PubMed - Beyond the Basics

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Objective:
- To become a more knowledgeable and efficient PubMed searcher.

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1. **How do I find articles from the journal Oncogene?**

PubMed provides at least five different ways to search for a journal by name. When you are sure of the name of the journal, the two methods that follow are the simplest:

1. If you are looking for the journal Oncogene, for example, enter oncogene [jour] on the command line, then click Go.

![PubMed search interface](image)

2. You can also use PubMed’s *Single Citation Matcher* listed in the *PubMed Services* section of the side bar.

![PubMed services](image)

3. In the *Single Citation Matcher*, enter the name of the journal.

   Then click the *Search* button.

![Single Citation Matcher interface](image)
Why can’t I just enter oncogene and click Go? This works for the Journal of Clinical Oncology.

When you enter a term in PubMed without specifying where in the record you want PubMed to search the term, PubMed follows a set sequence of steps to find results.

PubMed first looks for the term as a Medical Subject Heading (MeSH). If it finds a match, it stops looking and searches the term as a subject heading.

If PubMed does not find the term as a subject heading, it then looks for it as a journal name.

Journals with names that are also subject headings (e.g., Oncogene, Cell, Pain, Cerebral Cortex) require the [jour] when searching in PubMed.
2. How can I find a journal when I’m not sure of the exact name?

1. Use PubMed’s Journals Database, which is listed in the PubMed Services section of the sidebar.

2. If the journal name contains the words *international* and *cancer*, for example, enter these words on the command line and click Go.

   (A) PubMed will return a display of possible titles in a numbered list.

   (B) Additional candidate titles will be grouped horizontally just below the command line.
3. To retrieve the records in PubMed for a specific journal:

(A) Click on the word *Links* for the title desired.

(B) Select PubMed from the list that pops up.

All of the results will be from the desired journal:
3. How can I quickly find some relevant articles when I don’t need to be comprehensive?

In the biomedical and scientific literature, one method that can work well is to search your terms in the titles of articles.

For this example, find articles that discuss the SARS outbreak in Hong Kong, Taiwan, or Singapore.

1. Go to the **Limits** area of PubMed and enter *sars* on the command line.
2. Pull down the arrow for the option that reads *All Fields* and change it to *Title*.
3. Click **Go**.

4. Enter *hong kong OR taiwan OR singapore* on the command line. You should see that **Limits** remain set from the previous search so these terms will also be searched in the titles of articles. Click **Go**.
5. Click on History in the Features Bar and then use the Clear button to remove the previous search terms from the command line. (You can leave or remove the checkmark for the Limits set. For this search it will not make a difference.)

6. On the command line, enter the search history numbers for these two searches separated by AND.

7. Click either Preview or Go.

All of the results will contain SARS and either Hong Kong, Taiwan, or Singapore in the title.
4. How can I look up subject headings to use when searching?

1. Use PubMed's **MeSH Database**, which is listed in the **PubMed Services** section of the sidebar.

   MeSH stands for Medical Subject Headings. Subject headings are terms added to database records to describe the contents of the original documents by someone who has read the documents.

2. On the MeSH Database screen, enter words that describe your topic, (e.g., *antitumor assays* if interested in antitumor assays for drug screening) and click Go.

   (A) PubMed will return a display of possible subject headings in a numbered list.
   (B) Additional possibilities will be grouped horizontally just below the command line.

3. To retrieve the records for a specific subject heading:
   (A) Click on the word **Links** for the term desired.
   (B) Select PubMed from the list that pops up.
All of the records retrieved will contain the subject heading searched or one of its subtypes (a narrower term).

To view the subject headings, display the records in the Citation format.

**Pyrocoll**, an antibiotic, antiparasitic and antitumor compound produced by a novel alkaliphilic Streptomyces strain.

Dietera A, Hamm A, Fiedler HP, Goodfellow M, Muller WE, Brun R, Beil W, Bringmann G.

MeSH Terms:
- Animal
- Antibiotics, Antineoplastic/chemistry
- Antiprotozoal Agents/pharmacology
- Chromatography, Gel
- Chromatography, High Pressure Liquid
- Drug Screening Assays, Antitumor
- Fermentation
- Hela Cells
5. I'm looking for a general review article on leukemia. How can I do this in PubMed?

