

PubMed Help

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PubMed lets you search more than 15 million bibliographic citations and abstracts in the fields of medicine, nursing, dentistry, veterinary medicine, the health care system, and preclinical sciences. It provides access to MEDLINE® and to articles in selected life sciences journals not included in MEDLINE.

PubMed is a free resource. It was developed and maintained by the National Center for Biotechnology Information (NCBI) at the National Library of Medicine (NLM) located at the National Institutes of Health.

For a brief overview of searching PubMed, see the PubMed Quick Start section.

This PubMed Help book was prepared by the NCBI [<http://www.ncbi.nlm.nih.gov>].

PubMed Quick Start

This guide quickly shows you how to search PubMed. The question and answer approach addresses common questions about searching PubMed.

Section Contents

- How do I search PubMed?



[<http://www.nlm.nih.gov/bsd/viewlet/search/subject/subject.swf>]

- How do I search by author?



[<http://www.nlm.nih.gov/bsd/viewlet/search/author/author.swf>]

- How do I search by journal name?
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How do I search PubMed? [\[http://www.nlm.nih.gov/bsd/viewlet/search/subject/subject.swf\]](http://www.nlm.nih.gov/bsd/viewlet/search/subject/subject.swf)

1. Identify the key concepts for your search.

	Example
What role does pain have in sleep disorders? The key concepts are: pain sleep disorders	

2. Enter the terms (or key concepts) in the search box.
3. Click Go. Click here to run this search in PubMed.

How do I search by author? [\[http://www.nlm.nih.gov/bsd/viewlet/search/author/author.swf\]](http://www.nlm.nih.gov/bsd/viewlet/search/author/author.swf)

Enter the author's last name plus initials without punctuation in the search box and click Go.

	Example
Watson JD Lederberg J	

If you only know the author's last name, use the author search field tag [au], e.g., brody[au].

	Example
To search for citations to articles written by Bonnie Ramsey about gene therapy for cystic fibrosis patients enter the following search terms into the search box: cystic fibrosis gene therapy ramsey bw	

Full author names may be searched for citations published from 2002 forward if the full author name is available in the article.

Example

Joshua Lederberg
Garcia Algar, Oscar

How do I search by journal name?

1. Enter the journal name or MEDLINE abbreviation in the search box.
2. Add any additional search terms.
3. Click Go.

Example

To search for citations to articles about drosophila in the journal Molecular Biology of the Cell enter the following in the search box:
molecular biology of the cell drosophila

How do I find a specific citation? I have some information such as the author, journal name and the year the article was published.

Use the Single Citation Matcher to find citations with a fill-in-the-blank format:

1. Click Single Citation Matcher from the PubMed sidebar.
2. Enter the information you have in the fill-in-the-blank boxes.
3. Click Go.

Is there anything special for clinical searches?

From the Clinical Queries page you can search by a clinical study category, find systematic reviews and run medical genetics searches.

Clinical study category

The Clinical Study Categories use built-in search filters that will limit retrieval to citations to articles reporting research conducted with specific methodologies, including those that report applied clinical research. To find citations for a specific clinical study category:

1. Click Clinical Queries from the PubMed sidebar.
2. Click Search by Clinical Study Category.
3. Enter your search terms in the search box.
4. Select a category: therapy, diagnosis, etiology, or prognosis.
5. Select a scope: narrow, specific search or broad, sensitive search.

6. Click Go.

Example

If you are researching the clinical aspect of gene therapy for cystic fibrosis, from the Clinical Queries page, select the category “therapy” and the Scope “narrow, specific search” and enter the following search terms in the search box:
cystic fibrosis gene therapy

How do I find systematic reviews or medical genetic searches?

In PubMed, Systematic Reviews cover a broad set of articles that build consensus on biomedical topics and Medical Genetics Searches find citations related to topics in medical genetics.

1. Click Clinical Queries from the PubMed sidebar.
2. Select either Find Systematic Reviews or Medical Genetics Searches.
3. Enter search terms in the search box.
4. For Medical Genetics Searches, change the search categories, if applicable.
5. Click Go.

Example

If you are researching systematic reviews on inhalation therapy for pneumonia from the Clinical Queries page click Systematic Reviews and enter the following search terms in the search box:
inhalation therapy pneumonia

Example

To find information on sickle cell anemia and genetic counseling from the Clinical Queries page click Medical Genetic Search, click the All checkbox to deselect all the categories and click the Genetic Counseling checkbox. Enter the following search terms in the search box:
sickle cell anemia

Can you explain the search results?

PubMed search results are displayed in a summary format, see the Anatomy of Search Results Page below.

Citations are initially displayed 20 per page with the most recently entered citations displayed first.

You can mouse over a journal’s title abbreviation to display the full journal name.



How do I display an abstract?

Click on the authors' names in a citation to see the abstract if it is available.

How can I get a copy of the article?

PubMed search results do not include an electronic copy of the journal article. However, the abstract display of PubMed citations may provide links to electronic copies from non-PubMed sources, such as directly from the publisher's Web site.

These electronic journals may require a subscription (which you may access through your local medical library). Sometimes electronic journals have free access. Visit your local medical library if there is not an electronic copy available.

For more information on obtaining the article, see [How to get the Journal Article](#).

How can I save my results?

There are several ways to save PubMed search results including using the Clipboard to save citations temporarily.

1. Click the check box to the left of the citations you want to save.
2. From the Send to pull-down menu, select Clipboard.
3. To view your selections, click Clipboard from the Feature tabs.

For additional information see [Saving Citations Temporarily using the Clipboard](#)

For other save options, see:

- [Saving Your Search & Automatic E-mail Updates](#)
- [Creating a URL to Bookmark Your Search](#)
- [Saving Citations as a Text File](#)
- [Exporting Citations into a Reference Management Program](#)

I retrieved too many citations. How can I focus my search?

To limit the number of search results:

- Replace general search terms with more specific ones (e.g., use low back pain instead of back pain).
- Add more search terms.

- Use PubMed's Limits feature to restrict citations by age group, language, publication type, date, human studies, etc.
- The tool symbol  to the right of the filter tabs links you to My NCBI where you can change your filter selections.

Example

If the search pain sleep disorders retrieves too many citations consider adding more specific search terms to focus your results such as facial pain sleep disorders.

I retrieved too few citations. How can I expand my search?

- Click the Related Articles link next to a relevant citation. The link displays a pre-calculated set of PubMed citations closely related to the selected article.
- Remove extraneous or specific terms from the search box.
- Try using alternative terms to describe the concepts you are searching.

Example

If your search, facial pain sleep disorders, retrieves too few citations consider removing search terms to broaden the search and retrieve more citations such as, pain sleep disorders.

I'm not finding what I need. How does a PubMed search work?

PubMed may modify your search terms to enhance your retrieval. Sometimes these changes may not match what you have in mind.

To see how PubMed modified your search, click Details from the Feature Tabs. You can edit your search in Details.

For additional information, see [How PubMed works: Automatic Term Mapping](#).

Example

If you search for cystic fibrosis by its abbreviation cf the cf search retrieves some citations that do not discuss cystic fibrosis. To see why PubMed retrieved these citations, click Details to see that PubMed translated cf to search for citations about cerebrospinal fluid or cf.

Further assistance and training

Contacting customer support

- E-mail the PubMed pubmednew@ncbi.nlm.nih.gov

- Call the NLM Customer service desk: 1-888-FIND-NLM (1-888-346-3656)
 - Monday - Friday from 8:30 a.m.-8:45 p.m. EST
 - Saturday from 9:00 a.m.-5:00 p.m. EST

Other NLM publications

- Online PubMed Tutorial [http://www.nlm.nih.gov/bsd/pubmed_tutorial/m1001.html]
- Distance Education Resources [http://www.nlm.nih.gov/bsd/dist_edu.html]
- NLM PubMed Training Manuals [http://www.nlm.nih.gov/pubs/web_based.html]
- NLM Technical Bulletin [<http://www.nlm.nih.gov/pubs/techbull/tb.html>]

Searching PubMed

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A basic search [\[http://www.nlm.nih.gov/bsd/viewlet/search/subject/subject.swf\]](http://www.nlm.nih.gov/bsd/viewlet/search/subject/subject.swf)

1. Identify the key concepts in your research question.

Example

Find citations about bronchodilators for treating asthma in children.

The key concepts are bronchodilators, asthma and children

2. Enter the significant terms into the search box.
3. Press the Enter key or click Go.

To modify your current search, change your search terms in the search box or in Details.

Additional search options are available in the Features bar, located directly beneath the search box.

Searching by author [\[http://www.nlm.nih.gov/bsd/viewlet/search/author/author.swf\]](http://www.nlm.nih.gov/bsd/viewlet/search/author/author.swf)

Enter the author's name in the format of last name followed by initials. Omit punctuation.

