

# National Library of Medicine: Update

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**May 27, 2015**

**ICCVAM Public Forum**



# NLM overview:

Collects, organizes, preserves, & disseminates information

Databases & other resources available to global users for free

Some resources are also available as downloads, smartphone & tablet apps, & as Web pages optimized for mobile devices

Challenges & opportunities  
Include keeping up with the current & emerging:

- Substances & materials,
- Methods & approaches,
- Databases, &
- Ways to present data (visualization)

The screenshot displays the homepage of the U.S. National Library of Medicine (NLM). At the top, the NIH logo and "U.S. National Library of Medicine" are visible. A search bar and social media icons are in the upper right. The main content area is divided into several sections:

- Databases:** A list of services including PubMed/MEDLINE, MeSH, UMLS, ClinicalTrials.gov, MedlinePlus, TOXNET, Images from the History of Medicine, LocatorPlus, and All NLM Databases & APIs.
- Environmental Health Toxicology:** A featured section with a search bar and a "REPLAY" button. It includes a search box for TOXNET and a "Toxicology & Environmental Health Information" portal.
- Find, Read, Learn:** A sidebar with links to search biomedical literature, find medical terminologies, search NLM collections, read about diseases, learn about drugs, explore history, find a clinical trial, use a medical dictionary, and find free full-text articles.
- Explore NLM:** A section with links to About NLM, Health Information, Library Catalog & Services, History of Medicine, Online Exhibitions & Digital Projects, Information for Publishers, and Visit the Library.
- Research at NLM:** A section with links to Human Genome Resources, Biomedical Research & Informatics, Environmental Health & Toxicology, Health Services Research & Public Health, and Health Information Technology.
- NLM for You:** A section with links to Grants & Funding, Meaningful Use Tools, Training & Outreach, Network of Medical Libraries, Regional Activities, Careers @ NLM, and Mobile Gallery.
- News & Events:** A section with a list of recent news items, including "WISER for Windows 4.5 is Now Available (11/27/13)", "NLM Releases Enhancements to Its 'Digital Collections' Repository (11/18/13)", "NLM Launches 'From DNA to Beer' Exhibition & Web Site (11/15/13)", and "National Library of Medicine Launches Emergency Access Initiative, Granting Free Access to Books and Journals for Those Responding to Typhoon Haiyan (11/12/13)".

At the bottom, there are icons for "Technical Bulletin", "Connect with NLM", "Multimedia Exhibition", "Podcasts", and "NLM Tools & Widgets". The footer contains copyright information, contact details, and the USA.gov logo.

# PubMed

<http://pubmed.gov>

- PubMed includes over 24 million citations from MEDLINE, life science journals, and online books.
- Citations may include links to full-text articles from PubMed Central or publisher web sites.
- Not every science journal is in PubMed. Let publisher/us know.
- PubReader
- PubMed Commons (next slide)

[My NCBI](#) – store searches; automatic updates

# If you use PubMed, do you know about these new features?

NCBI Resources How To Sign in to NCBI

PubMed.gov PubMed Search

US National Library of Medicine National Institutes of Health

## COMMONS

A forum for scientific discourse

### PubMed Commons Blog

#### Introducing PubMed Commons Journal Clubs

December 17, 2014

The journal represent intellectual – and a form of post-public evaluation, launching initiative to their discussion PubMed.

See full bl

Follow

What peo

PubMed Commons enables authors to share opinions and information about scientific publications in PubMed.

[Get Started](#) [Guidelines](#) [FAQ](#) [Journal Clubs](#)

**Top comments now - [more about this](#)**

**On the relationship between low-frequency normal modes and the large-scale conformational changes of proteins.**

Mahajan S. Arch Biochem Biophys. 2015. [1 comment](#)

[Rafael Najmanovich](#) 2015 Jan 20 07:53 a.m. (yesterday)

This concise review provides a welcome introduction to Normal Mode Analysis (NMA) methods. Unfortunately, the authors fail to discuss one major limitation of the

[www.ncbi.nlm.nih.gov/pubmedcommons/](http://www.ncbi.nlm.nih.gov/pubmedcommons/)

## COMMONS BLOG

Keeping you up to date on PubMed Commons

Home About FAQs Tips Search

Posted on December 17, 2014 by PubMed Commons Team [← Previous](#)

# Introducing PubMed Commons Journal Clubs

Follow

<http://pubmedcommonsblog.ncbi.nlm.nih.gov/2014/12/17/introducing-pubmed-commons-journal-clubs/>

### Topics of Interest

- [Find Information About...](#)
- [Especially For...](#)
- [Search TOXNET® Databases](#)
- [Other Professional Resources](#)
- [Resources for the Public](#)
- [Enviro-Health Links](#)
- [Guides & Tutorials](#)

### More

- [About TEHIP](#)
- [Database Descriptions](#)
- [Which Resource Should I Use?](#)
- [SIS News](#)
- [Conference Exhibit Schedule](#)

### A to Z Index of Resources

- |                   |                   |                   |                   |                   |                   |                   |                   |                   |
|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| <a href="#">A</a> | <a href="#">B</a> | <a href="#">C</a> | <a href="#">D</a> | <a href="#">E</a> | <a href="#">F</a> | <a href="#">G</a> | <a href="#">H</a> | <a href="#">I</a> |
| <a href="#">J</a> | <a href="#">K</a> | <a href="#">L</a> | <a href="#">M</a> | <a href="#">N</a> | <a href="#">O</a> | <a href="#">P</a> | <a href="#">Q</a> | <a href="#">R</a> |
| <a href="#">S</a> | <a href="#">T</a> | <a href="#">U</a> | <a href="#">V</a> | <a href="#">W</a> | <a href="#">X</a> | <a href="#">Y</a> | <a href="#">Z</a> | <a href="#">#</a> |