1. Use the MeSH Database to find the subject heading for leukemia.

Select MeSH Database from the PubMed Services section in the side bar, enter leukemia on the command line, and click Go.

2. In the results, click on the term Leukemia.

3. On the display that follows, check the box for Do Not Explode this term

When a subject heading is searched as an exploded term all subtypes are automatically searched as well. For leukemia, this includes many variations of the disease such as Acute L2 Lymphocytic Leukemia and Chronic Myelomonocytic Leukemia. Choosing Do Not Explode retrieves only records containing the broad term leukemia.
4. Toward the top of the display, make sure the window next to the Send To button reads Search Box with AND, then click Send To.

5. You should now see a new window that contains "Leukemia"[MeSH:NoExp]. Click the Search PubMed button beneath this window.

6. Once the results finish displaying, click the word Limits, beneath the command line.
7. On the Limits page, select English for Languages, Review for Publication Types, and enter how far back in time (e.g., 2003) you wish to search in the first blank for Publication Date. Then click Go.

All of the results will contain the broad term leukemia (and omit records that only discuss specific types of leukemia), be classified as a review article, and have a recent publication date.

6. **There is so much published on breast cancer. How can I find just the therapy-related articles?**

Use the *MeSH Database* to find the subject heading for breast cancer.

1. Select *MeSH Database* from the *PubMed Services* section on the side bar.

2. Enter *breast cancer* on the command line, and click Go.

3. Once the results display, click on the term *Breast Neoplasms*. (This is the correct Medical Subject Heading to use.)

The display of information for Breast Neoplasms provides several options for modifying the way PubMed searches the term:

- **Subheading Checkboxes.** Use these to select specific aspects or characteristics of the topic that are of interest to you (e.g. therapy-related articles).

- **Restrict Search to Major Topic headings only Checkbox.** Within each MEDLINE record, usually from three-to-five subject heading terms are marked with an asterisk following the term. This indicates these terms represent key ideas or major themes of the original article. When you select the checkbox *Restrict Search to Major Topic headings only*, you are telling PubMed to find my term but only where the term is followed by an asterisk.

- **Do Not Explode this term Checkbox.** Exploding the term means that you want to search this term and all of its subtypes (narrower terms). With respect to breast neoplasms, the narrower terms are: 1) *Breast Neoplasms, Male*; 2) *Mammary Neoplasms*; 3) *Mammary Neoplasms, Experimental*, and 4) *Phyllodes Tumor*. 

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4. Check the boxes for the desired therapy-related subheadings. If you wish to know more about any of these, click the word Subheadings and you will go to an alphabetical list of all the subheadings used in MEDLINE with a short description for each.

5. Toward the top of the display, make sure the window next to the Send To button reads Search Box, then click Send To.

6. You should now see a new window that contains Breast Neoplasms followed by each of the different subheadings selected. Click the Search PubMed button beneath this window.
7. PubMed always seems to find a lot of information. How can I be more precise in my searching?

PubMed's Default Search Mode

When you type terms into the PubMed command line and click Go, the search system works hard to find records for you that may be of interest. To do this, it takes the terms entered and passes them through a set sequence of processing steps. PubMed refers to this as term mapping.

In the first processing step, PubMed takes your term and tries to map it to a Medical Subject Heading (MeSH term). If it is successful, PubMed retrieves all of the records containing this subject heading and all of the records containing your term in the title or abstract portions of the records.

This default mode of searching by PubMed emphasizes comprehensiveness in retrieving results.

Increasing Precision

One way to increase the precision of your PubMed searches is to identify records containing your term as a subject heading without also searching for it in the abstracts of records.

In addition, you can choose to identify only those records where the subject heading is marked as being a key idea or major theme of the article. In PubMed this is called searching your term as a major topic or a major subject heading.

For this example, find PubMed records discussing the use of taxol for breast cancer where both topics appear as major ideas of the articles.

1. To find PubMed records where both breast cancer and taxol appear as major ideas, connect to PubMed and select MeSH Database from the side bar.
2. Enter *breast cancer* on the command line and click *Go*.