Examples

smith ja
jones k

More information about author searching:

- Author names are automatically truncated to account for varying initials and designations such as Jr. To turn off the truncation, use double quotes around the author's name with the author search field tag [au], e.g., "smith j" [au].
- Use the [au] search tag if the author name is also a subject term, e.g., moran a [au]. If you do not use the [au] search tag, moran a will search as "moran A"[Substance Name] OR moran a [Text Word].
- If only the author's last name is entered, tag the name search with the author search field [au], to find the name in the author field only.

Example

woods [au]

Full author names may be searched for citations published from 2002 forward if the full author name is available in the article. Enter a full author name in natural or inverted order, e.g., julia s wong or wong julia s.

Example

Joshua Lederberg
Garcia Algar, Oscar**More information about full author searching:**

- A comma following the last name for searching is optional. For some names, however, it is necessary to distinguish which name is the last name by using the comma following the last name, e.g., james, ryan.
- Omit periods after initials and put all suffixes at the end, e.g., vollmer charles jr
- Initials and suffixes are not required, if you include a middle initial or suffix, you will only retrieve citations for articles that were published using the middle initial or suffix.
- To distinguish author initials that may match a full author name use the [fau] search tag, e.g., peterson do[fau].

Searching by journal title

Enter in the search box one of the following:

- full journal title (e.g., molecular biology of the cell)
- MEDLINE abbreviation (e.g., mol biol cell)
- ISSN number, a standardized international code (e.g., 1059-1524)

Example

new england journal of medicine

To find full journal names, use the Journals database.

1. Click Journals Database on the PubMed sidebar.
2. Enter the journal name and click Go.
3. Check the Suggestions if the journal name does not display in the results.
4. Choose PubMed under the Links menu to search for the journal.

More information about journal searching:

- Use the Single Citation Matcher which includes a journal autocomplete feature.
- If a journal title is also a MeSH term (e.g., *Gene Therapy*, *Science*, or *Cell*), PubMed will search the untagged term as MeSH. Tag the journal title by using the Journal Title search field [ta] to search for the journal (e.g., gene therapy[ta]).
- If a journal title is a single word, tag the title using the Journal Title search field (e.g., scanning [ta]). Otherwise, PubMed will search the untagged single word journal title as a MeSH term (if applicable) or as All Fields.
- Searching with the full journal title or MEDLINE abbreviation is recommended for complete retrieval of indexed items; older citations may not have an ISSN.
- If a journal title or title abbreviation includes a special character (e.g., parentheses, brackets, &), enter the title or abbreviation without the special characters. For example, to search j hand surg [am], enter j hand surg am.
- A list of all journals [/entrez/getids_help.html#JournalLists] that are included in the PubMed database is available by FTP in the Uncompressed, GNU Zip, UNIX Compress, or PKZIP format.

Searching by date

1. Click Limits on the Features bar.
2. Enter a single date or a date range in the Publication Date fill-in-the-blank boxes. Month and day are optional. If you want to search for a date range up to the current date, leave the To date boxes blank. If you want to search by Entrez date, the date that a citation was entered into PubMed, make the selection from the Publication Date pull-down menu.
3. Add additional search terms into the search box, if desired. Click Go.

When you start a new search, turn off the Date limit by clicking the Limits check box on the Features bar.

More information about date searching:

Searching by a single date in the search box

Enter dates using the format yyyy/mm/dd [date field]. There is a selection of date fields to use:

- Date of Publication [dp]
- Entrez Date [edat] - The date the citation first entered PubMed.
- MeSH Date [mhda] - The date the citation was indexed with MeSH terms.

The month and day are optional.

Example

```
1997/10/06 [edat]
1998/03/15 [dp]
1997 [edat]
1997/03 [dp]
```

Example

Searching for a date range in the search box

Enter date ranges using a colon (:) between each date followed by a [date field].

Example

1993:1995 [dp]
1997/01:1997/06 [edat]

Comprehensive searches for a full year should be entered as 2000:2000[dp] rather than 2000 [dp] to retrieve citations with a different print and electronic year of publication.

Limit your searches (Limits)

You can limit your search by age group, gender, humans or animals studies, languages, publication types, dates, and by other parameters.

1. Click Limits on the Features bar.
2. Choose your limit selections from the pull-down menus.
3. If necessary, make changes to the search terms in the search box or enter a new search.
4. Click Go. Your selected limits will be displayed and highlighted in yellow.

A check will appear next to limits on the Features bar and your selected limits will be activated for any subsequent searches. To turn off limits click off the Limits check box.

Limit parameter details

Ages

The age group limits restrict your search to a specific age group for a human study, and include:

- All Infant: birth-23 months
- All Child: 0-18 years
- All Adult:19+ years
- Newborn: birth-1 month
- Infant: 1-23 months
- Preschool Child: 2-5 years
- Child: 6-12 years
- Adolescent: 13-18 years
- Adult: 19-44 years
- Middle Aged: 45-64 years

- Middle Aged + Aged: 45+ years
- Aged: 65+ years
- 80 and over: 80+ years

With this limit, PubMed retrieval will be limited to MEDLINE citations. The "in process" and "supplied by publisher" citations will be excluded because they have not yet completed the indexing process and do not carry these data.

Gender

The gender limit restricts your search to a specific gender for a human study.

With this limit, PubMed retrieval will be limited to MEDLINE citations. The "in process" and "supplied by publisher" citations will be excluded because they have not yet completed the indexing process and do not carry these data.

Humans or Animals

The Humans or Animals limit restricts your search to a human or animal study.

With this limit, PubMed retrieval will be limited to MEDLINE citations. The "in process" and "supplied by publisher" citations will be excluded because they have not yet completed the indexing process and do not carry these data.

Languages

The languages limit restricts your search to articles written in a particular language.

The Languages pull-down menu contains a list of frequently searched languages:

- English
- French
- German
- Italian
- Japanese
- Russian
- Spanish

PubMed indexes journals published in approximately 40 languages. The full list of languages can be viewed and searched using Index.

Publication Types

The publication type limit will restrict your search based on the type of material the article represents, such as:

- Clinical Trial
- Editorial

- Letter
- Meta-Analysis
- Practice Guideline
- Randomized Controlled Trial
- Review

With this limit, PubMed retrieval will be limited to MEDLINE citations. The "in process" and "supplied by publisher" citations will be excluded because they have not yet completed the indexing process and will not include a Publication Type.

See also: Complete list of Publication Types [<http://www.nlm.nih.gov/mesh/pubtypes2004.html>]

Entrez Date

The Entrez Date is the date a citation was added to PubMed. PubMed displays search results in descending Entrez Date order, i.e., last in, first out.

The Entrez date limit will restrict your search to citations entered into PubMed within a specific time frame, e.g., the last 30 days, the last 10 years.

You can select the time frame from the Entrez Date pull-down menu or specify your own. To specify a date use the Publication Date pull-down menu, select Entrez Date and enter the date in the From and To boxes in the format yyyy/mm/dd. The month and day are optional, e.g., 1999/03/06, or 1999/07, or 2000.

Publication Date

Use the Publication Date limit to restrict your search to citations published within a specific time frame (e.g., 2004).

Enter the date in the From and To boxes in the format yyyy/mm/dd. The month and day are optional, e.g., 1999/03/06, or 1999/07, or 2000.

Citations with Abstracts

This limit will restrict your search to citations that have abstracts.

Alternatively, you may search for citations with abstracts using the value 'hasabstract'. No search field tag required.

Example
neoplasms AND hasabstract

Note: Most citations in PubMed to articles published before 1975 do not include abstracts.

Subject Subsets

The subject subsets restrict retrieval to specific topics including:

- AIDS
- Bioethics

- Cancer
- Complementary Medicine
- History of Medicine
- Space Life Sciences
- Toxicology

Each subject subset limit uses its own specialized search strategy [http://www.nlm.nih.gov/bsd/pubmed_subsets.html].

Alternatively, each subject subset can be searched using the respective search value of **aids**, **bioethics**, **cancer**, **cam**, **history**, **space** or **tox** followed by the [sb] search tag.

Example

asthma AND cam [sb]

Do not confuse the subject subsets for AIDS, Bioethics, Cancer, History of Medicine, and Space Life Sciences with the Journal/Citation subsets (see below) for the same topics, i.e., jsubsetx, jsubse, jsubsetq, and jsubsets.

Journal/Citation Subsets

The Journal/Citation subsets restrict retrieval to specialized journals or articles on specialized topics in other journals (Table 2). The table lists the Journal subsets, along with the value used for searching. (Note: some subsets are closed and no longer being assigned to current data.)