### Stay Connected

- [Join the Listserv](#)

## Guides, Tutorials and Quick Tours

### Guides

[Database and Resource Descriptions](#)

[Getting the Most from the Environmental Health and Toxicology Resources](#)

[List of NLM Databases and Resources](#)

[Publications and Reference Materials](#)

[TOXNET FAQs](#)

[Which Resource Should I use?](#)

### Training and Tutorials

#### Toxicology Tutorials

College-level introductions to basic toxicology principles and concepts

- [Tox Tutor](#)
- [ToxLearn](#)

[TOXNET Class Schedule and Workbook](#)

<http://sis.nlm.nih.gov/enviro/guides.html>

U.S. Department of Health & Human Services www.hhs.gov

# Environmental Health & Toxicology

SPECIALIZED INFORMATION SERVICES

National Library of Medicine  
National Institutes of Health 

SIS Home | About Us | A-Z Index | SIS News | Contact Us search this site

SIS Home > Environmental Health and Toxicology + Share Text size: [S](#) [M](#) [L](#) [XL](#)  
Expand/Collapse 

**Topics of Interest**

- [Find Information About...](#)
- [Especially For...](#)
- [Search TOXNET® Databases](#)
- [Other Professional Resources](#)
- [Resources for the Public](#)
- [Enviro-Health Links](#)
- [Guides & Tutorials](#)

**More**

- [About TEHIP](#)
- [Database Descriptions](#)
- [Which Resource Should I Use?](#)
- [SIS News](#)
- [Conference Exhibit Schedule](#)

## Learn to Use TOXNET

**TOXNET Training**

**Training Schedule**

The [National Library of Medicine Training Center](#) (NTC) provides training in using the TOXNET databases via the "Discovering TOXNET" class.

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**TOXNET & Beyond: Using The NLM Environmental Health & Toxicology Portal Workbook (PDF, 8.8 MB)**

This workbook provides information and practice exercises in using the TOXNET databases and related resources.

<http://sis.nlm.nih.gov/enviro/manuals.htm>

# TOXNET® & Beyond

## Using the National Library of Medicine® Environmental Health and Toxicology Portal



Specialized Information Services  
National Library of Medicine  
8600 Rockville Pike  
Bethesda, Maryland 20894  
[www.nlm.nih.gov](http://www.nlm.nih.gov)  
October 2014

[http://sis.nlm.nih.gov/enviro/toxnet\\_manual.pdf](http://sis.nlm.nih.gov/enviro/toxnet_manual.pdf)

TOXNET & Beyond: Using The NLM Environmental Health & Toxicology Portal

### Alternatives to Animal Testing (ALTBIB®)

ALTBIB (Alternatives to Animal Testing) provides access to PubMed®/MEDLINE® citations relevant to alternatives to the use of live vertebrates in biomedical research and testing. Many citations provide access to free full text.

United States National Library of Medicine

**ALTBIB**  
Alternatives to Animal Testing

2014 Home | About Us | Site Map & Search | Contact Us

Env. Health & Toxicology | ALTBIB

**Resources for Alternatives to the Use of Live Vertebrates in Biomedical Research and Testing**

**Search Animal Alternatives Literature**

[Link to PubMed citations](#) on more than seventeen alternative methods categories

Search PubMed using ALTBIB animal alternatives search strategy

(e.g., Corrosives, "Androgen receptor binding assay")

Search [ ] Clear [ ]

**Limit search:**

Citations from 2000 to present

Citations with Animal Use Alternatives as the main topic

Citations from the PubMed Toxicology Subset

[View/Edit PubMed Search Strategy](#)

**Search ALTBIB 1980-2009**

All ALTBIB citations have been selected from articles, books, book chapters, and technical reports published from 1980 to 2009. These citations examine methods, tests, assays, and procedures that may be useful in establishing alternatives to the use of intact vertebrates.

**Animal Alternatives News**

News from...

[ICCVAM/NIH/ILIR: Interagency Coordinating Committee for the Validation of Alternative Methods](#)

[ALTBIB News: Johns Hopkins University](#)

**Additional Resources**

[AltTox.org - Non-Animal Methods for Toxicity Testing](#)

[ALTBIB: Alternatives to Animal Testing on the Web](#)

[Animal Welfare Information Center \(AWIC\)](#)

[IACUC - IACVM - European Reference Laboratory for Alternatives to Animal Testing](#)

[IACUC - Fund for the Replacement of Animals in Medical Experiments](#)

[ICCVAM Interagency Center for the Evaluation of Alternative Toxicological Methods \(ICCVAM/NIH/ILIR\)](#)

[Center for Alternatives to Animal Testing \(Johns Hopkins University\)](#)

[Center for Animal Alternatives \(UC Davis\)](#)

[toxnet.nlm.nih.gov/altbib.html](http://toxnet.nlm.nih.gov/altbib.html)

Topic area searches include:

- ▶ General Topics on Alternatives to Animal Testing
- ▶ Hepatic/Renal Toxicity
- ▶ Pulmonary Toxicity
- ▶ Biologics and Vaccines
- ▶ Immunotoxicity/Immunology
- ▶ Quantitative Structure Activity Relationship (QSAR)
- ▶ Carcinogenesis
- ▶ Neurotoxicity
- ▶ Reproductive and Developmental Toxicity
- ▶ Cytotoxicity

