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Last updated: 28 October 2010



# NLM Technical Bulletin

National Library of Medicine | National Institutes of Health

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September 03, 2010 [posted]

## MEDLINE®/PubMed® Year-End Processing Activities

The National Library of Medicine® (NLM®) is currently involved in MEDLINE year-end processing (YEP) activities. These include changing the Medical Subject Headings (MeSH®) and Supplementary Concept Substance Names on existing MEDLINE citations to conform with the 2011 version of MeSH, and other global changes.

Other pertinent articles:

[MEDLINE/PubMed Year-End Processing Activities](#)

[2011 MeSH Now Available](#)

### Important Dates

- **November 17, 2010:** NLM expects to temporarily suspend the addition of fully-indexed MEDLINE citations to PubMed. Publisher-supplied and in process citations will continue to be added.
- **Mid-December 2010:** PubMed MEDLINE citations, translation tables, and the MeSH database will have been updated to reflect 2011 MeSH.

For details about the impact on searching from November 17 to mid-December, see: [Annual MEDLINE®/PubMed® Year-End Processing \(YEP\): Impact on Searching During Fall 2010](#).

For background information on the general kinds of changes made annually, see: [Annual MEDLINE®/PubMed® Year-End Processing \(YEP\): Background Information](#).

**By Sara Tybaert**  
**MEDLARS Management Section**

*Tybaert S. MEDLINE®/PubMed® Year-End Processing Activities. NLM Tech Bull. 2010 Sep-Oct;(376):e1.*

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September 08, 2010 [posted]

## New European Granting Organizations for MEDLINE®/PubMed®

Effective in the March-April 2010 timeframe, the National Library of Medicine® added four new granting organizations (granting organization/country of granting organization) for the Grant Number (GR) field in MEDLINE/PubMed:

- Austrian Science Research Fund/Austria
- Health Research Board/Ireland
- Science Foundation Ireland/Ireland
- Telethon/Italy

Grant information for these new organizations is only added to citations when there is an associated author manuscript deposited in the United Kingdom Manuscript Submission System (UKMSS) for UK PubMed Central.

### PubMed Display

Examples of how the new grant support information looks in PubMed (Abstract display):

F 3403-B03/Austrian Science Research Fund/Austria  
P 18613-B05/Austrian Science Research Fund/Austria  
PD/2008/1/Health Research Board/Ireland  
RP/2007/197/Health Research Board/Ireland  
GGP08053/Telethon/Italy  
TCP07006/Telethon/Italy

When a grant number has been provided, it is displayed first followed by the organization name, and then the country name. Note that the name is spelled out in full for these organizations.

### Searching Details

Search for these new granting organizations using either the full name or pieces of the name, e.g.:

- Austrian Science Research Fund [gr]
- Austrian Science [gr]
- Austrian [gr]

A search using the country name alone retrieves the same records as well because this is the only Austrian

organization in the Grant Number field at this time, e.g.:

Austria [gr]

Comprehensive searching for a grant number can be more complicated because the information is not necessarily reported in a standardized format. Include the country name or the organization name in the search to be sure that the results are for the correct organization of interest, especially if searching only on a number string, e.g.:

18613 [gr] AND austria [gr]

### Publication Type (PT) Searching

The corresponding research support Publication Type (PT) for the four new organizations is Research Support, Non-U.S. Gov't. NLM adds this PT based on the information found in the published journal article. If the grant information comes only from a manuscript deposited in PMC and the grant is not mentioned in the article, then the PT will not be added to the citation. The recommended PubMed search for non-U.S. Government funded research now is:

research support, non-u.s. gov't [pt] OR united kingdom [gr] OR canada [gr] OR austria [gr] OR ireland [gr] OR italy [gr]

Be aware that grant numbers, along with the corresponding research support Publication Types, can appear on in process records.

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*Knecht LS, Tybaert S. New European Granting Organizations for MEDLINE®/PubMed®. NLM Tech Bull. 2010 Sep-Oct;(376):e2.*

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September 10, 2010 [posted]

## Two NLM® Milestones: PubMed® Adds 20 Millionth Citation, PubMed Central® Logs 2 Millionth Article

*[Editor's Note: This is a reprint of an announcement published on the NLM Web site on September 3, 2010. To be notified of announcements like this, subscribe to NLM-Announces e-mail list.]*

PubMed, the National Library of Medicine® (NLM) free online database of the world's biomedical literature, recently attained a major milestone when the 20 millionth citation was added to the database. This occurred on July 27, 2010.

That same day, coincidentally, PubMed Central (PMC), the National Institutes of Health free digital archive for life sciences and biomedical literature, added its 2 millionth full-text article. PubMed Central was developed and is supported by the National Center for Biotechnology Information at the National Library of Medicine.

PubMed provides free access to MEDLINE®, the NLM database of citations and abstracts in the fields of medicine, nursing dentistry, veterinary medicine, health care systems and preclinical sciences.

PubMed was first released in January 1996 as an experimental database under the Entrez retrieval system, with full access to MEDLINE. The word "experimental" was dropped from the Web site in April 1997, and on June 26, 1997, a Capitol Hill press conference featuring Vice President Al Gore officially announced free MEDLINE access via PubMed.

In 1996, the last full year before the launch of PubMed, subscribers to the online version of MEDLINE conducted about 600,000 searches each month. When PubMed provided free access to MEDLINE, usage almost immediately tripled. Today, PubMed usage is approaching one billion searches annually.

PubMed Central debuted in February 2000, providing free access to two journals. Today, PMC contains more than 650 journals which deposit their complete content, as well as some historic journal collections from the 1800s.

*Two NLM® Milestones: PubMed® Adds 20 Millionth Citation, PubMed Central® Logs 2 Millionth Article. NLM Tech Bull. 2010 Sep-Oct;(376):e3.*

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September 10, 2010 [posted]

## NLM® Resource Update: Crude Oil and Dispersants Added to the Hazardous Substances Data Bank

*[Editor's Note: This is a reprint of an announcement published on NLM-Tox-Enviro-Health-L, an e-mail announcement list available from the NLM Division of Specialized Information Services. To subscribe to this list, please see the NLM-TOX-ENVIRO-HEALTH-L Join, Leave, or Change Options page.]*

The National Library of Medicine® (NLM) Division of Specialized Information Services has added crude oil and dispersant records to the Hazardous Substances Data Bank (HSDB®).

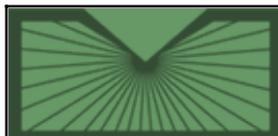
In response to the 2010 Deep Water Horizon oil spill, the HSDB development team and the HSDB Scientific Review Panel (SRP) compiled and reviewed data for crude oil, Corexit 9500, and Corexit 9527 records. Although many dispersants exist, the two selected were most widely used during recent oil clean up efforts in the United States Gulf area and are on the U.S. Environmental Protection Agency (EPA) list of authorized dispersants for use on the National Contingency Plan (NCP) Product Schedule.

The HSDB records include data on human health effects, animal toxicity studies, environmental fate and exposure, and hazard information.

*NLM® Resource Update: Crude Oil and Dispersants Added to the Hazardous Substances Data Bank. NLM Tech Bull. 2010 Sep-Oct;(376):e4.*

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September 16, 2010 [posted]

## AIDSinfo® Launches Mobile Site

*[Editor's Note: This is a reprint of an announcement published on the NLM Web site on September 8, 2010. To be notified of announcements like this, subscribe to NLM-Announces e-mail list.]*

### *US HHS Site, Managed by the National Library of Medicine®, Offers Vast Array of HIV/AIDS Resources*

AIDSinfo (<http://www.aidsinfo.nih.gov/>), a US Department of Health and Human Services (HHS) project managed by the National Library of Medicine, now offers a mobile site that allows users to access its resources and information on-the-go. The AIDSinfo mobile site is available at: <http://m.aidsinfo.nih.gov>.

AIDSinfo offers the latest federally approved HIV/AIDS medical practice guidelines, HIV treatment and prevention clinical trials, and other research information for health care providers, researchers, people affected by HIV/AIDS, and the general public. Along with housing the latest HIV medical practice guidelines, the Web site provides access to many other resources related to HIV treatment and research. Health information specialists are also available by phone, e-mail, and an online chat to assist the public with accessing this information.

The new mobile site optimizes many of the main site's features for phones and other mobile devices. When viewing AIDSinfo on your mobile device, you will be automatically redirected to the mobile site. JavaScript must be enabled on your device for the mobile site to function properly.

The following AIDSinfo features are available on the mobile site:

- Guidelines: Federally approved medical practice guidelines related to HIV/AIDS, available in PDF format.
- Clinical Trials: Clinical trials database to help patients and health care providers locate trials studying HIV/AIDS, searchable by topic or keyword.
- Drugs: Database of fact sheets on HIV/AIDS-related drugs, searchable by drug name, drug class, or via an A-Z index.
- Glossary: Database of medical and scientific terms related to HIV/AIDS treatment and research, searchable by keyword or via an A-Z index.
- e-newsletter: AIDSinfo weekly newsletter showcasing the latest on HIV/AIDS treatment and research.
- Twitter: Tweets about HIV/AIDS research and treatment from AIDSinfo, available from the Twitter mobile site.
- HIV Awareness Days: AIDSinfo specialty pages marking annual HIV/AIDS awareness days.
- Questions?: Contact information for the AIDSinfo call center, where information specialists are available to

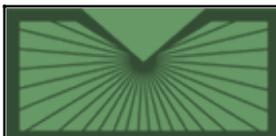
answers questions via online chat, phone, and e-mail.

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*AIDSinfo® Launches Mobile Site. NLM Tech Bull. 2010 Sep-Oct;(376):e5.*

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September 17, 2010 [posted]

## NLM® Launches Application Programming Interface (API) Web Page

On September 17, 2010, NLM released a new API Web page in support of the Administration's interest in promoting computer and mobile applications development using government data resources accessible via APIs. An API is a set of routines that an application uses to request and carry out lower-level services performed by a computer's operating system.

The NLM API page provides:

- a consolidated list and descriptions of NLM systems and databases that currently have API access to data
- links to supporting documentation
- links to the respective Web application interface, if applicable

The NLM API page is also available from the NLM Databases & Electronic Resources page which provides links and short descriptions to dozens of health and science related resources maintained by the NLM.

Please send your comments and recommendations for further API development to NLM customer service.

*NLM® Launches Application Programming Interface (API) Web Page. NLM Tech Bull. 2010 Sep-Oct;(376):e6.*

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September 24, 2010 [posted]

## 2011 Medical Subject Headings (MeSH®) Now Available

### Introduction to MeSH 2011

The Introduction to MeSH 2011 is now available, including information on its use and structure, as well as recent updates and availability of data.

### MeSH Browser

The default year in the MeSH Browser remains 2010 MeSH for now, but the alternate link provides access to 2011 MeSH. The MeSH Section will continue to provide access via the MeSH Browser for two years of the vocabulary: the current year and an alternate year. Sometime in November or December, the default year will change to 2011 MeSH and the alternate link will provide access to the 2010 MeSH.

Other pertinent articles:

[MEDLINE/PubMed Year-End Processing Activities](#)

[2011 MeSH Now Available](#)

### Download MeSH

Download the 2011 MeSH download in XML and ASCII formats. Also available for 2011 from the same MeSH download page are:

- Pharmacologic Actions (Forthcoming)
- New Headings with Scope Notes
- MeSH Replaced Headings
- MeSH MN (tree number) changes
- 2011 MeSH in MARC format

*2011 Medical Subject Headings (MeSH®) Now Available. NLM Tech Bull. 2010 Sep-Oct; (376):e7.*

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September 27, 2010 [posted]

## NLM<sup>®</sup> Resource: Animals in Disasters, Bed Bugs and Pesticides

*[Editor's Note: This is a reprint of an announcement published on NLM-Tox-Enviro-Health-L, an e-mail announcement list available from the NLM Division of Specialized Information Services. To subscribe to this list, please see the NLM-TOX-ENVIRO-HEALTH-L Join, Leave, or Change Options page.]*

Concerns about pets and livestock can cause additional anxiety during disasters. Learning how to prepare for or rescue animals can help. The new Animals in Disasters page from the Specialized Information Services Division of the National Library of Medicine<sup>®</sup> (NLM) provides links to information on preparing for disasters if you have animals.

Included are links to sites on animal rescue, animal handling for emergency responders, how to care for livestock during emergencies, carcass disposal, the Pets Evacuation and Transportation Standards Act of 2006, and Spanish language materials.

News stories about bed bug infestations have recently increased. Learn more about the appropriate use of pesticides to control these pests by consulting the section on bed bugs recently added to NLM *Enviro-Health Links - Pesticide Exposure*.

NLM also offers other Enviro-Health Links on topics such as:

- Arsenic
- Children's Environmental Health
- Climate Change and Human Health
- Imported (Chinese) Drywall
- Indoor Air Pollution
- Keeping the Artist Safe: Hazards of Arts and Crafts Materials
- Lead
- Mercury and Human Health
- Nanotechnology
- Outdoor Air Pollution
- Swine Flu
- NLM Enviro-Health Links

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*NLM<sup>®</sup> Resource: Animals in Disasters, Bed Bugs and Pesticides. NLM Tech Bull. 2010 Sep-Oct;(376):e8.*

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September 28, 2010 [posted]

## NLM® Launches Digital Collections, a Repository for Access to and Preservation of Digitized Biomedical Resources

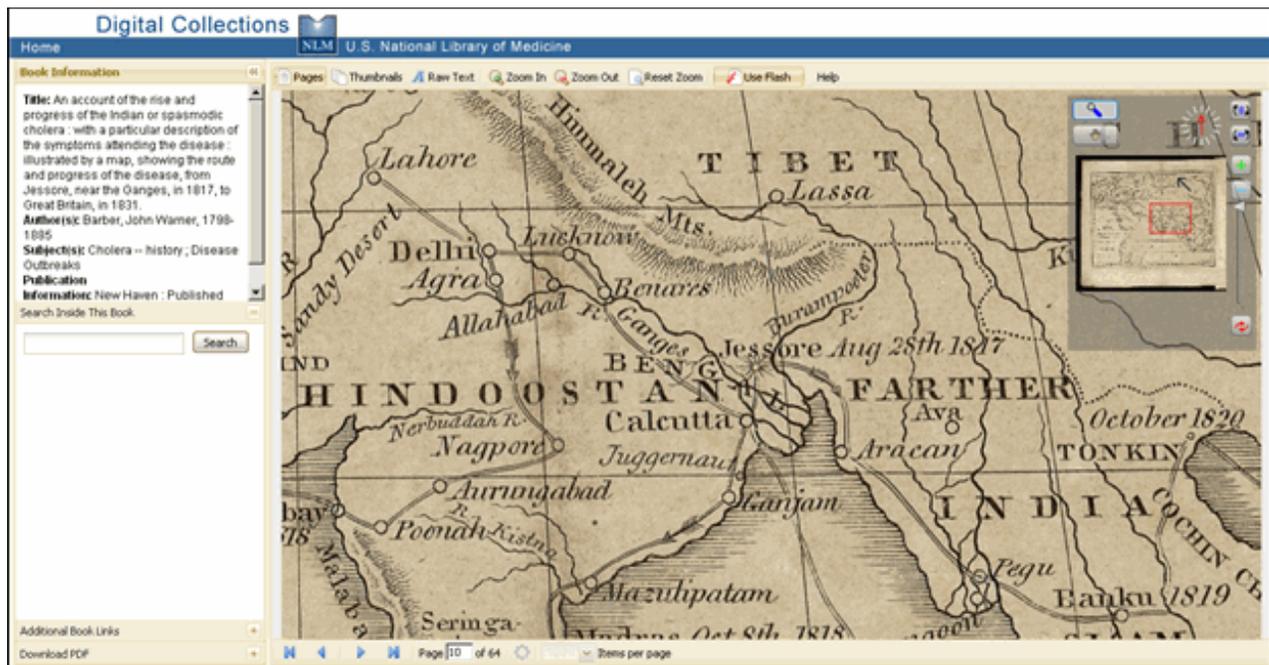
On September 27, 2010, the National Library of Medicine® (NLM) launched a new free digital repository, Digital Collections, which is complementary to the PubMed Central® digital archive of electronic journal articles. The repository currently provides rich search, browse and retrieval of monographs and films from the NLM History of Medicine Division. Additional content and other format types will be added over time. Users can perform full text and keyword searching within each collection or across the entire repository.

"The new Digital Collections repository will allow NLM to provide permanent, robust access to an even broader range of biomedical information," said Betsy Humphreys, Deputy Director, NLM.

### Accessing the Collections

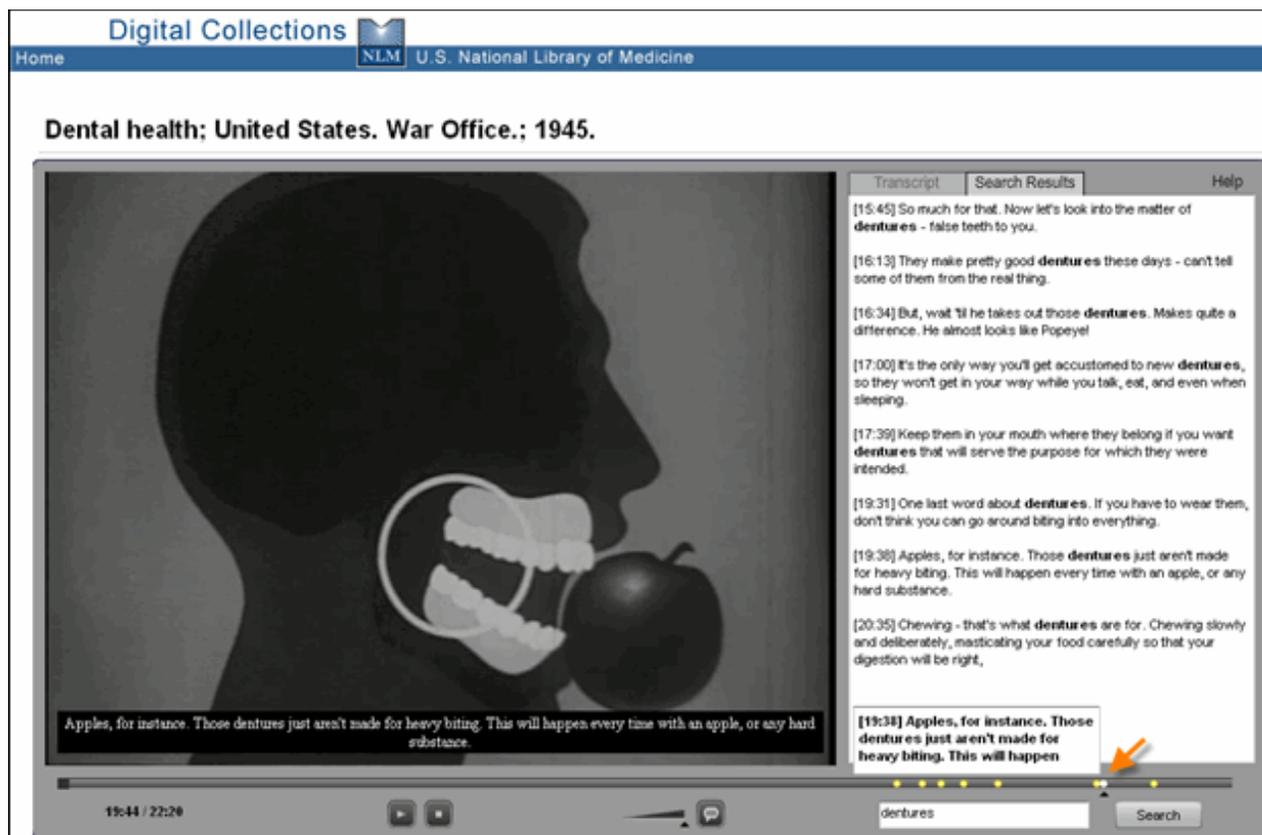
This first release of Digital Collections includes a newly expanded set of *Cholera Online* monographs, a portion of which NLM first published online in PDF format in 2007. The *Cholera Online* now available via Digital Collections includes 518 books dating from 1817 to 1900 about cholera pandemics of that period. More information about the selection of the books and the subject of cholera may be found on the original *Cholera Online* Web page. Each book was scanned into high-quality TIFF images, which underwent optical character recognition to generate corresponding text files. Finally, a JPEG2000 derivative was created for each page for presentation through the integrated book viewer, which includes a Flash®-based zooming feature for resizing and rotating a page on demand (see Figure 1).

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**Figure 1: Book viewer showing arbitrary zooming of a page image.**

The second collection is a selection of eleven historical films, all created by the US Federal Government and in the public domain. The films have been digitized to a variety of video formats to accommodate a wide range of playback devices, including mobile devices. Digital Collections also includes an integrated, Flash-based video player which allows full text search of a film's transcript and graphically displays where the searched word or phrase occurs within the timeline of the film (see Figure 2).



**Figure 2: Video player showing search hits in a graphical timeline of the film.**

## Preserving the Collections

Every page of each book and every video are stored as a discrete object in Digital Collections, with an XML "glue" describing each object and relationships between objects. To ensure long-term integrity of these digital files, checksums (number strings which act like mathematical "fingerprints") are calculated and written into the objects as the objects are ingested into Digital Collections. These checksums will be re-calculated periodically and compared with the original values. Additionally, all ingested files are versioned, so that any changes do not overwrite the original but rather create a new, second file which is stored along with the first.

## Technology

Digital Collections was built using several open-source components, with the Fedora Commons Repository Software providing the foundation. The primary browse and search interface has been adapted from the Muradora "front-end" for Fedora, created by Macquarie University, Sydney, Australia. The book viewer is a component of the Northwestern UniversityBook Workflow Interface, also created specifically for use with Fedora. The Los Alamos National Laboratory djatoka JPEG2000 server handles the images. The video player was adapted from a research project by the NLM Office of Computer and Communications Systems.

## Project

In 2009, NLM began a pilot project to build the repository, develop appropriate workflows for ingesting and managing the content, and provide a core set of end-user services suitable for general public access. Information on the year-long evaluation process leading to the selection of Fedora is available. Please send your comments and questions about Digital Collections to NLM customer service.

**By John P. Doyle**

## Technical Services Division

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*Doyle JP. NLM® Launches Digital Collections, a Repository for Access to and Preservation of Digitized Biomedical Resources. NLM Tech Bull. 2010 Sep-Oct;(376):e9.*

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October 12, 2010 [posted]

## NCBI Launches the Database of Genomic Structural Variations

*[Editor's Note: This is a reprint of an announcement published on the NLM Web site on September 30, 2010. To be notified of announcements like this, subscribe to NLM-Announces e-mail list.]*

### *A new tool to aid in understanding the genetics of health and disease*

The National Institutes of Health (NIH) announces the launch of a new resource, called the Database of Genomic Structural Variation, or dbVar, to help scientists understand how differences in DNA contribute to human health and disease.

The database will help track large-scale variations in DNA discovered in healthy individuals as well as those affected with disorders such as autism and cancer. Additionally, dbVar will collect data on a diverse array of organisms, including agriculturally important plants and livestock. The database was developed by the National Center for Biotechnology Information (NCBI), a division of the National Library of Medicine® (NLM®) at NIH.

The human genome is made up of approximately 3 billion base pairs of DNA arranged into 46 chromosomes. In recent years, scientists have discovered that very large stretches of the genome — on the order of millions of base pairs of DNA — can be different in seemingly normal individuals. It had long been known that such large-scale genomic changes existed, but it was thought that they were rare and when present led to known disorders such as Down syndrome. It is now understood that such variations are relatively common, and while some may be associated with disorders, others do not have an apparent effect on health. Understanding how these genomic variations relate to individual characteristics and impact health is an important and active area of research.

"An enormous volume of data is now coming from studies that investigate genetic variation," said NCBI Director David Lipman, M.D. "We are excited to be playing a role in this important area of scientific inquiry by making the data widely available to scientists and integrating it with other NLM research tools and the scientific literature."

dbVar is part of an international collaboration that includes the just-launched Database of Genomic Variants archive (DGVa) at the European Bioinformatics institute (EBI) and the Database of Genomic Variants (DGV) in Toronto. The databases exchange data on a regular basis so that each can provide complete data with their own user interfaces, data analysis tools, and suites of integrated resources. The databases are described in a correspondence appearing in the October issue of *Nature Genetics*.

To access dbVar, visit <http://www.ncbi.nlm.nih.gov/dbvar>.

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*NCBI Launches the Database of Genomic Structural Variations. NLM Tech Bull. 2010 Sep-Oct;(376):e10.*

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October 20, 2010 [posted]

## Dietary Supplements — A New PubMed® Subset

A new PubMed subset, "Dietary Supplements," will soon be available. This subset is designed to limit search results to citations from a broad spectrum of dietary supplement literature including vitamin, mineral, phytochemical, ergogenic, botanical, and herbal supplements in human nutrition and animal models. The subset will retrieve dietary supplement-related citations on topics including, but not limited to:

- chemical composition;
- biochemical role and function — both in vitro and in vivo;
- clinical trials;
- health and adverse effects;
- fortification;
- traditional Chinese medicine and other folk/ethnic supplement practices;
- cultivation of botanical products used as dietary supplements; as well as,
- surveys of dietary supplement use.

The subset will be added as a choice in the Subset category on the Limits page. Alternatively, the dietary supplements subset can be selected as a filter in MyNCBI or you can incorporate the subset into a search using **AND dietsuppl [sb]**.

Example: diabetes AND dietsuppl [sb]

The Dietary Supplement subset is a joint project between NLM® and the Office of Dietary Supplements (ODS) of the National Institutes of Health. This subset was created using a search strategy including terms provided by ODS, and selected journals indexed for MEDLINE® that include significant dietary supplement-related content.

The Dietary Supplements subset has considerable overlap with the Complementary Medicine subset but each has unique records. To limit to retrieval from either subset in a PubMed search, check both boxes in the Subsets category on the PubMed Limits page.

The subset succeeds the International Bibliographic Information on Dietary Supplements (IBIDS) database, 1999-2010, which was a collaboration between the two U.S. government agencies, ODS and United States Department of Agriculture National Agricultural Library.

**By Anne L. Thurn, Ph.D.**

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# NLM Technical Bulletin

National Library of Medicine | National Institutes of Health

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October 22, 2010 [posted]

## MedlinePlus® Web Service

In September 2010, NLM® released a search-based Web service that provides access to MedlinePlus health topic data in Extensible Markup Language (XML) format. Software developers can utilize this service to build applications that incorporate health information provided by MedlinePlus.

The MedlinePlus Web service accepts English keyword searches as HTTP requests and returns links to relevant English-language MedlinePlus health topics in ranked order. The output also includes supplemental data such as health topic summaries, related vocabulary, and keyword-in-context snippets. The service returns this output in structured XML format.

Documentation containing detailed descriptions of the parameters for keyword search requests and the structure of the XML output can be found on the MedlinePlus Web service page. The Web service is updated daily, is free of charge, does not require registration or licensing, and allows for unlimited data calls.

NLM Web services such as the one provided by MedlinePlus allow developers to tap into MedlinePlus data to build mashups and display information in new and innovative ways. In addition to the Web service, NLM also offers publicly available XML files containing the full set of MedlinePlus English and Spanish health topic data. These XML files are updated weekly.

Links to all NLM Web services and Application Programming Interfaces (APIs) can be found on the NLM APIs page.

**By Sarena Burgess**  
**Public Services Division**

*Burgess S. MedlinePlus® Web Service. NLM Tech Bull. 2010 Sep-Oct;(376):e12.*

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October 22, 2010 [posted]

## Enhanced PubMed® My Bibliography Feature

The PubMed Send to menu will soon be updated to allow users to add PubMed search results directly to their My NCBI My Bibliography (see Figure 1).

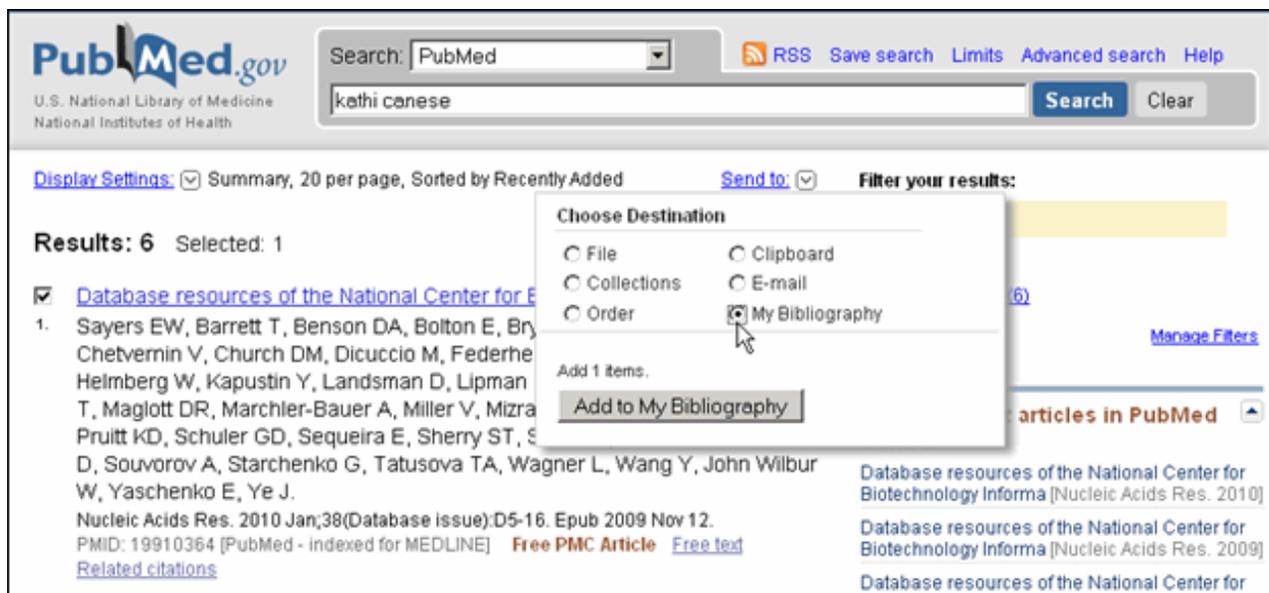


Figure 1: PubMed Send to Menu with My Bibliography Selected.

Selecting My Bibliography from the Send to menu will generate an "Add items" message and an "Add to My Bibliography" button. Clicking the "Add to My Bibliography" button will display the My NCBI Save to Bibliography page (see Figure 2).



**Figure 2: My NCBI Save to My Bibliography Page.**

Please consult the My NCBI Help for details about additional My Bibliography features.

**By Kathi Canese  
National Center for Biotechnology Information**

*Canese K. Enhanced PubMed® My Bibliography Feature. NLM Tech Bull. 2010 Sep-Oct;(376):e13.*

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October 22, 2010 [posted]

## PubMed® Display Enhanced with Images from the New NCBI Images Database

The PubMed Abstract display for PubMed Central® articles will be enhanced to include an image strip generated from the soon-to-be-released National Center for Biotechnology Information (NCBI) Images database (see Figure 1).

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[Display Settings:](#)  Abstract [Send to:](#)

BMC Struct Biol. 2009 Mar 24;9:17.

**Solution structure of the parvulin-type PPIase domain of Staphylococcus aureus PrsA-- implications for the catalytic mechanism of parvulins.**

Heikkinen O, Seppala R, Tossavainen H, Heikkinen S, Koskela H, Permi P, Kilpeläinen I.  
Department of Chemistry, University of Helsinki, Finland. outi.k.heikkinen@helsinki.fi

**Abstract**

**BACKGROUND:** Staphylococcus aureus is a Gram-positive pathogenic bacterium causing many kinds of infections from mild respiratory tract infections to life-threatening states as sepsis. Recent emergence of S. aureus strains resistant to numerous antibiotics has created a need for new antimicrobial agents and novel drug targets. S. aureus PrsA is a membrane associated extra-cytoplasmic lipoprotein which contains a parvulin-type peptidyl-prolyl cis-trans isomerase domain. PrsA is known to act as an essential folding factor for secreted proteins in Gram-positive bacteria and thus it is a potential target for antimicrobial drugs against S. aureus.

**RESULTS:** We have solved a high-resolution solution structure of the parvulin-type peptidyl-prolyl cis-trans isomerase domain of S. aureus PrsA (PrsA-PPIase). The results of substrate peptide titrations pinpoint the active site and demonstrate the substrate preference of the enzyme. With detailed NMR spectroscopic investigation of the orientation and tautomeric state of the active site histidines we are able to give further insight into the structure of the catalytic site. NMR relaxation analysis gives information on the dynamic behaviour of PrsA-PPIase.

**CONCLUSION:** Detailed structural description of the S. aureus PrsA-PPIase lays the foundation for structure-based design of enzyme inhibitors. The structure resembles hPin1-type parvulins both structurally and regarding substrate preference. Even though a wealth of structural data is available on parvulins, the catalytic mechanism has yet to be resolved. The structure of S. aureus PrsA-PPIase and our findings on the role of the conserved active site histidines help in designing further experiments to solve the detailed catalytic mechanism.

PMID: 19309529 [PubMed - indexed for MEDLINE]    PMCID: PMC2678132    [Free PMC Article](#)

**Images from this publication.** [See all images \(10\)](#)    [Free text](#)



[+](#) Publication Types, MeSH Terms, Substances

[+](#) LinkOut - more resources

**Figure 1: PubMed Abstract display for a PubMed Central article with images.**

The image strip will display thumbnails of the article's first several images. The image strip will also include a **See all images** link to display all the article's images in the Images databases, as well as a **Free text** link to the article. Right and left arrows on each end of the strip will allow you to rotate through the images.

Mousing over an image in the image strip will generate a preview display of the image with its figure caption (see Figure 2). Click on the image in the image strip, or the mouseover preview display, and go directly to the figure's page in PubMed Central.

Display Settings: Abstract Send to: Full text free on... BioMed Central FREE full text article in PubMed Central

BMC Struct Biol. 2009 Mar 24;9:17.

### Solution structure of the parvulin-type PPIase domain of *Staphylococcus aureus* PrsA—implications for the catalytic mechanism of parvulins.

Heikkinen O, Seppala R, Tossavainen H, Heikkinen S, Koskela H, Permi P, Kilpeläinen I.  
Department of Chemistry, University of Helsinki, Finland. outi.k.heikkinen@helsinki.fi

**Abstract**  
**BACKGROUND:** *Staphylococcus aureus* is a Gram-positive pathogenic bacterium causing many kinds of infections from mild respiratory tract infections to life-threatening states as sepsis. Recent emergence of *S. aureus* strains resistant to numerous antibiotics has created a need for new antimicrobial agents and novel drug targets. *S. aureus* PrsA is a membrane associated extra-cytoplasmic lipoprotein which contains a parvulin-type peptidyl-prolyl cis-trans isomerase domain. PrsA is known to act as an essential folding factor for secreted proteins in Gram-positive bacteria and thus it is a potential target for new antimicrobial agents.

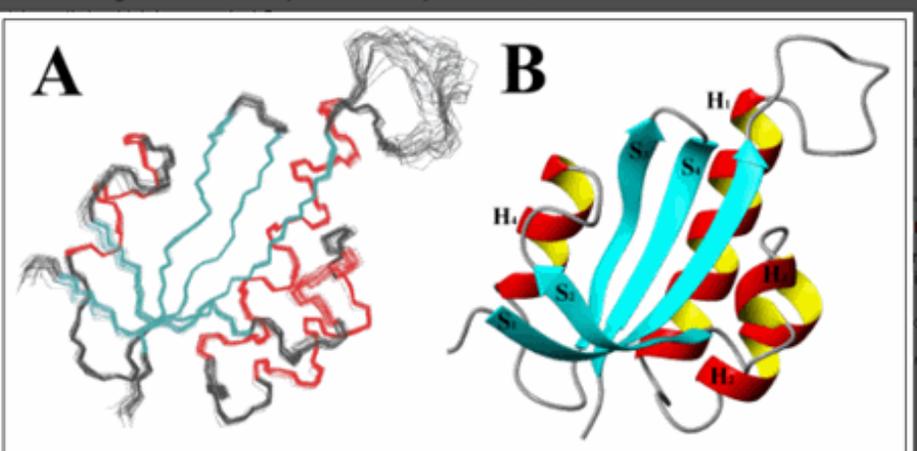
**RESULTS:** We have solved the structure of the parvulin-type PPIase domain of PrsA. Titration experiments pinpoint the active site residues. Detailed NMR spectroscopic analysis of the protein structure and identification of the catalytic site residues. The role of the conserved histidines in the active site is investigated. Detailed NMR spectroscopic analysis of the protein structure and identification of the catalytic site residues. The role of the conserved histidines in the active site is investigated.

**CONCLUSION:** Detailed structure-based design of a new class of antimicrobial agents. Structural analysis of the catalytic mechanism of parvulins, the catalytic mechanism of parvulins and our findings on the role of the conserved histidines in the active site. Our findings on the role of the conserved histidines in the active site.

PMID: 19309529 [PubMed]

**Images from this publication**





**Figure 4**  
Solution structure of *S. aureus* PrsA-PPIase. The protein construct used in the study comprised residues 140–245 of the *S. aureus* PrsA [Swiss-Prot: P60747]. (A) Superimposed backbone traces of the 25 structures in the structure ensemble. Secondary structure elements are colour coded as: red – helix; cyan – strand; grey – coil. (B) A ribbon model of the average...

[Solution structure of the parvulin-type PPIase domain of \*Staphylococcus aureus\* PrsA—implications for the catalytic mechanism of parvulins](#)  
BMC Struct Biol. 2009;9:17-17.

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LinkOut - more resources...

Figure 2: Mouse over an image in the strip to see the image's preview.

## Images Database

The Images database will allow you to search millions of scientific images from NCBI full text resources; the database initially includes images from PubMed Central (see Figure 3).

NCBI Resources How To My NCBI Sign In

Images Search: Images Limits Advanced search Help

Each one = 1,000 words Search Clear

**Images**

The Images database is compiled from full text resources at NCBI.

**Recently Added**

Fig. 2. From: Choice between reinforcer delays versus choice between reinforcer magnitudes: Differential Fos expression in the orbital prefrontal cortex and nucleus accumbens core.

Fig. 4. From: Mutant p53 drives metastasis and overcomes growth arrest/senescence in pancreatic cancer.

Fig. 3. From: Identification of Yju3p as functional orthologue of mammalian monoglyceride lipase in the yeast *Saccharomyces cerevisiae*.

**Highly Cited**

Figure 1. IKK $\beta$  is required for microbial-induced HIF-1 $\alpha$  expression in macrophages. From: NF- $\kappa$ B links innate immunity to the hypoxic response through transcriptional regulation of HIF-1 $\alpha$ .

Figure 2. From: PGC-1 coactivators: inducible regulators of energy metabolism in health and disease.

FIGURE 4. Relationship Between Elevation in Intracranial Self-Stimulation Reward Thresholds and Cocaine Intake Escalation. From: Stress, Dysregulation of Drug Reward Pathways, and the Transition to Drug Dependence.

**Figure 3: Images database homepage.**

You will be able to search the Images database with terms or detailed search parameters, such as image height, width, and caption. The complete list of search fields is available from the Images Advanced search page. Image results initially display in a summary format (see Figure 4) but may also be viewed in a thumbnail display. Retrieval display order is based on a relevancy algorithm.

NCBI Resources How To

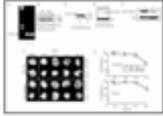
Images  
Each one = 1,000 words

Search: Images Save search Limits Advanced search Help

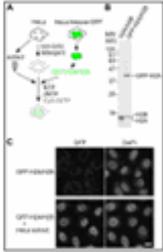
gfp-h2a Search Clear

Display Settings: Summary, 20 per page Send to:

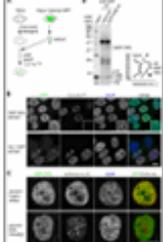
Results: 12

- 

[Figure 3. From: Histone variant H2ABbd confers lower stability to the nucleosome.](#)  
GFP-H2A and GFP-H2ABbd histone fusions are assembled into nucleosomes. (A) Nuclei were isolated from stable A431 human cell lines expressing either GFP-H2A or GFP-H2ABbd, and nucleosomes were prepared as described in Methods. Agarose (1.5%) gel electrophoresis of DNA isolated from nucleosomes prepar...

Thierry Gautier, et al. EMBO Rep. 2004 July;5(7):715-720.  
[Citation](#) [Full text](#)
- 

[Figure 3. From: A novel histone exchange factor, protein phosphatase 2Cy, mediates the exchange and dephosphorylation of H2A-H2B.](#)  
**The incorporation of purified GFP-H2A-H2B into permeabilized cell chromatin requires HeLa cell extract.** (A) Strategy. Permeabilized HeLa cells are incubated in the nucleotide mixture containing Cy3- dUTP with GFP-H2A-H2B dimer in the presence or absence of extract from nonfluorescent HeLa cells. (B) SDS-PAGE. H2A-H2B and GFP-H2A-H2B dimers purified from chromatin of HeLa cells and cells stably expre...

Hiroshi Kimura, et al. J Cell Biol. 2006 November 6;175(3):389-400.  
[Citation](#) [Full text](#)
- 

[Figure 1. From: A novel histone exchange factor, protein phosphatase 2Cy, mediates the exchange and dephosphorylation of H2A-H2B.](#)  
**Visualization of histone exchange and assembly by permeabilized cells incubated in cell extract containing GFP-tagged histones.** (A) Strategy. HeLa cells are permeabilized and incubated in extract prepared from cells expressing histone-GFP. Cy3-dUTP is incorporated into replicated chromatin. (B) Localization of histone-GFP in permeabilized cells incubated in cell extracts. Permeabilized cells were incubated in S100 extract ...

Hiroshi Kimura, et al. J Cell Biol. 2006 November 6;175(3):389-400.  
[Citation](#) [Full text](#)

Figure 4: Image Database Summary display.

My NCBI preferences will be updated to allow you to change your Image database default display to Thumbnail.

By Kathi Canese  
National Center for Biotechnology Information

Canese K. PubMed® Display Enhanced with Images from the New NCBI Images Database. NLM Tech Bull. 2010 Sep-Oct;(376):e14.

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October 27, 2010 [posted]

## LinkOut® for Libraries Frequently Asked Questions Page

Libraries interested in participating in LinkOut may also be interested in the new LinkOut for Libraries Frequently Asked Questions page. On this page, librarians will find answers to questions such as "What is LinkOut?" and "What is the LinkOut Library Submission Utility?" Additional questions and answers will be added in the future.

These questions are also available on the LinkOut for Libraries Training and Educational Resources page.

**By Elizabeth Frost**  
**MEDLARS Management Section**

*Frost E. LinkOut® for Libraries Frequently Asked Questions Page. NLM Tech Bull. 2010 Sep-Oct;(376):e15.*

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October 27, 2010 [posted]

## NLM<sup>®</sup> Division of Specialized Information Services Web Pages Refresh

*[Editor's Note: This is a reprint of an announcement published on NLM-Tox-Enviro-Health-L, an e-mail announcement list available from the NLM Division of Specialized Information Services. To subscribe to this list, please see the NLM-TOX-ENVIRO-HEALTH-L Join, Leave, or Change Options page.]*

The National Library of Medicine<sup>®</sup> (NLM) Division of Specialized Information Services (SIS) homepage has been refreshed in an effort to streamline information and to make the Division resources easier to access.

In addition to some new banners for some secondary pages, the homepage now includes the same "Search Our Web Site" feature included on the Toxicology and Environmental Health (TEHIP) page. Please note that this entry point searches the SIS Web site. TOXNET<sup>®</sup> searches should be initiated on the TOXNET homepage or via the "Search TOXNET" feature of the TEHIP page.

The NLM Disaster Information Management Research Center (DIMRC) Web pages also have a new look. DIMRC is a part of the Specialized Information Services Division.

The DIMRC pages have been redesigned to enhance access to the many and diverse NLM resources useful for disaster and emergency readiness, response, and recovery. Emergency responders will find links to the WISER<sup>®</sup> (Wireless Information System for Emergency Responders) resource for hazardous materials incidents and the Radiation Emergency Medical Management site.

A growing list of guides to online disaster information includes titles such as "Crude Oil Spills and Health," "Special Populations: Emergency and Disaster Preparedness," and "Floods." New features include an A to Z Index, links to the latest articles and reports from PubMed<sup>®</sup> and the Resource Guide for Public Health Preparedness, and news about disaster events, publications, and online resources from both US and international sources.

Please send your comments and feedback to [tehip@teh.nlm.nih.gov](mailto:tehip@teh.nlm.nih.gov).

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*NLM<sup>®</sup> Division of Specialized Information Services Web Pages Refresh. NLM Tech Bull. 2010 Sep-Oct;(376):e16.*

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