To search for a Journal/Citation subset, enter in the search box: jsubset?, where ? stands for the subset value (see Table 2).

Example

neoplasms AND jsubse

This search will limit retrieval to citations from bioethics journals or selected bioethics citations from other journals.

The Journal/Citation subset does not require a search tag.

PubMed Central Subset

This subset restricts retrieval to citations that have a full-text article available for free in PubMed Central [<http://www.pubmedcentral.nih.gov/>] (PMC).

To search for PMC Subset citations use the Limits page subset pull-down menu, or simply enter pubmed pmc local[sb] into the search box.

Example

protein p53 AND pubmed pmc local[sb]

To search for all citations that have free full-text articles available (both PMC citations and citations where the free full-text article is provided directly from the journal's Web site in PMC), enter `pubmed pmc[sb]` in the search box.

Citation Status Subsets

The citation status indicates the processing stage of an article in the PubMed database (Table 3).

The status tags are displayed with each citation in the search results. To search for a particular citation status, enter one of the search terms below followed by the `[sb]` search tag

- publisher
- in process
- medline
- pubmednotmedline
- oldmedline

Example

```
n engl j med AND medline [sb]
```

To search for the total number of PubMed citations, enter `all [sb]` in the search box.

Note: The MEDLINE subset can be selected from the Subset pull-down menu in Limits.

For additional information, see PubMed's Overview.

Field Selection

To limit untagged search terms to a specific citation field:

1. Enter search term into search box.
2. Click Limits on the Features bar.
3. Choose a field from the All Fields pull-down menu.
4. Click Go.

See Also: Searching in a specific field of index

Ahead of Print Citations

Publishers may submit citations for articles that appear on the Web in advance of the journal issue's release. These are ahead-of-print citations.

To search for ahead of print citations, enter `pubstatusaheadofprint` into the search box

Example

```
pubstatusaheadofprint AND gene
```

Following publication of the completed issue, the date an article was published electronically is retained on these citations, e.g. Proc Natl Acad Sci U S A. 2003 Apr 1;100(7):3925-9. Epub 2003 Mar 24.

Searching for a phrase

PubMed does not perform adjacency searching. However, many phrases are recognized by the MeSH Translation Table used in PubMed's Automatic Term Mapping (ATM) feature. For example, if you enter fever of unknown origin, PubMed recognizes this phrase as a MeSH concept. If a phrase is not recognized you can instruct PubMed to bypass ATM and search for a phrase using the formats outlined below.

Examples

- Enclose the phrase in double quotes: "kidney allograft"
- Use a search tag: kidney allograft[tw]
- Use a hyphen: first-line
- Truncate: kidney allograft*

More information for phrase searching:

- If you use a hyphen or quotes and the phrase is not found, the hyphen or quotes are ignored and the phrase is processed using automatic term mapping. Phrases may appear in a PubMed record but not be in the phrases index.
- When you enter your search terms as a phrase PubMed will not perform automatic term mapping which includes explosion of MeSH terms. For example, "health planning" will include citations that are indexed to the MeSH term, Health Planning, but will not include the more specific terms, e.g., Health Care Rationing, Health Care Reform, Health Plan Implementation, etc., that are included with the automatic MeSH mapping.
- Truncating a word in a multi-word query may result in an unexpected phrase search. For example the search, fetus infection* maternal will treat fetus infection* as a phrase. Check Details to see the search translation.

Truncating search terms

To search for all terms that begin with a word, enter the word followed by an asterisk (*).

Example

flavor*

Finds terms that begin with the root term flavor, such as flavored, flavorful, flavoring, etc.

More information about truncation:

- PubMed searches for the first 600 variations of a truncated term. If a truncated term (e.g., tox*) produces more than 600 variations, PubMed displays a warning message to lengthen the root word to search for all endings.
- Truncation turns off automatic term mapping and the automatic explosion of a MeSH term. For example, heart attack* will not map to the MeSH term Myocardial Infarction or include any of the more specific terms, e.g., Myocardial Stunning; Shock, Cardiogenic.
- Truncating a word in a multi-word query may result in an unexpected phrase search. For example the search, fetus infection* maternal will treat fetus infection* as a phrase.

Combining searches (History)

Previous searches can be combined or used in subsequent searches using the search statement number from History.

1. Click History on the Features bar.
2. Click on the linked search statement number to display the options menu that includes Boolean operators to AND, OR or NOT your search to the search box. Alternatively you can enter a number sign followed by the search number, e.g., #1, in the search box.
3. Add additional search terms into the search box or combine with other searches.
4. Click Go.

Examples

#2 AND #6
#3 AND (drug therapy OR diet therapy)
#5 gene therapy

For additional information, see [Viewing your search history](#).

Finding a citation using the Single Citation Matcher

The Single Citation Matcher has a fill-in-the-blank form for searching for a citation when you have some bibliographic information, e.g., journal name, volume, page number.

1. Click Single Citation Matcher on the PubMed sidebar.
2. Enter the bibliographic information you have.
3. Click Go.

More information about using the Single Citation Matcher:

- The journal box includes an autocomplete feature that suggests titles as you enter a MEDLINE abbreviation or full title. Titles displayed by the autocomplete menu are in ranked order based on the number of citations in PubMed.

- The author box also includes an autocomplete feature that suggests author names in ranked order based on the number of citations. Full author names may be searched for citations published from 2002 forward if the full author name is available in the article.
- Click the 'Only as first author' checkbox to limit an author name to the first author.

Browsing PubMed's index of terms (Preview/Index)

Preview/Index provides an alphabetical display of all search terms in each PubMed search field. You can browse by all fields or within a specific field such as MeSH Terms.

1. Click Preview/Index on the Features bar.
2. Select a search field from the All Fields pull-down menu at the bottom of the page.
3. Enter a search term in the search box. If you want to see a list of all terms, leave the search box empty.
4. Click Index.
5. PubMed displays an alphabetic list of search terms. The number of citations for that term appears in parentheses to the right of the term. Click Up or Down to move within the Index.
6. Select a term. To select multiple terms (and OR them together), select on each term while holding down the Ctrl key (PC) or the Command key (Mac).
7. Click the appropriate Boolean operator to add the search term to the search box. Be sure to clear the search box before beginning a new search.
8. Continue adding terms (repeating steps 2 to 7), if desired.
9. Click Go. If you only want to preview the number of results, click Preview.

More information about using the index:

- Preview/Index displays the last three searches from History. History retains the last 100 searches.
- PubMed processes all Boolean operators left to right. To change this order, enclose search terms to be processed first in parentheses, e.g., common cold AND (vitamin c OR zinc). PubMed will automatically OR (and add parentheses) for multiple terms selected from the Index.

Combining search terms with Boolean operators (AND, OR, NOT)

PubMed assumes the AND operator between concepts, e.g., "vitamin c common cold" is translated as vitamin c AND common cold. Enter Boolean operators in uppercase characters to combine or exclude search terms:

- **AND** retrieves results that include all the search terms.
- **OR** retrieves results that include at least one of the search terms.
- **NOT** excludes the retrieval of terms from your search.

Examples

Find citations on DNA that were authored by Dr. Crick in 1993:dna [mh] AND crick [au] AND 1993 [dp]

Find articles on the effects of heat or humidity on multiple sclerosis:(heat OR humidity) AND multiple sclerosis

Find citations about arthritis excluding the Publication Type Letter:arthritis NOT letter [pt]

PubMed processes searches in a left-to-right sequence. Use parentheses to “nest” concepts that should be processed as a unit and then incorporated into the overall search.

Example

common cold AND (vitamin c OR zinc)

More information about using Boolean operators:

Boolean operators must be used when combining tagged search terms as follows: *search term [tag] **BOOLEAN OPERATOR** search term [tag]*. (See Table 1 for tags.)

- In a multi-word search PubMed will use Automatic Term Mapping to identify concepts. For example, for the search *air bladder fistula*, PubMed will search "air bladder" as a phrase. If you do not want this automatic phrase parsing, enter each term separated by the Boolean operator AND, e.g., air AND bladder AND fistula.
- Click Details to see how PubMed translated your search strategy.

Searching in a specific field or index

To search a specific field in a citation (e.g., author, title, journal, etc.) and bypass the automatic term mapping, tag the search term by following it with the appropriate search tag (Table 1).

- The search tag must be enclosed in square brackets.
- Case and spacing do not matter (e.g., crabs [mh] = Crabs[mh])

Example

aromatherapy [mh]

Previewing the number of search results (Preview)

To preview the number of citations before displaying the search results:

1. Click Preview/Index on the Features bar.
2. Enter your search term(s) in the search box.
3. Click Preview. The number of results is displayed.
4. To display the citations, click the result link.