Section 3 – Chemical Information and Research: ALTBIB | 45

The screenshot shows the top navigation bar with the U.S. Department of Health & Human Services logo and the URL www.hhs.gov. The main header features the 'Environmental Health & Toxicology' logo with the tagline 'SPECIALIZED INFORMATION SERVICES' and the National Library of Medicine logo. A navigation menu includes links for 'SIS Home', 'About Us', 'Site Map & Search', 'SIS News', and 'Contact Us'. The page content includes a breadcrumb trail 'SIS Home > Environment Health and Toxicology', a text size selector (S, M, L, XL), and a 'Bookmark and share' link. The main heading is 'Which Resource Should I Use?'. A paragraph explains that the portal provides a starting point for finding reliable information on toxicology, hazardous chemicals, environmental health, and toxic releases, and directs users to a database table for expanded descriptions. Below this is a section titled 'Guide to choosing the right environmental health and toxicology resource' which contains a table with two columns: 'If you're looking for:' and 'Go to:'. The table lists various search criteria and their corresponding database resources.

SIS Home > Environment Health and Toxicology

Text size: [S](#) [M](#) [L](#) [XL](#)  
[+ Bookmark and share](#)

## Which Resource Should I Use?

The National Library of Medicine's Environmental Health and Toxicology Portal provides a starting point for finding reliable information on toxicology, hazardous chemicals, environmental health, and toxic releases. This guide can help you select the right resource for your needs. Visit the database [table](#) for expanded descriptions and sample records for some of these resources.

### Guide to choosing the right environmental health and toxicology resource

If you're looking for:	Go to:
Journal references to toxicology literature including birth defects information	<a href="#">TOXLINE</a> or <a href="#">DART</a>
Summaries of peer-reviewed human health effects and emergency medical treatment for chemicals	<a href="#">HSDB</a>
Animal Toxicity Studies	<a href="#">HSDB</a>
Environmental Fate, Exposure, Standards and Regulations	<a href="#">HSDB</a>
Chemical/Physical properties and safety/handling/disposal of chemicals	<a href="#">HSDB</a>
Manufacturing, formulation and use of chemicals	<a href="#">HSDB</a>
Chemical names and synonyms	<a href="#">ChemIDplus Lite</a> or <a href="#">HSDB</a>



# Especially for Toxicologists Page

- Guide to NLM resources on environmental health, toxicology, and chemical information for toxicologists.
- <http://sis.nlm.nih.gov/enviro/especiallytoxicologists.html>

The screenshot shows the 'Especially for Toxicologists' page on the NLM website. The page header includes the U.S. Department of Health & Human Services logo and the National Library of Medicine logo. The main navigation bar contains links for 'SIS Home', 'About Us', 'A-Z Index', 'SIS News', and 'Contact Us'. A search bar is located on the right side of the header. The page content is organized into a sidebar on the left and a main content area on the right. The sidebar contains a 'Topics of Interest' section with links for 'Find Information', 'About...', 'Especially For...', 'Search TOXNET®', 'Databases', 'Other Professional Resources', 'Resources for the Public', 'Enviro-Health Links', and 'Guides & Tutorials'. Below this is a 'More' section with a link for 'About TEHIP'. The main content area features a large heading 'Especially for Toxicologists' and a section titled 'TOXNET - Databases on hazardous chemicals, environmental health, and toxic releases'. This section lists several databases: 'ChemIDplus - Chemical Identification Plus', 'CTD - Comparative Toxicogenomics Database', 'DART - Developmental and Reproductive Toxicology Database', and 'GENE-TOX - Genetic Toxicology Data Bank'. Each database entry includes a brief description of its content.

U.S. Department of Health & Human Services [www.hhs.gov](http://www.hhs.gov)

**Environmental Health & Toxicology**  
SPECIALIZED INFORMATION SERVICES

National Library of Medicine  
National Institutes of Health **NLM**

SIS Home | About Us | A-Z Index | SIS News | Contact Us

SIS Home > [Environmental Health and Toxicology](#)

[Share](#) Text size: [S](#) [M](#) [L](#) [XL](#)  
Expand/Collapse

## Especially for Toxicologists

### TOXNET - Databases on hazardous chemicals, environmental health, and toxic releases

- **ChemIDplus - Chemical Identification Plus**  
Dictionary of chemical names, synonyms, and structures. Links to related NLM databases and other resources
  - **ChemIDplus Advanced**  
Structure searching for a subset of the substances in ChemIDplus
- **CTD - Comparative Toxicogenomics Database**  
Data describing the relationship between chemicals, genes and human diseases
- **DART - Developmental and Reproductive Toxicology Database**  
References to teratology, developmental and reproductive toxicology literature
- **GENE-TOX - Genetic Toxicology Data Bank**  
Peer-reviewed genetic toxicology test data

**NIH** U.S. National Library of Medicine

Search

Contact NLM

**Databases**

- PubMed/MEDLINE
- MeSH
- UMLS
- ClinicalTrials.gov
- MedlinePlus
- TOXNET
- Images from the History of Medicine
- LocatorPlus
- All NLM Databases & APIs

**Environmental Health & Toxicology**

REPLAY

**Find, Read, Learn**

- Search biomedical literature
- Find medical terminologies
- Search NLM collections
- Read about diseases
- Learn about drugs
- Explore history
- Find a clinical trial
- Use a medical dictionary
- Find free full-text articles