3. From the list of possible subject headings returned, click on *Breast Neoplasms*.

4. On the next display, check the box for *Restrict Search to Major Topic headings only*.

5. Toward the top of the display, make sure the window next to the *Send To* button reads *Search Box with AND*, then click *Send To*.

- If making selections (e.g., Subheadings, etc.), use the *Send to Search Box* with those specifications.
- Select PubMed under the Links menu to retrieve all records for the 1
- Select *NLM MeSH Browser* under the Links menu for additional info

✓ 1: Breast Neoplasms
Tumors or cancer of the breast.

Subheadings:
- analysis
- blood
- blood supply
- cerebrospinal fluid
- chemotherapy
- classification
- complications
- congenital
- diagnosis
- disease
- embryology
- enzymology
- epidemiology
- etymology
- etc.
6. You should now see a new window that contains “Breast Neoplasms” [MAJR]. Enter taxol on the command line and click Go.

7. In the results, click on the subject heading returned – Paclitaxel.

8. As you did with Breast Neoplasms:

   (A) Check the box for paclitaxel that says Restrict Search to Major Topic headings only.

   (B) Make sure the window next to the Send To button reads Search Box with AND, then click Send To.
9. The window should now contain both of your search terms connected by **AND**. Click the **Search PubMed** button.

All of the results will contain both terms as major subject headings. For this search, the number of results is about half of what is found using PubMed’s default search mode.

| 1: Tagaya N, Nakagawa A, Okada T, Hamada K, Mikami H, Ito S, Kubota K | Related Articles, Links |

| 2: Vassilomanolakis M, Koumakis G, Demiri M, Misztis J, Barbounis V, Efremidis AP | Related Articles, Links |

| Combined trastuzumab and paclitaxel treatment better inhibits ErbB-2-mediated angiogenesis in breast carcinoma through a more effective inhibition of Akt than either treatment alone. Cancer. 2003 Oct 1;98(7):1377-85. PMID: 14508823 [PubMed - indexed for MEDLINE] |

| 4: Bugdar AU, Hortobagyi GN | Related Articles, Links |
8. I'm looking for articles discussing phase I or phase II clinical trials for osteosarcoma?

1. Select *Preview/Index* on the Features Bar

2. Uncheck the box for *Limits* if any are set from previous searches and click the *Clear* button to remove any search terms in the search blank.

3. Display the options for *All Fields* and select *MeSH Terms*.

4. In the blank next to *MeSH Terms*, enter osteosarcoma and click the *Index* button

5. In the window that opens, select *osteosarcoma* then click the *AND* button.
6. Now change the setting from MeSH Terms to Publication Type, and click the Index button.

7. In the selection window, select clinical trial, phase i and clinical trial, phase ii. (Hold down the control key while selecting additional titles.)

8. Click the AND button to move clinical trial, phase i and clinical trial, phase ii to the search blank and click GO.
9. How can I limit my search results to just the items available in full text?

Introduction

There are two ways that full text items can be available to you in PubMed at no cost:

1. **PubMed Central.** Publishers who choose to provide free access to a journal can participate in *PubMed Central*, the National Library of Medicine’s digital archive. To preserve subscription revenues, some publishers choose to restrict access to articles from a journal until a certain time period has elapsed (e.g., twelve or twenty-four months).

   When viewing search results in the *Summary* format (PubMed’s default), items available in *PubMed Central* will display this icon. Clicking on the icon or authors’ names takes you to the *Abstract* format for this item.

   In the *Abstract* format, another icon will display indicating the item is available through *PubMed Central*. Clicking on this icon leads you to the complete article.

2. **LinkOut.** The *LinkOut* program enables libraries to display an icon in the *Abstract* format of PubMed records when the article is available through the library’s online subscriptions. Clicking on the icon leads to the complete article.

Getting the Full Text

To help users more easily recognize when full text items are available to them, the Research Medical Library displays the M. D. Anderson logo in *PubMed Central* items as well as the journals available for *LinkOut* that are part of our online subscriptions.

The code that identifies all of the records in PubMed containing the M. D. Anderson logo is *loprovmdacclib [sb]*. This code can be used at any stage of your search to identify items within a set of search results that are available as complete articles.