Use Preview to add search terms incrementally to refine your search before retrieving the citations.

1. Enter a search term in the search box.
2. Click Preview. The number of results is displayed.
3. Continue adding terms and selecting Preview until your search is complete.

Note: Preview displays the last three searches from History. History retains the last 100 searches.

Finding articles related to a citation

Click the Related Articles link on the right side of a citation.

The Related Articles link will retrieve a pre-calculated set of PubMed citations that are closely related to the selected article. The related articles will be displayed in ranked order from most to least relevant, with the "linked from" citation displayed first.

More information about Related Articles:

- Each citation in PubMed includes a link that retrieves a pre-calculated set of citations that are closely related to the selected article. PubMed creates this set by comparing words from the title, abstract, and MeSH terms using a word-weighted algorithm.
- If you select Related Articles from the Display pull-down menu without selecting specific citations, PubMed will retrieve the related articles for the citations displayed on the page.
- Limits are NOT in effect when you use a Related Articles link. After linking on Related Articles, although the box next to Limits may be checked, there is no yellow bar displaying the Limits in effect.
- You can, however, refine the list of Related Articles using PubMed's History feature. In History, you will see that the Related Articles retrieval is represented as "Link to PubMed from (PMID of document)." Use this Search number in a search. (Keep in mind that the list you get with a Related Articles link is displayed in ranked order from most to least relevant. Refining the list removes the ranked order and may remove citations that are most relevant.)
- Use the ELink utility to retrieve related articles for large sets of citations.

Using Clinical Queries

The PubMed Clinical Queries page provides specialized PubMed searches for clinicians:

- Search by Clinical Study Category
- Finding Systematic Reviews
- Medical Genetics Searches

Search by Clinical Study Category

The Clinical Study Category is a specialized search method with built-in search filters that limit retrieval to citations to articles reporting research conducted with specific methodologies, including those that report applied clinical research.

To find citations using the Clinical Study Category:

1. Click Clinical Queries from the PubMed sidebar
2. Click Search by Clinical Study Category
3. Enter your search term in the search box
4. Select a Category: therapy, diagnosis, etiology, or prognosis
5. Select a Scope: "narrow, specific search or broad, sensitive search
6. Click Go

Example

Find research on diagnosing cystic fibrosis.

On the Clinical Queries page click Search by Clinical Study Category.

Enter cystic fibrosis in the search box.

Click "diagnosis" under Category and "narrow, specific search" under Scope, click Go.

Finding Systematic Reviews

In PubMed, Systematic Reviews cover a broad set of articles that build consensus on biomedical topics. This feature is provided to help clinicians locate systematic reviews and similar articles.

To find Systematic Reviews:

1. Click Clinical Queries from the PubMed sidebar
2. Click Find Systematic Review
3. Enter your search terms in the search box
4. Click Go

Example

Find Systematic Reviews on inhalation therapy for pneumonia.

On the Clinical Queries page click Find Systematic Reviews.

Enter the search terms inhalation therapy pneumonia into the search box, click Go.

Alternatively, enter search terms followed by AND systematic[sb] into the search box. For example, lyme disease AND systematic[sb].

Medical Genetics Searches

In PubMed, Medical Genetics Searches finds citations related to various topics in medical genetics.

1. Click Clinical Queries from the PubMed Sidebar
2. Select Medical Genetics Searches
3. Enter search terms in the search box
4. Change the search categories, if applicable
5. Click Go.

Example

Find information on genetic counseling for sickle cell anemia.
On the Clinical Queries page, click Medical Genetic Searches.
Enter the search terms sickle cell anemia into the search box.
Under Category, click on All to deselect all the categories, click Genetic Counseling, click Go.

More information about Clinical Queries:

- The Clinical Study Category search filters are based on the work of Haynes RB et al [http://www.nlm.nih.gov/pubs/techbull/jf04/cq_info.html]. See the filter table for details.
- Systematic Reviews uses a customized search strategy [http://www.nlm.nih.gov/bsd/pubmed_subsets/sysreviews_strategy.html]. A list of related sources [http://www.nlm.nih.gov/bsd/pubmed_subsets/sysreviews_sources.html] on this topic is provided.
- In PubMed, systematic reviews cover a broad set of articles that build consensus on biomedical topics and include:
 - systematic reviews
 - meta-analyses
 - reviews of clinical trials
 - evidence-based medicine
 - consensus development conferences
 - guidelines
 - citations from journals specializing in clinical review studies
- The Medical Genetics Searches were developed in conjunction with the staff of GeneReviews: Genetic Disease Online Reviews at GeneTests, University of Washington, Seattle. The Medical Genetic Searches use built-in search filters.

The results of these searches can be refined using PubMed's Limits (e.g., English language).

Understanding Your Search Results

Search results initially display in a summary format in the order they were entered in PubMed as last in, first out. You can change the display format.

A default of 20 citations is displayed per page. If there are more than 20 citations, they will be displayed on subsequent pages.

To display the abstract for a journal article, click the authors' hyperlink for each citation or click the icon to the left of the citation. Some citations do not have abstracts and will include the note "No abstract available."



For additional information see: [Displaying and Sorting Your Search Results](#)

Displaying and Sorting Your Search Results

Section Contents

Use the Action Bar, located at the top and bottom of the search results, for:

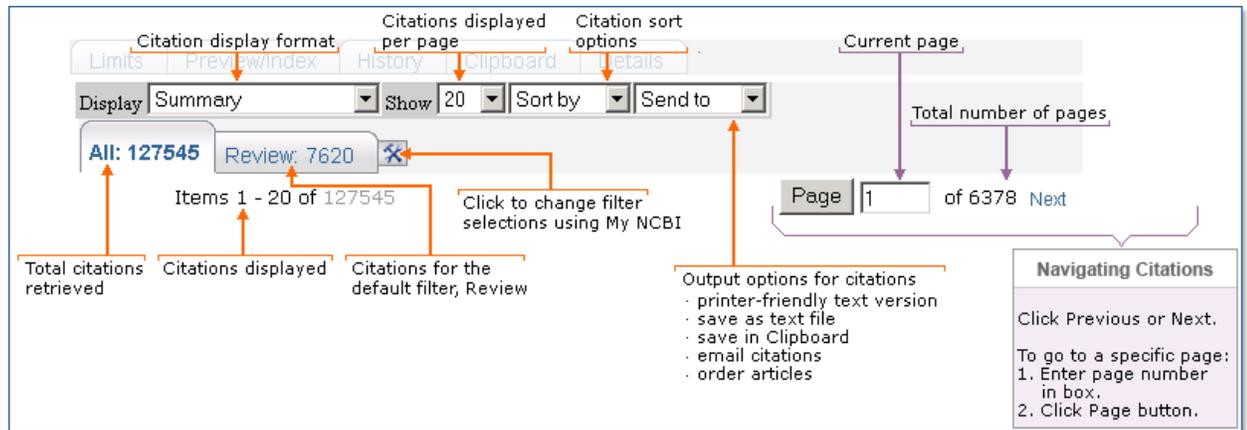
- Changing the citation display format
- Changing the number of citations shown per page
- Sorting your search results
- Using "Send to" for:
 - Displaying a printer-friendly text version of the results
 - Saving citations as a text file
 - Saving citations temporarily using the Clipboard
 - E-mailing citations
 - Ordering journal articles

Search results also provide a way to:

- Move to another page of search results
- Add Filter Tabs using the tool symbol



Understanding the Action Bar



Sorting your search results

From the Sort pull-down menu, select a sort field: author, journal title, or publication date.

More information about sorting:

- Citations in PubMed are displayed in reverse Entrez date order: last in, first out. The Entrez date is the date that a record was initially added to PubMed and should not be confused with the publication date, which is the date an article was published.
- Publication Date sorts the most recent citations first, the secondary sort is journal.
- Author and journal sort A to Z; the secondary sort is publication date.

Move to another page of search results

The Action Bar displays the number of citations retrieved and the number of pages of to display all the citations for your search. You may change the number of citations shown per page using the Show menu. This is especially helpful when printing your results.

To move to a specific result page enter the page number in the Page box and click the Page button, or click the Previous or Next hyperlinks to move back or forward to adjacent pages.

Changing How Search Results are Displayed

Section Contents

- Changing the citation display format
- Changing the number of citations shown per page

Changing the citation display format

Results are initially displayed in the Summary format. You can change the display for all or selected citations by selecting a new display format from the Display pull-down menu.

To change the display format only for selected citations, click the check box to the left of each citation before selecting a display format.

There are several display formats for PubMed citations. Users planning on exporting citations into a citation management program should use the MEDLINE format. See Table 4 for a description of all the formats.

You can also display links from PubMed citations to other databases (e.g., Nucleotide Links) from the Display pull-down menu.

