Free Online Databases: Images and More

RSNA Online Databases Course Links: http://nnlm.gov/gmr/training/rsna.html

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Available at: http://nnlm.gov/training/resources/onlinedatabases.pdf
The National Institutes of Health (NIH), a part of the U.S. Department of Health and Human Services, is the primary Federal agency for conducting and supporting medical research and is composed of 27 Institutes and Centers, three of which are highlighted below.


NCI conducts and supports research that will lead to a future in which cancer is prevented before it starts, through identifying cancers that do develop at the earliest stage, eliminating cancers through innovative treatment interventions, and biologically controlling those cancers that cannot be eliminated so they become manageable, chronic diseases.

**National Institute of Biomedical Imaging and Bioengineering:** [http://www.nibib.nih.gov](http://www.nibib.nih.gov)

NIBIB promotes fundamental discoveries, design and development, and translation and assessment of technological capabilities in biomedical imaging and bioengineering, enabled by relevant areas of information science, physics, chemistry, mathematics, materials science, and computer sciences.


NLM collects, organizes, and makes available biomedical science information and databases to scientists, health professionals, and the public. NLM conducts and supports research in biomedical communications; creates information resources for molecular biology, biotechnology, toxicology, and environmental health; and provides grant and contract support for training, medical library resources, and biomedical informatics and communications research. The National Center for Biotechnology Information (NCBI) updates and maintains the PubMed interface and genetics resources.

**NIH Blueprint for Neuroscience Research:** [http://neuroscienceblueprint.nih.gov](http://neuroscienceblueprint.nih.gov)

The NIH Blueprint is a cooperative effort among 15 NIH Institutes, Centers and Offices that support neuroscience research. By pooling resources and expertise, the Blueprint supports the development of new tools, training opportunities, and other resources to assist neuroscientists in both basic and clinical research.
Images from Literature
From the National Library of Medicines

PubMed®: http://pubmed.gov
PubMed, National Library of Medicine (NLM), contains over 24 million bibliographic citations. Images from PMC articles with figures are available in PubMed and may be accessed when viewing an individual citation.

Bookshelf is an online collection of nearly 2900 books, reports, and documents and may have a corresponding entry in PubMed. When four or more images result from a search, the Images search in Bookshelf box will appear. Click on See more to access those images.

PMC: http://www.ncbi.nlm.nih.gov/pmc
PMC (formerly PubMed Central®) is a free archive of over 3.2 million biomedical and life sciences journal publications and contains over three million associated images. Use the tag [capt] to search for image captions that include a specific term (e.g., ischemia [capt]).

This interface currently retrieves over 1.6 million images from the open-access subset of PMC (nearly 600,000 articles) and over 7,400 chest x-rays from the Indiana University collection with nearly 4,000 radiology reports. Search citation information, image metadata, and by an image.

Literature Search Engines with an Image Filter

YottaLook™: http://www.yottalook.com
Searches radiology images from peer-reviewed online sources and accesses over 800,000 images. Developed by radiologists, maintained by Montage Healthcare Solutions.

ARRS Gold Miner®: http://goldminer.arrs.org
Searches nearly 490,000 biomedical images published in over 750 selected peer-reviewed journals. Developed and maintained by the American Roentgen Ray Society (ARRS).

Publications with Datasets

Insight Journal: http://www.insight-journal.org
Open Access publication on medical image processing and visualization with links to the MIDAS platform where published datasets are shared: http://www.insight-journal.org/midas

OASIS Open Access Series of Imaging Studies (OASIS): http://www.oasis-brains.org/
Two MRI data sets of the brain compiled and freely distributed by Washington University.

Optical Society of America (OSA) Optics InfoBase: http://www.opticsinfobase.org/
As part of a Interactive Scientific Publishing (ISP) project, 2D and 3D datasets with original source data are published on a MIDAS platform: http://midas.osa.org/midaspub/

Additional Literature Image Resources

- Image galleries may be used by organizations to share images related to their publications (e.g., Surgical Planning Laboratory (SPL): http://www.spl.harvard.edu
- Online books may include images (e.g., The Basics of MRI: http://www.cis.rit.edu/htbooks/mri and CHORUS: Collaborative Hypertext of Radiology: http://www.gamuts.net/chorus/)
- Individual Journals may also provide images (e.g., AJNR-American Journal of Neuroradiology: http://www.ajnr.org/); click Advanced Search, then use the Search Figures and Tables box
**Image Data Archives**

**National Collaborations**

**CIP Survey of Biomedical Imaging Archives:** [https://wiki.nci.nih.gov/x/mAimAQ](https://wiki.nci.nih.gov/x/mAimAQ)

This survey of publicly available in vivo imaging archives is provided by the National Cancer Institute (NCI) Division of Cancer Treatment and Diagnosis Cancer Imaging Program (CIP).

**The Cancer Imaging Archive (TCIA):** [http://cancerimagingarchive.net](http://cancerimagingarchive.net)

With 46 collections of medical images of cancer in the DICOM format, the NCI archive contains nearly 7400 studies and over 5 million images available for public download.


The CIP connects cancer phenotypes to genotypes by linking the diagnostic image collections in the TCIA to the sequence information in TCGA through the Data Portal.

**National Biomedical Imaging Archive (NBIA):** [http://ncia.nci.nih.gov](http://ncia.nci.nih.gov)

The NCI NBIA is a national repository integrating in vivo cancer images with clinical and genomic data. Most of the ongoing projects have been transferred to the TCIA.


This bioinformatics system and data repository for traumatic brain injury phenotypic, genomic, and imaging data was developed by NIH and the Department of Defense. Registration is required.


This NIH bioinformatics platform for relevant data on all aspects of Autism Spectrum Disorder (ASD) includes the NIH Pediatric MRI Study of Normal Brain Development.


**National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS):** [https://niams-imaging.nci.nih.gov](https://niams-imaging.nci.nih.gov)

Data from the Osteoarthritis Initiative (OAI) ([http://oai.ucsf.edu](http://oai.ucsf.edu)) four-year observational study includes images, assessments, and biospecimens on nearly 5000 subjects. Registration is required.

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**Shared Project Databases**

**Function BIRN (fBIRN) Data Repository:** [http://fbirnbdr.nbirn.net:8080/BDR/](http://fbirnbdr.nbirn.net:8080/BDR/)

Biomedical Informatics Research Network (BIRN) ([http://www.birncommunity.org/](http://www.birncommunity.org/)) hosts multiple institutional archives including this fBIRN Data Repository. An email address serves as the login.

**Laboratory of Neuro Imaging (LONI) Image Data Archive (IDA):** [http://www.loni.usc.edu/](http://www.loni.usc.edu/)

Integrated neuroimaging environment supports both controlled and open access datasets. Registration is required and contact information is listed with the project descriptions.

**Lung Cancer Alliance (LCA) Give A Scan:** [http://www.giveascan.org](http://www.giveascan.org)

Patient-powered open access database for lung cancer research containing nearly 350 studies.

**Neuroimaging Informatics Tools and Resources Clearinghouse (NITRC) Image Repository:** [http://www.nitrc.org/ir/](http://www.nitrc.org/ir/)

Curated NIfTI-1 neuroimaging data sets include 12 projects and over 7600 imaging sessions. Funded by the *NIH Blueprint for Neuroscience*. Registration may be required for some datasets.
Educational Images

Case Studies including Images

CTisus: http://www.ctisus.com
Over 204,000 images, plus protocols, case studies, learning modules, and multimedia. Images are listed under Teaching Files. Directed by Dr. Elliot K. Fishman, Johns Hopkins Hospital.

EuroRad Radiological Case Database: http://eurorad.org
Nearly 5,500 peer-reviewed teaching cases submitted to the Europen Society of Radiology.

MedPix™ – http://rad.usuhs.edu/medpix/
Started in 1996, this database and radiology portal contains over 12,000 teaching file cases and nearly 57,800 images provided by the Dr. James Smirniotopoulos, Uniformed Services University.

MyPACS.net Reference Case Manager: http://www.mypacs.net
Worldwide community members have submitted over 28,600 cases and nearly 174,000 images, some with quizzes. Maintained by McKesson Medical Imaging Group. Optional free registration.

Radiology Assistant: http://radiologyassistant.nl
This educational site of the Radiological Society of the Netherlands focuses over 100 clinical issues.

Radiolopolis: http://www.radiolopolis.com
International member radiology community focusing on education, research and clinical practice; includes over 17,000 cases. Paid subscription is required.

SonoWorld: http://www.sonoworld.com
In this example of a vendor database, SonoWorld includes over 700 cases with images under Cases. Registration is not required for case studies and other selected features.

Trauma.org: http://www.trauma.org
Focused for professionals in trauma and critical care, this site includes an international discussion list, an image database and case studies. Trauma.org is an independent, non-profit organization.

University of South Florida Digital Database for Screening Mammography (DDSM) – http://marathon.csee.usf.edu/Mammography/Database.html
Organized into cases and volumes, this site contains approximately 2,500 studies.

Images for Patient and Family Members

RadiologyInfo™: http://radiologyinfo.org
This public information website of the American College of Radiology (ACR) and the Radiological Society of North America (RSNA) includes radiologic procedures and the role of radiologists in healthcare. A link to Images and Videos is in the left navigation menu.

MedlinePlus®: Trusted Health Information for You: http://medlineplus.gov
The National Library of Medicine’s MedlinePlus database offers free, up-to-date health information with over 950 health topics, materials in multiple languages, an illustrated medical encyclopedia, and surgery and anatomy videos. Search using image (e.g., spine image) for images and diagrams.

- Hospitals, Consumer health libraries, and Public libraries provide information and website access for patients and families. In MedlinePlus, under the Directories link, click Find a Library.
Supporting Resources

Find Tools

I Do Imaging: Free Medical Imaging Software: http://www.idoimaging.com
This site tracks free and open source medical imaging applications and resources including conversion programs, image display and analysis tools, surface and volume rendering options.

Medical Imaging Resource Center (MIRC): http://www.rsna.org/MIRC.aspx
RSNA project of free software tools to support radiology teaching files and imaging clinical trials.

Neuroimaging Informatics Tools and Resources Clearinghouse (NITRC): http://www.nitrc.org
This web-based bank of neuroimaging software and related tools offers a collaborative environment for distributing, evaluating, and enhancing these resources. Funded by the NIH Blueprint for Neuroscience Research.

Find Resources

Duke University Medical Center Library and Archives: http://guides.mclibrary.duke.edu/images
This example of a health sciences library research guide includes a focus on Medical Specialties.

Neuroscience Information Framework: http://www.neuinfo.org/
NIF is a dynamic inventory of Web-based neuroscience resources including data, materials, and tools accessible via the Internet. An initiative of the NIH Blueprint for Neuroscience Research.

Radiology Education: http://www.radiologyeducation.com/
Curated Michael P. D'Alessandro, M.D. and includes links to related educational radiology sites

Drug and Chemical Databases from the NLM

Portal for searching information on nearly 100,000 drugs and herbal supplements across NLM, FDA, and other sites.

MICAD: Molecular Imaging & Contrast Database: http://www.micad.nih.gov/
An online database of research on over 1440 molecular imaging and contrast agents.

PubChem is a component of the NIH Roadmap for Medical Research initiative and provides information on chemical data and the biological activities of small molecules.

This portal for searching databases on toxicology, hazardous chemicals, toxicogenomics, environmental health, and risk assessment; and includes literature from PubMed and other sources.

Unique Image Databases

Over 70,000 images from the 15th to 21st century in this NLM database include posters, photographs, and portraits illustrating the social and historical aspects of medicine.

NCI Visuals Online: http://visualsonline.cancer.gov/
Photographs and educational illustrations focused on communicating meaning and concepts on biomedical, science, and patient-care topics.