Literature database (PubMed, LITDB)

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Introduction

A literature database is a collection of organized and indexed information related to published works, particularly scholarly and academic literature.

These databases serve as valuable resources for researchers, scholars, students, and professionals seeking information on specific topics within their fields of study.

The purpose of literature databases is to facilitate the discovery, retrieval, and access to relevant literature, including journal articles, books, conference proceedings, and other types of publications.

PubMed: A Comprehensive Medical & Life Sciences Database

PubMed (https://pubmed.ncbi.nlm.nih.gov/) is a free literature database maintained by the **National Library of Medicine (NLM)** and the **National Center for Biotechnology Information (NCBI)**.

- PubMed is a free database comprised of 23 million citations as well as abstract.
- These citations are taken from Medline, life science, biomedicine ,behavioral sciences, chemical sciences, and bioengineering of journals and books
- PubMed is provided and maintain by the National Center for Biotechnology Information (NCBI), National Library of Medicine (NLM) and at the National Institutes of Health (NIH)
- A web-based retrieval system developed by NCBI (a part of Entrez retrieval system)
- PubMed also provides access to additional relevant web sites and links to the other NCBI molecular biology resources.

- A database of bibliographic information drawn primarily from the life sciences literature

- PubMed contains links to

  ➢ Full-text articles at participating publishers' Web sites

  ➢ Other third party sites such as libraries and sequencing centers

- Keywords search
  - Results match the exact terms
  - May miss alternative terms
  - Often result in more false hits
- Subject search
  - Results match the concept of that term
  - MeSH (PubMed)
  - Improve precision and save time
  - Good for well-defined topic
- Advanced search
  - And
  - Or
  - Not

Steps of Searching

Steps of Searching

1. Define your topic
2. Break the topic into individual concepts
3. Define words or phrases to describe the concept
4. Search each concept as separate set
5. Combining the search sets with AND, OR, NOT
6. Display and evaluate the results
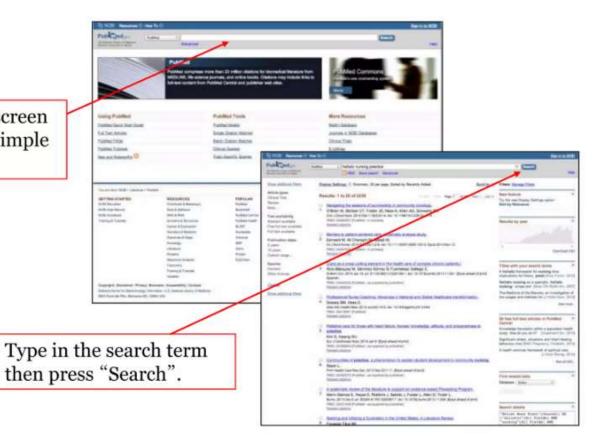7. Refine your search: limit or broaden

Tool

- My NCBI
- Clinical queries
- Advance Search
- Clipboard
- MeSH (Medical Subject Heading)database
- Journal database
- Single citation matcher

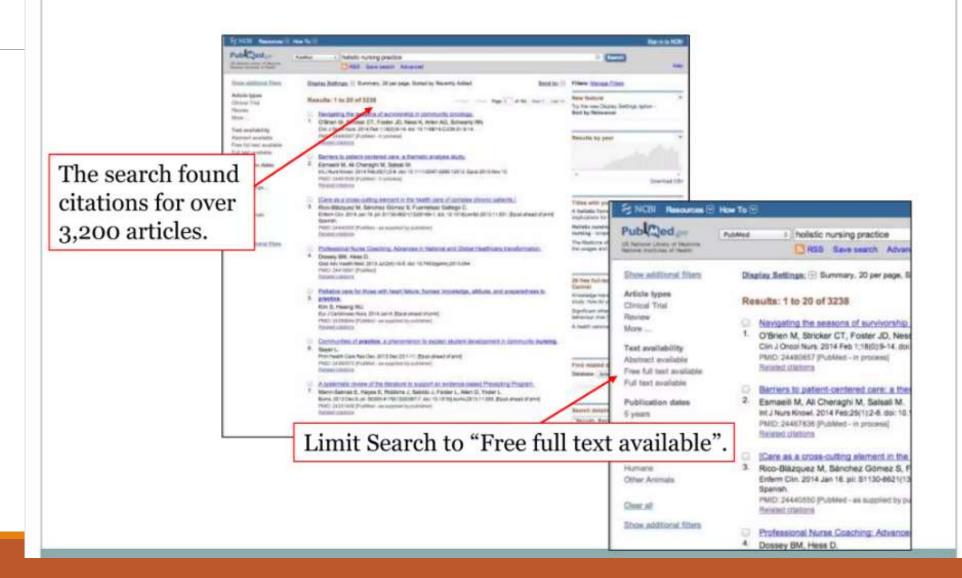# National Center for Biotechnology Information (NCBI)

- My NCBI is a free tool that retains user information and preferences to provide customized services. It allows you to save searches, select filtering options, and set up automatic searches that are sent by email.
- https://www.ncbi.nlm.nih.gov
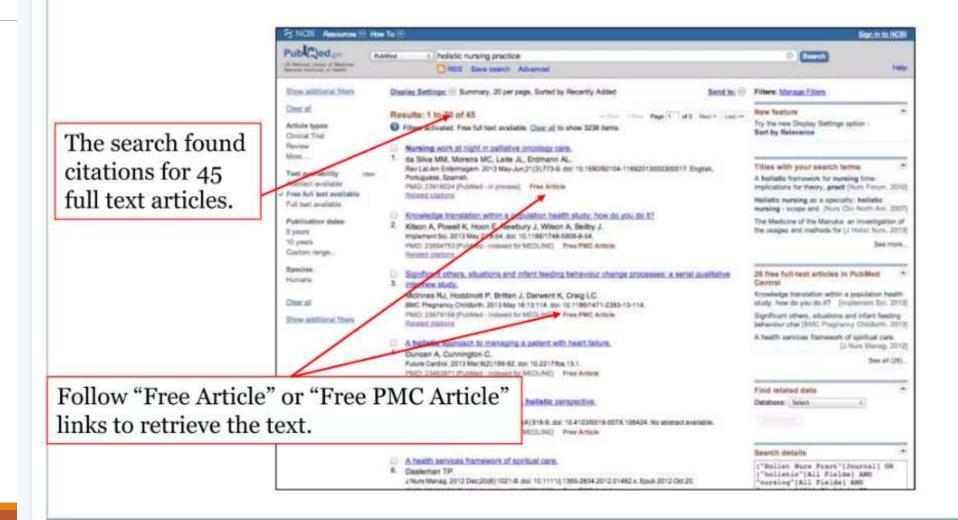
PubMed can be searched at http://www.pubmed.gov/

The initial screen presents a simple Search sox.

Type in the search term then press "Search".

Find All Full Text Available.

The search found citations for over 3,200 articles.

Limit Search to "Free full text available".

Results from Limited "Free full text available" Search.

The search found citations for 45 full text articles.

Follow "Free Article" or "Free PMC Article" links to retrieve the text.
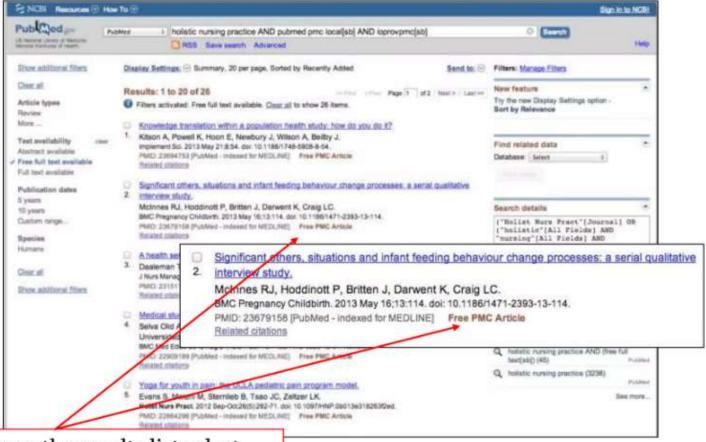
Find PMC Full Text Exclusively.

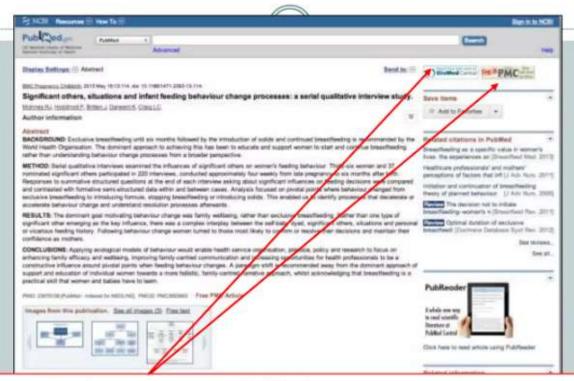PMC holds full-text to 25 articles on the results lists. Select this to view a results list of PMC full text articles.

Follow the "See All" link for this content.

PMC Results List

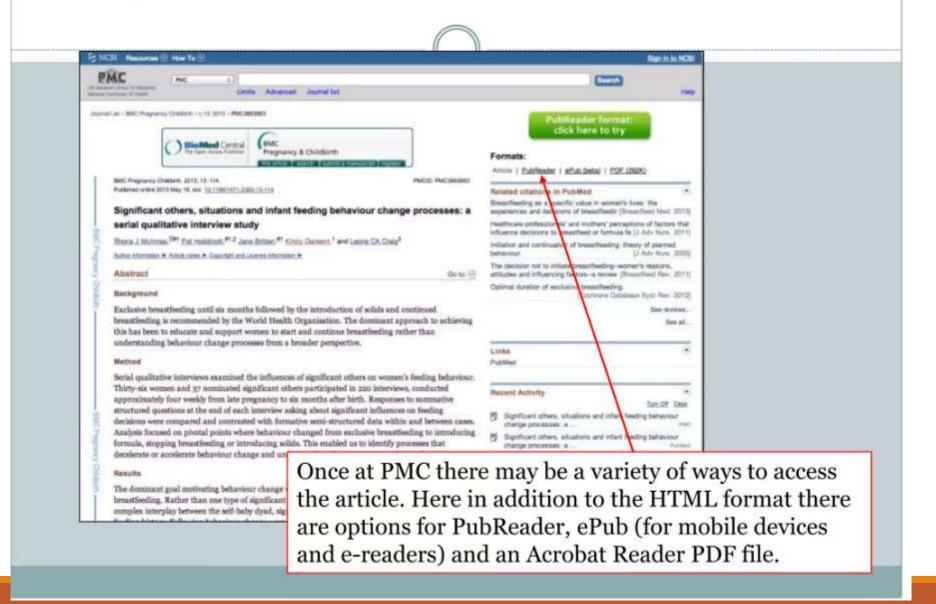From the results list select the "Free PMC Article" link.

PMC Citation Display

Following the "Free PMC Article" link returns an informational page.
The article citation and abstract (if available) screen appears.
To bring up the article from PMC select the Free in PMC button or to view
the article through BioMed Central select the BioMed Central button.

Viewing the Full Text

Once at PMC there may be a variety of ways to access the article. Here in addition to the HTML format there are options for PubReader, ePub (for mobile devices and e-readers) and an Acrobat Reader PDF file.

PubReader View

Excellent for reading on a tablet computer.

Acrobat Reader PDF View

Excellent for reading on a computer or print out.

LITDB

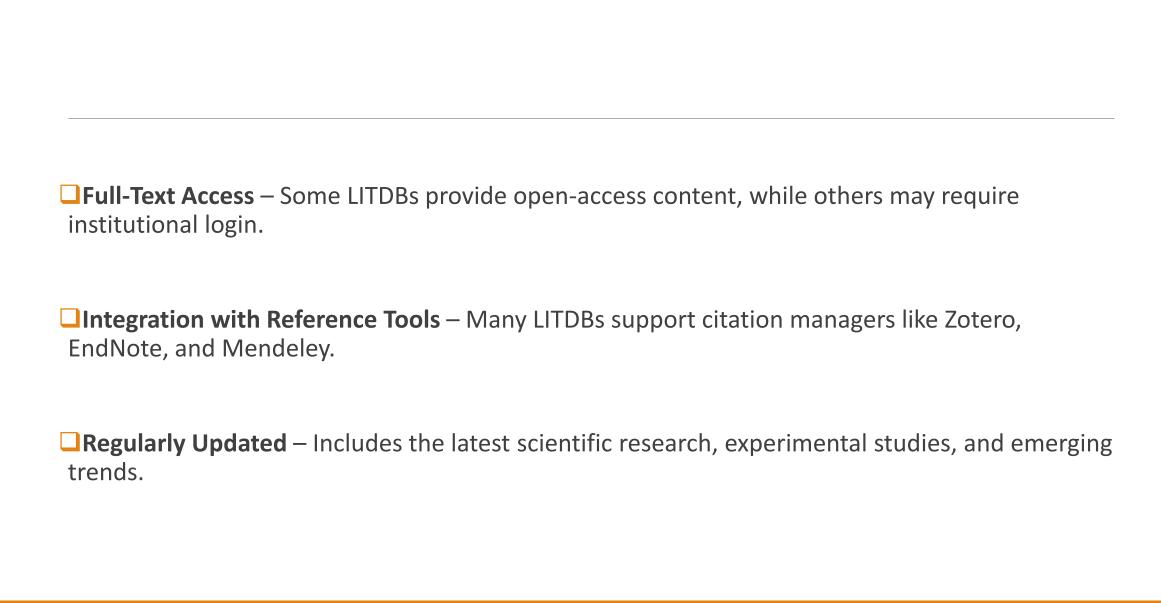**LITDB (Literature Database)** refers to a structured collection of research articles, books, conference proceedings, and patents related to specific scientific disciplines.

Unlike general academic databases, **LITDBs are often subject-specific**, providing curated content for targeted research areas like **agriculture, biotechnology, plant pathology, and life sciences**.

Features

❖**Subject-Specific Coverage** – LITDB databases focus on specialized fields, such as plant science, genomics, or molecular biology.

❖**Diverse Content Types** – Includes journal articles, conference papers, patents, technical reports, and government publications.

❖**Metadata & Advanced Search Filters** – Allows searches using keywords, author names, institutions, and publication years.

❑**Full-Text Access** – Some LITDBs provide open-access content, while others may require institutional login.

❑**Integration with Reference Tools** – Many LITDBs support citation managers like Zotero, EndNote, and Mendeley.

❑**Regularly Updated** – Includes the latest scientific research, experimental studies, and emerging trends.

Examples of Major LITDBs by Subject Area

Agriculture & Plant Sciences

☑ **AGRIS (International System for Agricultural Science and Technology)**

- Managed by the **FAO (Food and Agriculture Organization)**.

- Covers research in **crop diseases, plant breeding, soil science, and pest management**.

- 🔗 Website: https://agris.fao.org/

CAB Direct

- A global database for **agriculture, veterinary science, and environmental studies**.

- Contains peer-reviewed articles, conference papers, and technical reports.

- 🔗 Website: https://www.cabdirect.org/

✓ **Plant Disease Database**

- Published by the **American Phytopathological Society (APS)**.

- Covers research on **plant pathogens, resistance mechanisms, and disease management**.

- 🔗 Website: https://apsjournals.apsnet.org/

CIAT (International Center for Tropical Agriculture)

- Focuses on **sustainable agriculture, climate change, and food security**.

- 🔗 Website: https://ciat.cgiar.org/

Life Sciences & Biotechnology

NCBI Literature Databases

• Includes PubMed, GenBank, and PMC for **genomics, molecular biology, and bioinformatics**.

• 🔗 Website: https://www.ncbi.nlm.nih.gov/

✓ **EMBASE (Biomedical & Pharmacology Research)**

• A database for **medical, pharmacological, and toxicological studies**.

• 🔗 Website: https://www.embase.com/

GenBank (Genomic Research Database)

- Provides **genetic sequence data** for plant, animal, and microbial studies.

- 🔗 Website: https://www.ncbi.nlm.nih.gov/genbank/

☑ **bioRxiv (Preprint Server for Life Sciences)**

- Open-access repository for **unpublished manuscripts in biology and medicine**.

- 🔗 Website: https://www.biorxiv.org/

Multidisciplinary & Open Access Databases

CORE (Open-Access Research Aggregator)

• Provides free access to **millions of academic papers from institutional repositories**.

• 🔗 Website: https://core.ac.uk/

✅ **DOAJ (Directory of Open Access Journals)**

• Hosts over **18,000 open-access journals** in various disciplines.

• 🔗 Website: https://www.doaj.org/

PubMed Central (PMC)

- A free full-text archive of **biomedical and life sciences** literature.

- 🔗 Website: https://www.ncbi.nlm.nih.gov/pmc/

How to Search in LITDB?

Basic Search:

- Enter keywords related to your research (e.g., *"Late Blight resistance in potatoes"*).

- Use **Boolean operators (logical commands that help refine search results)** for refined results:
  - **AND** (e.g., *"Late Blight AND DNA markers"*) → Narrows search.
  - **OR** (e.g., *"Late Blight OR Phytophthora infestans"*) → Expands search.
  - **NOT** (e.g., *"Late Blight NOT Tomato"*) → Excludes unwanted terms.

Advanced Search Features:

•Use **filters** (publication year, study type, language).

•Search by **author, institution, or funding agency**.

•Some databases support **metadata search** (e.g., crop type, soil conditions).

⬍ **Finding Full-Text Papers:**

•Check **DOAJ, CORE, or PubMed Central** for free access.

•Look for **preprints in bioRxiv, ResearchGate, or institutional repositories**.

•If paywalled, check if your **university has access through a library login**.

Why Use LITDB?

☑ **Best for Subject-Specific Research** – Ideal for **plant science, genetics, agriculture, and environmental studies**.

☑ **Includes Technical Reports & Patents** – Unlike general databases, LITDBs often feature **government reports, field studies, and experimental data**.

☑ **Advanced Search Capabilities** – Supports **metadata filtering, subject classification, and dataset integration**.

☑ **Access to Cutting-Edge Research** – Many LITDBs index the **latest conference papers and preprints** before journal publication.

Feature	PubMed	LITDB (Literature Databases)
Scope	Focuses on biomedical, life sciences, and health research.	Covers specialized fields like agriculture, biotechnology, and plant pathology.
Source of Data	MEDLINE, PubMed Central (PMC), NCBI databases.	Varies by database (e.g., AGRIS, CAB Direct, CORE).
Access Type	Free & publicly available, but some articles are paywalled.	Some are free (DOAJ, CORE), while others require institutional access.
Types of Documents	Peer-reviewed journal articles, clinical trials, systematic reviews.	Journals, conference papers, patents, technical reports.
Search Features	Boolean operators, MeSH terms, filters by study type, journal, author.	Varies by database—some support advanced search, metadata tagging.
Citations & Abstracts	Provides abstracts, citations, and sometimes full-text articles.	Offers citations, abstracts, and full-text availability depending on the database.
Coverage & Updates	Continuously updated with new medical and life science research.	Frequency of updates depends on the database.
Use Case	Best for health sciences, genetics, molecular biology, and biotechnology research.	Best for subject-specific searches in agriculture, plant science, and open-access research.

Thank You
Any Doubts???