Changing the number of citations shown per page

From the Show pull-down menu, select the number of citations you want displayed per page.

More information for changing number of citations shown per page:

- PubMed displays your search results in the default 20 citations per page. You can change the number of citations displayed on a single page from 5 to 500 items.
- To display all citations on a single page, select a number higher than the total number of your search results.

Finding Related Resources for a Citation

Section Contents

- Linking to other Entrez databases
- Finding related links for a citation using LinkOut
- Finding related material in the online Bookshelf of biomedical books
- Finding PubMed Central articles that have cited an article
- Finding Bookshelf books that have cited an article
- Reporting broken or problem links

Linking to other Entrez databases

Links to other resources or NCBI Entrez databases are available from the Links pull-down menu to the right of each citation and from the Display pull-down menu. PubMed typically only processes the first 5,000 items with links when using the Display pull-down menu. The complete list of Entrez database links and the maximum items processed is available.

Note: To simultaneously search all Entrez databases use the cross-database search system [<http://www.ncbi.nih.gov/Entrez>].

Finding related links for a citation using LinkOut

Most PubMed citations have LinkOut [/entrez/linkout/] links to a variety of Web sites including publishers, aggregators, libraries, biological databases, sequence centers, and other resources. These links can take you to the provider's site to obtain the full-text of articles or related resources, e.g., consumer health information. There may be a charge to access the text or information.

To display the links associated with a single citation click the Links pull-down menu and select LinkOut to display the related links.

To see related links for more than one citation:

1. In your search results, click the citation check boxes. If you do not make any selections, PubMed will show links for all citations on the page.
2. From the Display pull-down menu, select LinkOut.

To find citations with links to free full-text articles [<http://www.ncbi.nlm.nih.gov/entrez/linkout/journals/jourlists.cgi?typeid=2&type=providers&show=ALL&operation=Show>], enter search terms followed by AND free full text[*sb*] in the search box.

To find citations with links to full-text articles [<http://www.ncbi.nlm.nih.gov/entrez/linkout/journals/jourlists.cgi?typeid=1&type=providers&operation=Show>], enter search terms followed by AND full text[*sb*].

More information about Links:

- The Links pull-down menu uses JavaScript, which may cause problems for some browsers. You can change the way the Links feature displays by adding to PubMed's URL one of the Links URL parameters or use My NCBI to change the display format for the links menu:

URL Parameter	Links Display
linkbar=plain	Displays links as separate selections. Does not use JavaScript.
linkbar=jsmenu2	Default menu.
linkbar=popup	Opens a small window with link selections.
linkbar=menu	Links display as a pull-down menu.

Example

<http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?linkbar=plain>

- The LinkOut format displays links (if available) by broad categories (e.g., Literature) and then by subject categories. These categories have been selected by the LinkOut provider.
- Full-text provider links also include the form of the article available (e.g., full-text PDF).
- The current list of LinkOut providers [http://www.ncbi.nlm.nih.gov/entrez/journals/active_providers.html] is available.

- A publisher's icon link may display on the Abstract and Citation display formats if they have electronically provided their citation data to PubMed. Links are only available for publishers that are participating in LinkOut; publishers are responsible for providing working links. Links to other providers appear on the LinkOut display format.
- Use My NCBI to customize your LinkOut preferences to display only links of interest to you.

Finding related material in online Bookshelf of biomedical books

1. Click Links on the right side of a citation.
2. From the Links pull-down menu, select Books.
3. A copy of the abstract is displayed, in which some phrases are hypertext links. These phrases correspond to terms found in the online biomedical books from the NCBI Bookshelf. Click the link to see a list of book pages where that phrase is found.
4. You can also search the Books database directly.

Finding PubMed Central articles that have cited an article

This feature helps you track the citing of a specific article by PubMed Central articles.

1. In your search results, click the citation check boxes. If you do not make any selections, PubMed will select all citations on the page.
2. From the Display pull-down menu, select "Cited in PMC."

Finding Bookshelf books that have cited an article

This feature helps you track the citing of a specific article by Bookshelf biomedical books.

1. In your search results, click the citation check boxes. If you do not make any selections, PubMed will select all citations on the page.
2. From the Display pull-down menu, select "Cited in Books."

Reporting broken or problem links

Links are supplied by the LinkOut providers. Corrections and changes to links are made by the providers and are their responsibility.

To report problem links or inquire about electronic journal subscriptions, contact the provider directly. You can usually find a contact link at the provider's Web site.

Viewing Your Search History

Click History on the Features bar, after you run your first search, to display your searches in the order they were run. To view the results for a search, click on the number of results.

History options menu

Click on the Search number in History to open the options menu that includes Boolean operators to **AND**, **OR** or **NOT** your search to the search box.

Other menu options include:

- **Delete** the search from the History
- **Go** to re-run the search
- **Details** to display the search details
- **Save in My NCBI**

More information about the History:

- The Search History will be lost after 8 hours of inactivity
- Click Clear History to delete all searches from History
- PubMed will move a search statement number to the top of the History if a new search is the same as a previous search.
- History search numbers may not be continuous because some numbers are assigned to intermediate processes, such as displaying a citation in another format.
- The maximum number of searches held in History is 100. Once the maximum number is reached, PubMed will remove the oldest search from the History to add the most current search.
- A separate Search History will be kept for each of the Entrez databases, although the search statement numbers will be assigned sequentially for all databases.
- PubMed uses cookies to keep a history of your searches. For you to use this feature, your Web browser must be set to accept cookies.
- Citations in the Clipboard are represented by the search number #0, which may be used in Boolean search statements. For example, to limit the citations you have collected in the Clipboard to English language citations, use the following search: #0 AND english [la]. This does not change or replace the Clipboard contents.

Displaying the Search Details

PubMed may modify or add additional search terms to your search to optimize retrieval.

Click the Details tab on the Features bar to view your search as it was translated using automatic term mapping and search rules.

More information about Details:

- The Query Translation box shows the search strategy used to run the search.
 - To edit the search in the Query Translation box, add or delete terms and then click Search.

- Click URL to display the current search as a URL to bookmark for future use. Searches created using History numbers can not be saved using the URL feature.
- You may also save your search using My NCBI.
- The Result number hyperlink displays the total number of citations for the search.
- Translations details how each term was translated using PubMed's search rules and syntax.
- User Query shows the search terms as you entered them in the query box and any syntax errors with the query.
- If your last action was displaying related article citations or selected items in another format, Details will indicate this rather than the last query.

Printing Citations

Use the print function of your Web browser.

To display a printer-friendly version:

1. In your search results, click the citation check boxes. If you do not make any selections, PubMed will select all citations on the current page.
2. From the Send to pull-down menu, select Text.

Displaying citations as plain text without the sidebar menu may also prevent the right side of the page from being cut off while printing

To print citations from different searches, save the citations in PubMed's Clipboard, then print or use Send to Text from the Clipboard.

See also:

- Changing the number of citations shown per page
- Changing the citation display format

Saving and E-mailing Results and Searches

Section Contents

- Saving citations temporarily using the Clipboard
- Saving citations as a text file
- Exporting citations into a reference management program
- E-mailing citations
- Saving searches with My NCBI.
- Creating a URL to bookmark your search

Saving citations temporarily using the Clipboard

The Clipboard gives you a place to collect selected citations from one or several searches. The Clipboard will be lost after 8 hours of inactivity on PubMed or on any of the other Entrez databases.

To add citations to the Clipboard:

1. In your search results, use the citation check boxes to select citations. To save all your citations do not click any check boxes.
2. From the Send to pull-down menu, select Clipboard.
3. To view your selections, click Clipboard on the Features bar.

To delete citations from the Clipboard:

1. Use the check boxes to select citations. To delete all citations, do not click any check boxes.
2. From the Send to menu, select Clip Remove.

More information about the Clipboard:

- The maximum number of items that can be placed in the Clipboard is 500. If you select Clipboard from the Send to menu without selecting citations using the check box, PubMed will add all (up to 500 citations) of your search results to the Clipboard.
- The Clipboard will not add a citation that is currently in the Clipboard; it will not create duplicate entries.
- PubMed uses cookies to add your selections to the Clipboard. For you to use this feature, your Web browser must be set to accept cookies.
- Citations in the Clipboard are represented by the search number #0, which may be used in Boolean search statements. For example, to limit the citations you have collected in the Clipboard to English language articles, use the following search: #0 AND english [la]. This does not affect or replace the Clipboard contents.

Saving citations as a text file

1. In your search results, use the citation check boxes to select citations. You may move to other pages to continue your selections. If you do not make any selections, PubMed will save the entire retrieval.
2. From the Display pull-down menu, select a display format.
3. From the Send to pull-down menu, select File.
4. Your Web browser will prompt you to save the PubMed search results in a file on your computer.