**Explore NLM**

- About NLM
- Health Information
- Library Catalog & Services
- History of NLM
- Online Exhibitions & Digital Projects
- Information for Publishers
- Visit the Library

**Research at NLM**

- Human Genome Resources
- Biomedical Research & Informatics
- Environmental Health & Toxicology
- Health Services Research & Public Health
- Health Information Technology

**NLM for You**

- Grants & Funding
- Meaningful Use Tools
- Training & Outreach
- Network of Medical Libraries
- Regional Activities
- Careers @ NLM
- Mobile Gallery

**News & Events**

- WISER for Windows 4.5 is Now Available (11/27/13)
- NLM Releases Enhancements to Its "Digital Collections" Repository (11/18/13)
- NLM Launches "From DNA to Beer" Exhibition & Web Site (11/15/13)
- National Library of Medicine Launches Emergency Access Initiative, Granting Free Access to Books and Journals for Those Responding to Typhoon Haiyan (11/12/13)

**Technical Bulletin**

**Connect with NLM**

**Multimedia Exhibition**

**Podcasts**

**NLM Tools & Widgets**

Copyright, Privacy, Accessibility, Site Map, Viewers and Players  
U.S. National Library of Medicine, 8600 Rockville Pike, Bethesda, MD 20894  
National Institutes of Health, Health & Human Services  
Freedom of Information Act, Contact Us

USA.gov

First published: 10 October 1993  
Last updated: 03 December 2013  
Permanence level:  
Permanent: Dynamic Content

The screenshot shows the homepage of the Environmental Health & Toxicology (EHT) website. At the top, it features the U.S. Department of Health & Human Services logo and the National Library of Medicine logo. The main navigation bar includes links for SIS Home, About Us, Site Map & Search, SIS News, and Contact Us. A central banner displays a hazardous waste container with the text "EXTREME DANGER • DANGEROUS TO LIFE AND HEALTH" and "VERY FLAMMABLE • POISON • CONTAINS TOXIC SUBSTANCE". Below the banner is the heading "Information About Poisoning".

On the left side, there is a vertical menu with the following items: "Find Information About...", "Especially For", "Search TOXNET® Databases", "Other Professional Resources", "Resources for the Public", "Enviro-Health Links", "Guides & Tutorials", and "Quick Tours". Red arrows point to the "Search TOXNET® Databases" and "Especially For" items.

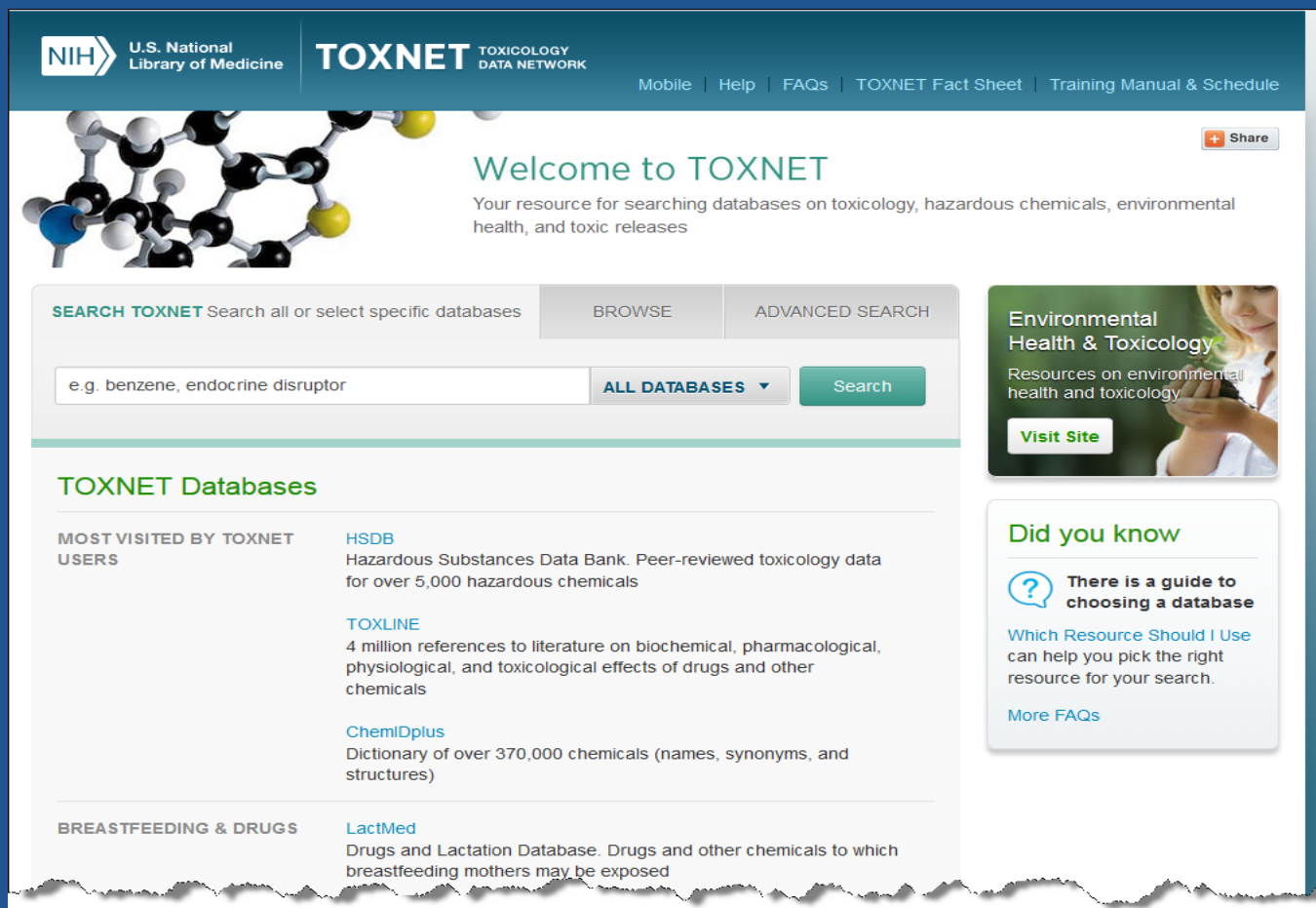
In the center, there is a section titled "For Information About..." with three sub-sections: "Pillbox Beta" (describing rapid identification of tablets/capsules), "Household Products Database" (describing potential health effects of chemicals in common household products), and "Toxics Releases" (describing maps of on-site toxic releases and hazardous waste sites). A red arrow points to the "Pillbox Beta" section.

