date: December 7 (Tue.) - 10 (Fri.), 2010
Venue: NBRP section in the 3rd Hall of the Kobe International Exhibition Hall
(BMB2010 Website: http://www.aeplan.co.jp/bmb2010/index.html)

(Details are available at http://www.nbrp.jp/)

The 2nd Asian Network of Research Resource Centers (ANRRC) ran from October 28–29, 2010, at the RIKEN BRC.
・Related website http://rtcweb.rtc.riken.jp/English/meeting/ANRRC/report_j.html
・ANRRC   http://www.anrrc.org/index.jsp

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BioResource Information
(NBRP) www.nbrp.jp/
(SHIGEN) www.shigen.nig.ac.jp/indexja.htm
(WGR) www.shigen.nig.ac.jp/wgr/
(JGR) www.shigen.nig.ac.jp/wgr/jgr/jgrUrlList.jsp

BioResource Now !
■■■ Issue Number 6 November 2010

Editor's Note
The Biocuration meeting this year impressed upon us the feeling that the links between journal articles and databases have strengthened significantly. The plenary talk given by Dr. Barend Mons was the most intriguing. He described paper publications as the "fossilization of knowledge" and proposed a new publication system using a semantic Web technology to resolve issues surrounding knowledge retrieval and the problem that even text minings can dig up only a small percentage of original knowledge. This month's newsletter focused on the field of information science. I hope that readers would appreciate the new surge of advances in the present field.   (Y.Y.)

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