More information about saving citations to a file:

- Saving a large retrieval may take several minutes.
- The default for the Send to File feature is to save the entire retrieval unless you select specific citations. For example, if you use the Send to File feature on a screen displaying 1-20 items of 2,356, your saved file will contain all 2,356 citation.

- To save citations in HTML format, use the Save as... function of your browser. Change the file extension to html. When saving as HTML, only those citations displayed on the page will be saved so you may want to consider changing the number of citations shown per page.

Exporting citations into a reference management program

Reference management software includes programs such as EndNote, Reference Manager, and ProCite. Questions regarding these commercial software packages should be directed to the respective companies.

1. In your search results, use the citation check boxes to select citations. If you do not make any selections, PubMed will select all citations on the current page.
2. From the Display pull-down menu, select MEDLINE.
3. From the Send to pull-down menu, select File.
4. Import this file to your reference management program.

E-mailing citations

1. In your search results, use the check boxes to select citations. To e-mail all citations displayed on the page, do not make any selections.
2. From the Send to pull-down menu, select E-mail.
3. Choose selections for Format, Sort, HTML or Text.
4. Enter an e-mail address. You may also enter a message that will be included with the search results e-mail.
5. Click Mail. The system returns you to your results page and displays a message confirming that the e-mail message was sent.

Note: Use My NCBI to setup an automatic e-mailing of search updates.

Your PubMed results will be sent from the NCBI automatic mail server, Sent by Entrez [nobody@ncbi.nlm.nih.gov], with a "Subject" of PubMed Search Results. Do not reply to this message. This is not a functioning customer service e-mail address.

More information about e-mailing citations:

- You may e-mail up to 500 items at a time to a single e-mail address.
- If you choose HTML, your PubMed e-mail message displays as a PubMed results page and includes hyperlinks to Related Articles, LinkOut, and other PubMed features. The recipient's e-mail program must be set for HTML view in order to properly view in HTML format.

Creating a URL to bookmark your search

You can create a URL with your search terms that can be bookmarked in your Web browser for future use. Documentation is also available for creating a web link to PubMed.

1. Run a search and then click Details.
2. Click URL below the Query Translation box.
3. Bookmark the URL using your Web browser function. You can also copy the URL from the Web browser's URL address box.

More information about creating a bookmark:

- Searches that were created using a search statement number in History (e.g., #1 OR #2 AND human[mh]) can not be saved using the URL feature because search statements are lost when History expires. You may use History numbers to save a search in My NCBI.
- After saving the bookmark, you may want to use your Web browser's edit functions to rename the bookmark.

My NCBI

My NCBI saves searches and features an option to automatically update and e-mail search results from your saved searches. My NCBI includes additional features for storing an e-mail address, filtering search results and setting LinkOut, document delivery service and outside tool preferences. To use My NCBI, your Web browser must be set to accept cookies.

Section Contents

- Registering for My NCBI



[http://www.nlm.nih.gov/bsd/viewlet/myncbi/getting_started.swf]

- Signing in and out of My NCBI

- Forgot your My NCBI password

- Changing your My NCBI password

- Saving your searches & automatic email updates



[http://www.nlm.nih.gov/bsd/viewlet/myncbi/saving_searches.swf]

- Running a saved search without update limits

- Checking for new citations since you last updated a saved search

- Deleting a search

- User preferences including storing an e-mail address, highlighting search terms, & changing the Links menu display

- Changing your filter preferences



[<http://www.nlm.nih.gov/bsd/viewlet/myncbi/filters.swf>]

- Setting LinkOut preferences
- Setting your document delivery provider preference
- Setting an outside tool preference

Registering for My NCBI [http://www.nlm.nih.gov/bsd/viewlet/myncbi/getting_started.swf]

Click Register on the My NCBI header.

Enter a User Name (3-10 alpha-numeric characters) and a Password (6-8 alpha-numeric characters).

Choose a security question and answer so we can reset your password if you forget it.

You can enter a default e-mail address. This e-mail address will be used for both automatic e-mail updates and the Send to E-mail feature in PubMed.

Note:

Record your user name for future reference; we will not be able to access this account information.

Only one e-mail address may be associated with each My NCBI account.

A confirmation e-mail message will be sent to the e-mail address to activate automatic e-mail updates.

Signing in and out of My NCBI

1. Enter your user name and password.
2. Click Sign In
3. Click the "Keep me signed in unless I sign out" checkbox to create a permanent cookie so after you sign in, My NCBI will be indefinitely available from your computer without signing in again.
4. Click Sign Out from the My NCBI header to sign out.

Note:

If the "Keep me signed in" checkbox is not checked your My NCBI account will be active for your current session only. You will be automatically signed out after you close your browser window.

You may sign out at any time to sever your access to My NCBI whether you sign in using the session-only option or automatic sign in.

Forgot your My NCBI password?

From the My NCBI Sign in page, select "I forgot my password."

Enter your user name.

Click Next.

Answer the question you chose when you registered.

After verification, My NCBI will prompt you to set a new password.

Make a note of the new password, you will need it to Sign in to My NCBI.
Click Change.

Changing your My NCBI password

Sign in to My NCBI.

Click Change Password on the My NCBI sidebar.

Enter your old password and new password.

Click Change.

Saving your search & automatic e-mail updates [\[http://www.nlm.nih.gov/bsd/viewlet/myncbi/saving_searches.swf\]](http://www.nlm.nih.gov/bsd/viewlet/myncbi/saving_searches.swf)

To save your searches and set up automatic e-mail updates:

1. Sign in to My NCBI if you have not already done so.
2. Run or preview your search. You may use History numbers in your search, however, PubMed processes from left to right so order your search statement numbers with this in mind, or use parentheses for nesting.
3. Click the **Save Search** link next to the query box Clear button. A separate window will open to prompt you for additional information about the search you are saving.
4. You may edit the name of the search. The maximum numbers of characters for the search name is 100. The name of the saved search will be included in the Subject of the automatic e-mail update messages.
5. Click the Yes radio button to receive **automatic e-mail updates** of new search results or OK to simply save the search.
6. If you selected Yes to receive e-mail updates of search results, enter an address in the **e-mail box** if it is empty. This address will be used for all e-mail updates for the account.
7. You can change the frequency of your updates by changing the defaults under **How Often?** E-mailed updates will be sent daily on the scheduled days starting from the day after the schedule is set.
8. Select the **Format** and either HTML or Text.
9. You may also change the maximum **number of items** to be sent and add **additional text**, up to 200 characters, to the automatic updates.
10. Click OK to save your search in My NCBI.
11. To change or create a schedule for a saved search click the link under the **Details** column on your list of My Saved Searches.

Note:

- Links to Related Articles cannot be saved in My NCBI.
- Dates and date ranges are not recommended for saved searches.
- Searches are listed by database (e.g., PubMed, Nucleotide) in descending order by the date and time they were originally saved.

- The maximum number of searches is 100 per user name.
- Saved searches cannot be edited.
- Any e-mail updates that bounce back (cannot be delivered) three times, will be changed to no schedule.
- Each My NCBI account can only have one e-mail address.

Confirmation e-mail for automatic e-mail updates

An initial confirmation e-mail message will be sent to activate My NCBI e-mail addresses.

Recipients must confirm their e-mail account before My NCBI will automatically send updates.

Running a saved search without update limits

Sign in to My NCBI.

Click the My NCBI search name.

This will not modify the Last Updated date and time for the saved search.

Checking for new citations since you last updated a saved search

Sign in to My NCBI.

Information in the Saved Searches Last Updated column display when the last update was generated either automatically or manually. Mouse over the information to display the explicit date.

Click the check box next to a search. To select all your searches click the checkbox to the left of My Saved Searches.

Click "What's New for Selected."

To display the new items, click the # new items link. This also updates the saved search with the current date and time.

Note: If you do not click # new items, the search date and time are not updated.

More information about My NCBI updates:

My NCBI uses the following strategy, for searches with untagged terms and searches that do not use Limits, to find new citations:

(Query AND T₁ : T₂ [MHDA]) NOT (Query [TIAB] AND 0001 : T₁ [EDAT])

Where:

- Query = saved search.
- T₁ = the date and time the search was last updated.
- T₂ = today's date and time.
- 0001 = the date that will include all citations.
- [MHDA] = the search tag for the MeSH date. This field reflects the date MeSH terms were added to the citation. (Note: until MeSH terms are added, the MHDA value is the same as the EDAT.)
- [EDAT] = the search tag for the Entrez date field the date the citation was added to PubMed.

- [TIAB] = the search tag for words in the Title and Abstract fields.

Example

The saved search is **heart attack**. The search was last updated on January 7, 2005 at 11:00 a.m. and today's update date and time is January 13, 2005 9:59 a.m.
(((("myocardial infarction"[TIAB] NOT Medline[SB]) OR "myocardial infarction"[MeSH Terms] OR heart attack[Text Word]) AND "2005/01/07 11.00"[MHDA] : "2005/01/13 09.59"[MHDA]) NOT (heart attack[TIAB] AND "0001"[EDAT] : "2005/01/07 11.00"[EDAT]))

Note:

My NCBI saved searches that include search field tags or selection from the Limits page use an abbreviated what's new search to ensure that all citations are retrieved.

Searches that include the search field tags AU, PS, IP, TA, LA, PG, TI, TIAB, or VI use the strategy: Query AND T₁ : T₂ [EDAT]

Searches that include search field tags other than the ones listed above, use the strategy: Query AND T₁ : T₂ [MHDA]

Deleting a search

Sign in to My NCBI.

In the My NCBI Saved Searches section, select the check box for a search to select it.

Click Delete Selected.

User preferences including storing an e-mail address, highlighting search terms & changing the links menu display

To store an e-mail address for the automatic e-mail updates and for the Send to E-mail feature:

Sign in to My NCBI

Click User Preferences on the My NCBI sidebar.

Enter an E-mail address.

Click OK.

Note:

A confirmation e-mail message will be sent to the e-mail address to activate automatic e-mail updates.

For the Send to E-mail option, you may enter a new address that will not affect My NCBI updates.

Highlighting search terms

To highlight search terms as well as terms that have been added by PubMed to enhance your search choose a highlight color and click OK.

Highlighting is only active when you are signed into My NCBI; the default user preference is set to Off.

Changing the links menu display

The Links pull-down menu on the search results uses JavaScript which may cause problems for some browsers. To change the way the Links feature displays in PubMed choose a selection under the Default pull-down menu:

- Plain Links - Displays links as separate selections; does not use JavaScript.
- Standard pull-down - Links display as a pull-down menu; uses limited JavaScript.
- Pop-up Window - Opens a separate small window with link selections.

Changing your filter preferences [\[http://www.nlm.nih.gov/bsd/viewlet/myncbi/filters.swf\]](http://www.nlm.nih.gov/bsd/viewlet/myncbi/filters.swf)

My NCBI includes a filters feature that groups search results by areas of interest. Filter results with their respective counts for the current search display as tabs, next to the "All" tab for the total search retrieval. Click on the tab to display the citations grouped by that filter. You can have up to five active filters using My NCBI.

To change your filter selections:

Sign in to My NCBI.

Click the tool icon



to the right of the filter tabs to link to the **Quick Pick** list of commonly-requested filters.

Click in the boxes to select or deselect filters.

To view additional options click:

- **Browse** to browse filters by category. Subject-related filters are under **Properties**.
- **Search** to search the filter names and descriptions.
- **My Selections** to display the active filters and icon settings.

Your filter selections are in effect only when you are signed in to My NCBI.

Note: When you click on the filter tab a tack symbol



will appear in the tab. Click the tack to append the filter to your search.

Setting LinkOut preferences

In PubMed, the icon to the citation provider is included on the Abstract and Citation displays. All other links to providers display on the LinkOut page.

To customize your LinkOut preferences:

Sign in to My NCBI.

Click Filters on the My NCBI sidebar.

Click PubMed to view the **Quick Pick** list of commonly-requested filters.

To view or change your LinkOut icons settings click:

- **Browse** to browse filters and LinkOut providers by category.
- **Search** to search the filter and LinkOut provider names and descriptions.
- **My Selections** to see a list of your current filter and LinkOut provider icon settings.

Click the checkbox next to each selection to add an icon to your PubMed displays.

Your LinkOut preferences are in effect only when you are signed in to My NCBI.

Setting your document delivery provider preference

NLM's Loansome Doc [http://www.nlm.nih.gov/loansomedoc/loansome_home.html] is the default document delivery provider for PubMed's order documents feature.

To change your document delivery provider:

Sign in to My NCBI.

Click Document Delivery on the My NCBI sidebar menu.

Select a service from the list.

Your document delivery preference is in effect only when you are signed in to My NCBI.

Setting an outside tool preference

PubMed supports OpenURL-based services [<http://www.ncbi.nlm.nih.gov/entrez/linkout/doc/openurl.html>] either through LinkOut [<http://www.ncbi.nlm.nih.gov/entrez/linkout>] or outside tool [<http://www.ncbi.nlm.nih.gov/entrez/linkout/doc/outsidetool.html>]. **Outside Tool** allows institutions to display an icon link back to their institution on the Abstract and Citation format for all PubMed citations. The icon link is the base URL provided by the institution and the PMID of the citation. Please send questions about this service to linkout@ncbi.nlm.nih.gov.

To add an Outside Tool preference:

1. Sign in to My NCBI.
2. Click Outside Tool on the My NCBI sidebar menu.
3. Select an institution from the list.
4. Your outside tool preference is in effect only when you are signed in to My NCBI.

How to get the Journal Article

PubMed does not include copies of journal articles. Here are some tips for obtaining articles.

Section Contents

- Many articles are available for free.
- If you are a physician, researcher, or health professional, utilize your affiliation with a medical library or institution.

- If you are a member of the general public or not affiliated with a medical library or institution, try finding free copies, check with your local library, or go directly to the publisher.

Free copies of some articles may be obtained in these ways:

PubMed Central

Follow these links on PubMed citations to PubMed Central:



PubMed Central is a free digital archive of full-text journal articles maintained by the U.S. National Institutes of Health.

To access the article, click the icon to go to the abstract display and then click the “Free full text article in PubMed Central” icon.

Free from the publisher

On the summary results the following icon indicates the full-text article is available from the publisher’s Web site free-of-charge.



To access the article, click the icon to go to the abstract display and then click the free full text article icon.

See also:

- Direct from publisher as some publishers will provide free access to articles after you register as a guest.
- Free Biomedical Literature Resources [<http://www.nlm.nih.gov/doctype/freehealthlit.html>]

If you are affiliated with a medical library or other institution

- Your local medical library is your best option. If the library does not have access to the article you need, ask a librarian about ordering the article from other institutions.
- If you need articles on a routine basis consider using the PubMed Order option under the Send to menu.

First, you must register with a delivery service.

1. The default article order service in PubMed is the NLM-sponsored Loansome Doc service. This allows you to order the full-text of an article from participating medical libraries. Local fees and delivery methods will vary. This service is recommended for health professionals associated with a medical library.
2. If you are not affiliated with a medical library or want to change your document delivery provider to another service use Document Delivery in My NCBI.

After registering for Loansome Doc or another document ordering service use the PubMed's Send to Order feature to place the order:

1. Click the check box next to each citation to order. You may move to other pages within your results to select additional citations.
2. From the Send to pull-down menu, select Order.
3. Follow the on-screen directions.

Note: For information on the medical libraries in your area (or country) that provide articles via Loansome Doc check the frequently asked questions (FAQ [<http://www.nlm.nih.gov/services/faqill.html>]) including: How do I find an ordering library [<http://www.nlm.nih.gov/services/ldfind.html>]?

Local library

Some local libraries have copies of medical journals or can get a copy of an article for you. Ask your local librarian about inter-library loan options and if there will be a charge.

For information on the medical libraries in your area (or country) that provide articles via the NLM-sponsored Loansome Doc service check the frequently asked questions (FAQ [<http://www.nlm.nih.gov/services/faqill.html>]) including: How do I find an ordering library [<http://www.nlm.nih.gov/services/ldfind.html>]?

Direct from publisher

Journal publishers or related organizations may provide access to articles for a fee or sometimes free following your registration as an individual or guest. When available, icons to these sources can be found on the Abstract and Citation displays.

Example abstract icons:



Additional links to articles may be available on the LinkOut display.

Other Services Including the MeSH and Journals Databases

Section Contents

- Searching by subject headings using the MeSH database
- Searching for journals in the Journals database
- Using the Text version of PubMed
- Creating a Web link to search PubMed
- Using the E-utilities programming tools
- Using the Batch Citation Matcher

Searching by subject headings using the MeSH Database

MeSH [<http://www.nlm.nih.gov/pubs/factsheets/mesh.html>] (Medical Subject Headings) is NLM's controlled vocabulary thesaurus used for indexing MEDLINE articles. The MeSH Database is available from the Search pull-down menu or the sidebar.

Use the MeSH database to find MeSH terms including Subheadings, Publication Types, Supplementary Concept Records (substance names) and Pharmacological Actions - and build a PubMed search strategy. The MeSH database can be searched by MeSH term, MeSH Entry Term, Subheading, Publication Type, Substance Name, or words within a MeSH Scope Note. Subheadings and Publication Types are included in the MeSH term searches.