1. Connect to PubMed using the link at the top of the *Databases* page of the Library’s website.

   To “turn on” the display of the M. D. Anderson logo in PubMed records it is necessary to connect using a specific Internet address. This web address is coded into the *Login Here* icon for PubMed on the *Databases* page.
2. Enter the code on the command line and click Go. (The number returned equals the total number of full text articles available to you through PubMed.)

3. Complete your search as usual. For this example, find records for articles in English that discuss zinc AND cancer.

4. Click the History link on the Features Bar.

5. In the History area, enter the numbers from the Search column on the command line to find the subset of zinc AND cancer records available in full text.

6. After entering the Search numbers, use Go to begin looking at records. Remember, records must be displayed in the Abstract format to see the M. D. Anderson logo.
10. What is the PubMed Cubby? How do I register?

The *Cubby* is a “personal space” on the *PubMed* server that enables users to customize the way *PubMed* works for them and to take advantage of certain features on an individual basis.

Currently, the *Cubby* has three functions:

1. The *Cubby* enables you to store search strategies and run them anytime you wish. *PubMed* will identify records added to the database since the last time you ran the search. This is a simple way to stay abreast of new information on a particular topic.

2. *PubMed’s LinkOut* feature enables users to link to complete articles from a set of search results. If you have access to print and online resources from more than one library, the *Cubby* enables you to set LinkOut preferences so that icons from all of the libraries display in the search results.

3. If you create an account with a nearby library for document delivery services using the National Library of Medicine’s Loansome Doc program, you can use the *Cubby* to store preferences on how to handle your requests.

1. To register for the *Cubby*, select it in the *PubMed Services* section of the side bar.

2. On the display that follows, click the word *Register*.
3. Complete the form and click the *Register* button.

You are now registered and able to use the *Cubby*. The *Cubby Resources* section in the side bar lists the options available.

You may create as many *Cubby* accounts as you wish and each can store up to 100 searches.

Once logged-in to the *Cubby* you stay logged in for 12 hours unless you choose the *Log Out* option.
11. How do I store a search in the Cubby?

1. Connect to PubMed and enter your search terms.

   Stored searches should not contain search history numbers (e.g., #3 AND #4) or date ranges as part of the search strategy.

2. For this example, search dna repair AND cancer and limit the search to English language items.

3. Click Cubby in the PubMed Services section of the side bar and login to the Cubby.

4. In the center of next the page, you should see (A) your search terms and any limits you placed followed by (B) the default name PubMed created for your search. You may edit this name if you wish.

   When you are ready to save the search strategy, (C) click the Store in Cubby button.
5. In the stored search area, you should now see the name of the newly stored search followed by today's date and time.

<table>
<thead>
<tr>
<th>Search</th>
<th>Cubby Search Name</th>
<th>Date and Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>dna repair AND cancer</td>
<td>01-Nov-2003 11:28:19</td>
</tr>
<tr>
<td>1</td>
<td>gleevec</td>
<td>29-Oct-2003 10:03:58</td>
</tr>
</tbody>
</table>

You may store as many as 100 searches in a Cubby account and you may create as many accounts as you need.

6. To exit the Cubby, click Log Out at the bottom of the side bar.
12. How do I run a search stored in the Cubby?

1. Connect to *PubMed* and click *Cubby* on the *PubMed Services* section of the side bar.

   Login to the *Cubby* by entering your *User Name* and *Password* in the blanks provided.

2. In the list of stored searches, *(A)* check the box for any you wish to run and *(B)* click the *What’s New for Selected* button.

3. Once the search is run, click the link for the number of new items to view these records.

4. To view the information stored in the *Cubby* about a search, including the strategy, any limits that were set, and the last time the search was run, click on the search name.
5. An example of the information you will see is below.

If you ever wish to run a search without changing the last date it was run, click the *Search* button on this display of stored information.

The search strategy will be run in the complete *PubMed* database rather than just the portion of *PubMed* that is new since the last time the search was run from the *Cubby*.

- Click Search to run this search without updating it.

Name: **gleevec**
Database: **PubMed**
Search: **gleevec OR sti571 OR sti-571**
Limits: **English**