On the right side, there are several informational boxes: "Search TOXNET" (describing a collection of databases on hazardous chemicals, toxic releases, and environmental health), "In the Spotlight" (listing resources like Chemical Hazards Emergency Medical Management (CHEMM), LactMed App, TOXNET Mobile Access, Which Resource Should I Use?, and Environmental Health Student Portal), "Stay Connected" (listing options to join the Listserv, subscribe to RSS, follow on Twitter, and bookmark/share), and "News & Events" (listing SIS News and a Calendar of Events).

At the bottom of the page, there is a search bar titled "Search Our Web Site" with a "Search" button and a link to "A to Z Index of Resources". Below the search bar is a grid of letters from A to Z, with a "#" symbol. At the bottom center, there is a logo for the 175th National Library of Medicine.

# TOXNET® (TOXicology Data NETwork) is:

- A cluster of databases covering toxicology, hazardous chemicals, environmental health and related areas.
- Accessible free of charge at <http://toxnet.nlm.nih.gov>
- Linked to PubMed®



The screenshot shows the TOXNET website interface. At the top, there is a navigation bar with the NIH logo, "U.S. National Library of Medicine", and the TOXNET logo. Below the navigation bar, there is a search bar with the text "e.g. benzene, endocrine disruptor" and a "Search" button. To the right of the search bar, there are tabs for "SEARCH TOXNET", "BROWSE", and "ADVANCED SEARCH". Below the search bar, there is a section titled "TOXNET Databases" with a list of databases: "HSDB", "TOXLINE", "ChemIDplus", and "LactMed". To the right of the search bar, there is a "Share" button and a "Did you know" section with a question mark icon and the text "There is a guide to choosing a database". Below the "Did you know" section, there is a "Visit Site" button and a "More FAQs" link.

NIH U.S. National Library of Medicine TOXNET TOXICOLOGY DATA NETWORK

Mobile | Help | FAQs | TOXNET Fact Sheet | Training Manual & Schedule

Welcome to TOXNET

Your resource for searching databases on toxicology, hazardous chemicals, environmental health, and toxic releases

SEARCH TOXNET Search all or select specific databases BROWSE ADVANCED SEARCH

e.g. benzene, endocrine disruptor ALL DATABASES Search

Environmental Health & Toxicology

Resources on environmental health and toxicology

Visit Site

Did you know

There is a guide to choosing a database

Which Resource Should I Use can help you pick the right resource for your search.

More FAQs

TOXNET Databases

MOST VISITED BY TOXNET USERS

HSDB Hazardous Substances Data Bank. Peer-reviewed toxicology data for over 5,000 hazardous chemicals

TOXLINE 4 million references to literature on biochemical, pharmacological, physiological, and toxicological effects of drugs and other chemicals

ChemIDplus Dictionary of over 370,000 chemicals (names, synonyms, and structures)

BREASTFEEDING & DRUGS

LactMed Drugs and Lactation Database. Drugs and other chemicals to which breastfeeding mothers may be exposed

# Toxicology Data Network (TOXNET): An Example

## Hazardous Substances Data Bank

Comprehensive toxicological information on almost 6,000 substances (human and animal toxicity, safety and handling, environmental fate, and more). Scientifically peer-reviewed.

The screenshot shows the TOXNET website header with the NIH logo and navigation links. The main content area features a search bar with the text "e.g. benzene, endocrine disruptor" and a "Search" button. Below the search bar are dropdown menus for "Search Term" (singular/plural) and "Records with" (all of the words), along with a checked checkbox for "Include Synonyms and CAS Numbers in Search". A "Support" sidebar on the right lists resources like "Help", "Fact Sheet", and "Sample Record". At the bottom, there are "About HSDB" and "Did you know" sections.

The screenshot shows a journal article page from "Toxicology", Volume 325, 5 November 2014, Pages 209-216. The article is a "Short communication" titled "The National Library of Medicine's (NLM) Hazardous Substances Data Bank (HSDB): Background, recent enhancements and future plans" by George Charles Fonger, Pertti Hakkinen, Shannon Jordan, and Stephanie Publicker. It is published by Elsevier. The article was received on 17 July 2014, accepted on 3 September 2014, and available online on 16 September 2014.

<http://www.ncbi.nlm.nih.gov/pubmed/25223694>

- **Alternative and In Vitro Tests** – studies of interest that are not covered under genotoxicity or endocrine modulation. For example, studies conducted using a human cell line.
- **Genotoxicity** – studies that use in vitro and in vivo methods involving human tissues/cells to determine a genotoxic response (includes positive and negative studies).


# Toxicology “Enviro-Health Links” Page

The screenshot shows the website header with the U.S. Department of Health & Human Services logo and the URL www.hhs.gov. The main title is "Environmental Health & Toxicology" with the subtitle "SPECIALIZED INFORMATION SERVICES". The National Library of Medicine logo is also present. A navigation bar includes links for SIS Home, About Us, A-Z Index, SIS News, and Contact Us, along with a search box. The breadcrumb trail reads "SIS Home > Environmental Health and Toxicology > Enviro-Health Links". A "Share" button and text size options (S, M, L, XL) are visible. A sidebar on the left lists "Topics of Interest" such as "Find Information", "About...", "Especially For...", "Search TOXNET®", "Databases", "Other Professional Resources", "Resources for the Public", "Enviro-Health Links", and "Guidance & Tutorials". The main content area features the heading "Enviro-Health Links - Toxicology Web Links" and a list of categories: "US Government", "International Resources", "Associations and Societies", "Additional Resources", and "Disclaimer". A section titled "US Government" is partially visible at the bottom.

<http://sis.nlm.nih.gov/pathway.html>

# Mobile-optimized Web interface

YOUR SOURCE FOR THE LATEST SEARCHING INFORMATION



## NLM TECHNICAL BULLETIN

U.S. NATIONAL LIBRARY OF MEDICINE | NATIONAL INSTITUTES OF HEALTH

[Current Issue](#) | [Archive](#) | [Indexes](#) | [About](#) | [St](#)











### Mobile TOXNET Access

Mobile TOXNET Access. NLM Tech Bull. 2012 Jan-Feb;(384):b10

**2012 February 15** [posted]

Now you can access the NLM TOXNET with any mobile device.

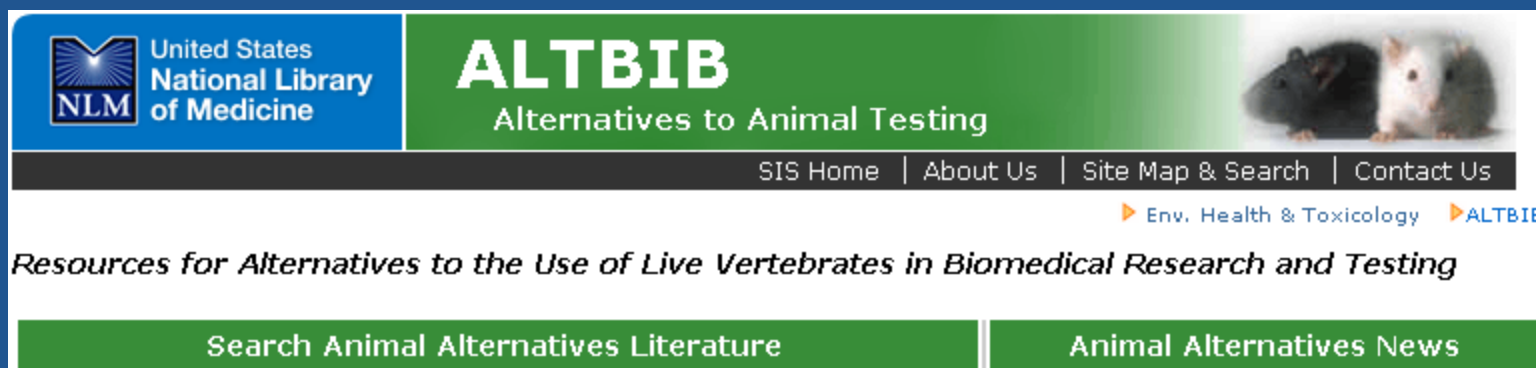
## TOXNET

 HSDB	>
 TOXLINE	>
 CCRIS	>
 DART	>
 GENE-TOX	>
 IRIS	>
 ITER	>
 LactMed	>
 TRI	>
 DIRLINE	>

<http://toxnet.nlm.nih.gov/pda/>

# In 2012: An updated enhanced version of the ALTBI<sup>B</sup> Web portal

- Provides better and broader access to information on *in silico*, *in vitro*, and improved (refined) animal testing methods
- Also, information on the testing strategies incorporating these methods and other approaches.
- <http://toxnet.nlm.nih.gov/altbib.html>



The screenshot shows the header of the ALTBI<sup>B</sup> Web portal. On the left is the NLM logo with the text "United States National Library of Medicine". In the center, the text "ALTBI<sup>B</sup> Alternatives to Animal Testing" is displayed. On the right is a photograph of two mice, one black and one white. Below the header is a navigation bar with links: "SIS Home", "About Us", "Site Map & Search", and "Contact Us". Below the navigation bar is a breadcrumb trail: "Env. Health & Toxicology" and "ALTBI<sup>B</sup>". Below the breadcrumb trail is the text "Resources for Alternatives to the Use of Live Vertebrates in Biomedical Research and Testing". At the bottom are two green buttons: "Search Animal Alternatives Literature" and "Animal Alternatives News".





**Resources for Alternatives to the Use of Live Vertebrates in Biomedical Research and Testing**

**Search Animal Alternatives Literature**

[Links to PubMed citations](#) on more than seventeen alternative methods categories

**Search PubMed using ALTBI animal alternative search strategy**

(e.g. Corrositex, "androgen receptor binding assay")

**Limit search:**

- Citations from 2000 to present
- Citations with [Animal Use Alternatives](#) as the main topic
- Citations from the PubMed [Toxicology Subset](#)

[View/Edit PubMed Search Strategy](#)

**Search ALTBI 1980-2000**

ALTBI citations have been selected from articles, books, book chapters, and technical reports published from 1980 to 2000. These citations examine methods, tests, assays, and procedures that may be useful in establishing alternatives to the use of intact vertebrates.

**ALTBI Support**

- ▶ [Fact Sheet](#)
- ▶ [Help](#)
- ▶ [Download ALTBI Issues \(1992 - 2001\)](#)
- ▶ [The Principles of Humane Experimental Technique: Russell & Burch](#)
- ▶ [Guide for the Care and Use of Laboratory Animals \(ILAR, 1996\)](#)
- ▶ [Alternatives Literature Searching and Databases \(USDA/NAL/AWIC\)](#)

**Animal Alternatives News**

News from...

▶ [ICCVAM/NIEHS: Interagency Coordinating Committee for the Validation of Alternative Methods](#)



▶ [ALTBI for Toxicology](#)

▶ [Altweb Testing](#)

▶ [Animal Center](#)

▶ [EURL E Refere Altern](#)

▶ [FRAME Replac Medica](#)

▶ [NTP In Evalua Toxicol /NIEHS](#)

▶ [Center Testing Univer](#)

▶ [Center \(UC D](#)

▶ [SOT In Method \(Societ](#)

**Eval**

▶ [Regula Altern](#)

▶ [U.S. ar in Alter Develc \(ICCV](#)

**Resources for Alternatives to the Use of Live Vertebrates in Biomedical Research and Testing**

**Search Selected Topics**

1. [Alternatives to Animal Testing: General Topics](#)
  - [3T3 Cells](#)
  - [Acute Toxic Class](#)
  - [Animal Use Alternatives: Ethics](#)
  - [Animal Use Alternatives: History](#)
  - [Animal Use Alternatives: Jurisprudence](#)
  - [Evaluation Studies](#)
  - [Fixed Dose Procedure](#)
  - [Intelligent Testing and/or Integrated Testing](#)
  - [Starting Dose Procedure](#)
  - [Toxicity Tests: Methods](#)
  - [Toxicity Tests: Trends](#)
  - [Toxicology](#)
  - [Up and Down Procedure](#)
  - [Validation Studies](#)
2. [Biologics and Vaccines](#)
  - [TOBI Test for Tetanus](#)
3. [Carcinogenesis](#)
  - [Transgenic Mouse Model](#)
10. [Ocular Toxicity](#)
  - [Bovine Corneal Opacity and Permeability \(BCOP\)](#)
  - [Chicken Embryo Retina](#)
  - [Chicken Enucleated Eye Test \(CEET\)](#)
  - [Cytosensor](#)
  - [EpiOcular](#)
  - [Hen's Egg Test-Chorioallantoic Membrane \(HET-CAM\)](#)
  - [Isolated Rabbit Eye \(IRE\)](#)
  - [Low Volume \(Draize\) Eye Test \(LVET\)](#)
  - [PREDISAFE](#)
  - [Recombinant Human Tissue Models](#)
11. [Pharmacokinetic/Mechanistic Studies](#)
12. [Pyrogenicity](#)
  - [Human Whole Blood Interleukin Pyrogen Test](#)
13. [Pulmonary Toxicity](#)
14. [Quantitative Structure Activity Relationship \(QSAR\)](#)
  - [Artificial Intelligence and Toxicity](#)
  - [Computational Toxicology](#)

# Teaching Tools: ToxTutor and ToxLearn

The screenshot shows the website for the U.S. Department of Health & Human Services, specifically the Environmental Health & Toxicology section. The page is titled "Toxicology Tutorials" and features a sidebar with navigation links. The main content area is titled "Toxicology Tutors (also called Tox Tutors)" and includes a description of the tutorials, a list of tutorial titles, and information about downloading zip files and using ToxLearn. A blue arrow points to the "Toxicology Tutors (also called Tox Tutors)" section header.

U.S. Department of Health & Human Services  
www.hhs.gov  
Environmental Health & Toxicology  
SPECIALIZED INFORMATION SERVICES  
National Library of Medicine  
National Institutes of Health  
NLM

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J K L M N O P Q R  
S T U V W X Y Z #

## Toxicology Tutorials

### Toxicology Tutors (also called Tox Tutors)

The Toxicology Tutors and ToxLearn were developed to provide users of NLM's toxicology databases with a working knowledge of basic toxicology principles. The tutorials are written at the introductory college student level.

#### Toxicology Tutor I - Basic Principles

#### Toxicology Tutor II - Toxicokinetics

#### Toxicology Tutor III - Cellular Toxicology

#### Tutorial Zip files

You can download the tutorials to run from your computer. Each tutorial is made up of about 800 files. You will need the WINZIP® utility to open the zipped files.

- Tox1.zip (5.4 MB)
- Tox2.zip (4.2 MB)
- Tox3.zip (6.0 MB)

#### ToxLearn

An update to and expansion of the Toxicology Tutors

- **Module I: Introduction to Toxicology and Dose-Response** includes a brief history of toxicology and introduction to the basic principles.
- **Module II: Cells and Tissues: Injury and Repair** provides an understanding of how toxic substances affect biological molecules, cells, tissues, and organs.
- You will need **Adobe Flash Player** to run ToxLearn.

Content is being updated

# New Approach Presented at the 2015 Annual Meeting of the Society of Toxicology

Perth J. Hakkinen, NLM  
 Einas Ahmad, NLM  
 Alla Keselman, NLM  
 Colette Hochstein, NLM  
 Shannon Jordan, NLM

## Development of Environmental Health Animated Tutorials for K-12 Students and Teachers

Karen Matzkin, ICF International  
 Judy Kramer, ICF International  
 Andrew Plummer, NLM  
 Janice Kelly, NLM  
 Gale Dutcher, NLM

### Abstract

The U.S. National Library of Medicine (NLM) is the largest biomedical library in the world. It provides credible health information resources for scientists, health professionals, and the lay public. The NLM Division of Specialized Information Services (SIS) provides resources in:

- Toxicology
- Environmental health
- Chemistry
- HIV/AIDS
- Specific populations, including K-12 students and their teachers

Focus group data and informal feedback during meetings and conferences indicated that science teachers were interested in utilizing multimedia online environmental health and toxicology resources which include animations. To address this need, in 2014 SIS implemented an animation production program to enhance the Environmental Health Student Portal (EHSP) with animations on the portal's topics including water, air pollution and potentially hazardous chemicals in everyday environments. To date, SIS has produced animations educating middle school students about a range of topics, such as potential health effects of:

- Mercury
- Pesticides
- Lead
- Ozone
- and particulate matter

The animations supplement the existing EHSP resources, including videos, games, activities, and lesson plans for middle school. The animations were produced with GoAnimate, a low-cost online tool. Production includes five steps:

- Research
- Outline
- Storyboard
- Animation
- Evaluation

This method allows for a high degree of content customization. The animations are reviewed by a subject matter expert for content accuracy prior to release. To view the animations, visit the NLMNH YouTube Channel (<https://www.youtube.com/user/NLMNH>), or the NLM Environmental Health Student Portal (<http://ehsp.nhlbi.nih.gov/>).

### Why Animations

The National Library of Medicine, K-12 team, through focus groups and talking to the education community found that:

- Science teachers LOVE audiovisuals
- Most toxicology videos are not middle school friendly
- Few engaging, informative, accurate animations linking chemicals and health
- Proliferation of low-cost animation software



NIH U.S. National Library of Medicine

### Existing Animations

**Silent, but Deadly: Toxicity of Lead**  
 Professor Pham takes intergalactic superhero Leadman on a historic tour about properties and uses of lead, convincing him to redesign his put into something less... leady.

*Dr. Wendy Boyd, Chemistry Teacher, Richard Wiggingsley HS, Fairfax, VA*

**Mercury and Our Health**  
 A TV character comes to life to discuss mercury in fish with a boy who is about to start eating his sushi lunch.

*Shirley Ahmad, University Health, University of Maryland*

**Zest for Pests**  
 David's house is infested with mosquitoes. What can he do? An animation about pesticides, where they are found, how they are used, and their effects on human health.

*Erica Kasper, Middle School Teacher, Park Forest HS, Park Forest, IL*

**Robot ZERO's Ozone Adventure**  
 Well-intentioned, but misguided outer space robot ZERO comes to Earth to help humans by spraying them with ozone. He then needs a scientist who explains to ZERO the difference between atmospheric and ground-level ozone.

*Sharon Ryan, HS Teacher, Winton HS, Parkland, TX*

**Desalination: A Solution for our Water Needs**  
 Two characters discuss why humans can't survive drinking ocean water and compare different kinds of industrial desalination.

*Lisa Hagan, Secondary Teacher, University of Maryland*

**Something in the Air: Particulate Matter and Your Health**  
 Agents Ace and Amethyst investigate toxic effects of Hawthorne Hipster's unusual bedtime. An animation about particulate matter, where it is found, and its effects on human health.

*Erica Ryan, Chemical Engineering, University of Maryland*

# How to stay informed

The screenshot shows the website for the NLM-Tox-Enviro-Health-L Listserv. At the top, it features the U.S. Department of Health & Human Services logo and the Environmental Health & Toxicology logo. The page title is "NLM-Tox-Enviro-Health-L Listserv Announcements List". Below the title, there are navigation links for "List Description", "Join NLM-Tox-Enviro-Health-L", "List Commands", and "Getting Help". A "More to Explore" section lists "Archives of NLM-TOX-ENVIRO-HEALTH-L@LIST.NIH.GOV", "MedlinePlus Environmental Health News Listserv", and "Disaster Information Outreach Email Discussion List". A "List Description" section states: "NLM-Tox-Enviro-Health-L broadcasts updates on SIS's resources, services, and outreach in toxicology and environmental health. The NLM-Tox-Enviro-Health-L Archives lets users search list postings, and modify subscription options." A "Join NLM-Tox-Enviro-Health-L" section provides instructions: "To subscribe to NLM-Tox-Enviro-Health-L, please send SUBSCRIBE NLM-Tox-Enviro-Health-L your name in the body of an email to listserv@list.nih.gov. You will receive a confirmation message from the list management software. After responding to this acknowledgement message, you will receive a message from the NLM-Tox-Enviro-Health-L list owners welcoming you to NLM-Tox-Enviro-Health-L."

The screenshot shows a tweet from NLM SIS (@NLM\_SIS) dated July 1, 2013. The tweet text is: "Looking for alternatives to using live vertebrates in #AnimalTesting? Check out #ALTBIB. go.usa.gov/rMcx". The tweet has 1 retweet and is liked. The profile picture of the user is the NIH logo. The tweet is displayed on a Twitter interface with the user's name, bio, and follower count visible.

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