Please see the following MeSH Database animated tutorials:

- Searching with the MeSH Database



[<http://www.nlm.nih.gov/bsd/viewlet/mesh/searching/mesh1.swf>]

- Combining MeSH Terms



[<http://www.nlm.nih.gov/bsd/viewlet/mesh/combining/mesh2.swf>]

- Subheadings and other features of the MeSH Database



[<http://www.nlm.nih.gov/bsd/viewlet/mesh/subheadings/mesh3.swf>]

What are the Suggestions? The database displays MeSH or Entry Term suggestions based on an algorithm that compares letter combinations in words. You can use the MeSH or Entry Term suggestion link to go directly to a record. A new set of suggestions will be displayed based on the selected term.

More information about the MeSH database:

- Search results are displayed in relevance-ranked order, therefore, when a user's query exactly matches a MeSH Term, that Term is displayed first.
- Click the MeSH term from the Summary display or choose Full from the Display pull-down menu to view additional information and search specifications, such as Subheadings, Restrict Search to Major Topic headings only or Do Not Explode this term.

The MeSH database Links menu includes the following links:

- PubMed - retrieves citations for the MeSH term in PubMed.
- Clinical Queries - enters the MeSH term in the Clinical Queries query box.
- NLM MeSH Browser - links to the NLM MeSH Browser [<http://www.nlm.nih.gov/mesh/MBrowser.html>] for more information about the MeSH term.

Search Box: The MeSH database provides a Search Box that can be used to build a PubMed search. From any display format:

1. Click the MeSH term check box, including specifications if using the Full display, e.g., Subheadings.
2. Use the Send to pull-down menu to select one of the following:
 - Search Box with AND
 - Search Box with OR
 - Search Box with NOT
3. To add additional terms to this strategy, continue searching the database and add terms to the Search Box using the Send to Search Box feature.
4. When you have completed your search click Search PubMed.

Searching for journals in the Journals database

Information about the journals in PubMed and other Entrez databases is available in the Journals Database.

The Journals database can be searched using the journal title, the variant title as it appears in the NLM catalog, the MEDLINE abbreviation, the ISO (International Organization for Standardization) abbreviation - or words from these fields, the NLM ID (ID number for the NLM Catalog), and the print or electronic ISSNs (International Standard Serial Numbers). This database includes journals in the other Entrez databases as well as PubMed.

What are the Suggestions? In addition to the search results, this database provides suggestions. The suggestions are based on an algorithm that compares letter combinations and scores the relatedness of phrases included in a user's journal query. Click on a journal under Suggestions to go directly to a specific journal record; a new set of suggestions will display based on the selected journal. Suggestions are generated from an index (multi) that is a combination of three indices from this database, i.e., journal title, MEDLINE abbreviation, and ISO (International Organization for Standardization) abbreviation. This may result in a journal being repeated in the list of suggestions.

Searching in the Journals database:

1. Enter the full or partial journal name in the search box
2. Click Go.
3. Click the journal title to display additional information about the journal or choose Full from the Display pull-down menu to view additional information for all the journals listed.

Building a PubMed search for multiple journals:

1. Run a search and use the check boxes to select the journals.
2. Select Search box with OR from the Send to pull-down menu.
3. To add additional journals to this strategy continue searching the database and adding the journals to the Search Box using the Send to Search Box feature.
4. When you have completed your search, click Search PubMed.

Using Links to search for a journal in PubMed, the NLM Catalog or other Entrez databases:

1. Enter the journal name in the search box, click Go.
2. Select one of the following options under the Links menu:
 - a. Entrez database – retrieves records that the specific database listed such as PubMed.
 - b. Single Citation Matcher – enters the journal in the Single Citation Matcher fill-in-the-blank form.
 - c. NLM Catalog – links to the NLM Catalog for additional information

More information about the Journals database:

- To limit journal searches to PubMed journals, use the Only PubMed journals selection in Limits or include the database journal subset (e.g., journals pubmed[sb], journals nucleotide[sb], etc.) in your search.
- Untagged journal terms are searched in all fields. The following qualifiers are available to limit your search to a specific field: [ISO Abbr], [ISSN], [MEDLINE Abbr], [NLM ID], and [Title].
- Click the NLM ID to link to journal information in NLM's LocatorPlus [<http://130.14.16.152/>].
- If a journal includes parentheses or brackets, e.g., J Hand Surg [Am], enter the abbreviation or title without the special characters, j hand surg am.
- Search results are displayed in alphabetical order except when a user's query exactly matches a journal title, then that title will display first.

Other journal resources include:

- The list of PubMed journals with links to full-text [<http://www.ncbi.nlm.nih.gov/entrez/linkout/journals/jourlists.cgi?typeid=1&type=journals&operation=Show>]
- A list of all journals [http://www.ncbi.nlm.nih.gov/entrez/getids_help.html#JournalLists] that are included in PubMed by FTP in the Uncompressed GNU Zip, UNIX Compress, or PKZIP format
- The List of Serials [<http://www.nlm.nih.gov/tsd/serials/lsiou.html>] Indexed for Online Users
- The List of Journals [<http://www.nlm.nih.gov/tsd/serials/lji.html>] Indexed in Index Medicus
- The Entrez NLM Catalog database

Using the Text version of PubMed

Click Text version on the PubMed sidebar.

The Text version is helpful for users who require special adaptive equipment to access the Web. It provides basic PubMed search and retrieval functionality.

Text Version Help is available.

Creating a Web link to search PubMed

See [Creating a Web Link to the Entrez Databases and Add PubMed to Your Web Site](#) for more information.

Using the E-utilities programming tools

Entrez Programming Utilities are tools that provide access to Entrez data outside of the regular Web query interface. This may be helpful for retrieving search results for future use in another environment.

Using the Batch Citation Matcher

The Batch Citation Matcher [[/entrez/getids.cgi](#)], available from the PubMed sidebar menu, allows you to retrieve the PubMed IDs for many articles all at once. This feature requires that you enter the bibliographic information (journal, volume, page, etc.) in a format outlined in the Batch Citation Matcher online help [http://www.ncbi.nlm.nih.gov/entrez/getids_help.html].

Appendices

Section Contents

- How PubMed works: automatic term mapping
- Cookies
- Search field descriptions and tags (Table 1)
- MeSH Subheadings
- Families of MeSH Subheading explosions [<http://www.nlm.nih.gov/mesh/subhierarchy2004.html>]
- Publication Types (Table 6)
- Stopwords (Table 7)
- MEDLINE display format
- NLM author indexing policy
- Grant abbreviations and institute acronyms [http://www.nlm.nih.gov/bsd/grant_acronym.html]
- PubMed character conversions

How PubMed works: automatic term mapping

Untagged terms that are entered in the search box are matched (in this order) against a MeSH [<http://www.nlm.nih.gov/pubs/factsheets/mesh.html>] (Medical Subject Headings) translation table, a Journals translation table, the Full Author translation table and an Author index.

When a match is found for a term or phrase in a translation table the mapping process is complete and does not continue on to the next translation table.

1. MeSH translation table

The MeSH Translation Table contains:

- MeSH [<http://www.nlm.nih.gov/pubs/factsheets/mesh.html>] terms

- The See-Reference mappings (also known as entry terms) for MeSH terms
- MeSH Subheadings (Table 5)
- Publication Types [<http://www.nlm.nih.gov/mesh/pubtypes2004.html>]
- Pharmacologic action terms
- Terms derived from the Unified Medical Language System (UMLS [<http://www.nlm.nih.gov/pubs/factsheets/umls.html>]) that have equivalent synonyms or lexical variants in English
- Supplementary concept (substance) names and their synonyms.

If a match is found in this translation table, the term will be searched as MeSH (which includes the MeSH term and any specific terms indented under that term in the MeSH hierarchy [<http://www.nlm.nih.gov/pubs/factsheets/mesh.html>]), and as a Text Word.

For example, if you enter vitamin h in the query box, PubMed will translate this search to: ("biotin"[TIAB] NOT Medline[SB]) OR "biotin"[MeSH Terms] OR vitamin h[Text Word]

If you enter a MeSH Term that is also a Pharmacologic Action PubMed will search the term as [MeSH Terms], [Pharmacologic Action], OR [Text Word].

If you enter an entry term for a MeSH term the translation will also include a Title/Abstract search for the MeSH term associated with the entry term that is limited to citations outside the MEDLINE subset of citations. For example, a search for odontalgia will translate to: ("toothache"[TIAB] NOT Medline[SB]) OR "toothache"[MeSH Terms] OR odontalgia[Text Word]. