PubMed is the primary database for researchers in the fields of biochemistry, molecular biology, and related life sciences, containing records for over 20 million articles published in more than 5000 biomedical and biological journals worldwide. It contains all of MEDLINE (1966-present), OLDMEDLINE (1946-1965), in-process records (new citations not yet fully indexed) and some additional citations.

**BASIC SEARCH TECHNIQUES**
PubMed searching is easy: just enter terms in the search box and click **Search**. The Advanced Search link below the search box provides access to additional searching options.

**Keyword Searching**
Enter one or more keywords (e.g., molecular motors) in the search box and click **Search**. PubMed automatically combines (ANDs) significant terms together using automatic term mapping, matching your search terms with MeSH terms (Medical Subject Headings) to improve your search results.

*Example:* A search for heart attack retrieves articles containing heart attack in the title or abstract. It also retrieves articles containing myocardial infarction, the medical term for heart attack, in the title, abstract, or MeSH terms.

To search by keyword in **Advanced Search**, select **All Fields** from the Search Builder pulldown menu.

**Author Searching**
Enter the author’s last name first followed by initials without punctuation (e.g., koshland me). If only the last name is available, add the author search field tag [au] (e.g., yang [au]). To search by author name from the Advanced Search screen, choose **Author** from the Search Builder pulldown menu.

**Journal Title Searching**
Enter the full journal title (e.g., Current Biology), or use the MEDLINE title abbreviation (e.g., curr biol) in the search box. For single word journal titles use the **Journal Title** [ta] search field tag.

*Example:* Cell [ta]

In the search box, an author’s name or journal title can be combined along with subject terms.

*Examples:* thornor protein kinase curr biol protein kinase

If you only know part of a journal title, go to **Resources > Literature > Journals in NCBI Databases**. Enter the title word(s) and click **Search**. Select the journal using the check box, and click **Add to Search Builder**.

**Truncation (Wildcards)**
Use an asterisk (*) to replace zero to many characters at the end of a word.

*Example:* bacter* retrieves bacteria, bacterium, bacteriophage, etc.

**Important note:** Truncation turns off automatic term mapping; for this reason, truncation is not generally recommended.

**Combining Search Terms**
Use **AND**, **OR**, or **NOT** to combine terms or phrases. PubMed processes all searches in a left-to-right sequence. Use parentheses to specify the order in which PubMed processes your search terms.

*Example:* common cold AND (vitamin c OR zinc) searches for articles containing “common cold” and either “vitamin C” or “zinc”

**Related Articles**
View the full record for an article (Abstract or Summary view) and click on the **Related Citations** link to retrieve closely related citations, based on shared MeSH (Medical Subject Heading) terms.
Filters
Click on the Filters to the left of your search results to limit by article types (including review articles), publication date, language, and many more criteria; click Show additional filters to display all filters. Filters remain in effect until you uncheck them or click Clear All.
Important note: Filters other than language or date will exclude records in process.

Advanced Search
On the Advanced Search screen use the Search Builder to specify the exact fields for your search terms (author, affiliation, journal title, etc.). Or, add Search Fields as a filter, and then click Choose. You can also view and combine searches from the previous 8 hours in your search history.

VIEWING, PRINTING, SAVING, EMAILING AND EXPORTING
To select specific citations check the boxes to the left of each title. E-mail, save as a text file, download to a citation manager, or add to the Clipboard by clicking on the Send to: menu. To view Clipboard items, click on the Clipboard icon (top right corner). Up to 500 items can be stored on the Clipboard for up to 8 hours.

Summary Display:
The default Summary display includes basic citation information, related citations, and PMID (PubMed Identifier).
Important note: Summary display does not show links to full text. Change the display under the Display settings menu.

Finding Full Text: Abstract Display
Shows full-text links, abstract, MeSH terms, citation information, related citations, and PMID. Click on the icon for links to full text (if available), to print copies in OskiCat and Melvyl, and to Request items UCB doesn’t own.

Other Displays:
XML shows XML markup format. PMID List shows a list of all the PMIDs.

ADVANCED SEARCHING TECHNIQUES
Single Citation Matcher
To find a specific citation, on the main entry page of PubMed go to PubMed Tools > Single Citation Matcher.

Field Tags
Specify the fields to search for your terms; see ncbi.nlm.nih.gov/books/NBK3827/#pubmedhelp.Search_Field_Descrip
searches for DNA as a MeSH term, Crick as author, and 1993 as publication date

Frequently Used Field Tags:
Affiliation [ad]
Author [au]
Journal Title Abbreviation [ta]
MeSH Terms [mh]
Subset [sb]
  Complementary and Alternative Medicine: cam [sb]
  History of Medicine: history [sb]
  Toxicology: tox [sb]

You can also use Advanced Search > Search Builder to specify specific fields for your search terms.

MeSH [mh] or [majr]
NLM’s Medical Subject Headings are terms that describe the subject of each journal article indexed in MEDLINE. [mh] retrieves all articles indexed with a term; [majr] retrieves all articles for which the term has been marked as a major subject.
Example: asthma [majr] AND child [mh] AND english [la]

Important note: Searching on MeSH terms will exclude “records in process,” as they have not yet been indexed with MeSH.

Explode Feature
Searching on MeSH terms automatically includes all terms that are are logical subsets of that term. For example, vision disorders includes blindness. To turn off automatic explosion, use the tag [mh:noexp].

MeSH Database
To look up official MeSH terms, view hierarchical relationships to other subject headings and subheadings, and incorporate them in your PubMed search, access the MeSH database from the pulldown menu to the left of the search box.

Online library guides to PubMed:
PubMed Tips and Tricks: http://guides.lib.berkeley.edu/publichealth/pubmed
PubMed: More Search Tips: http://guides.lib.berkeley.edu/pubmed-more-search-tips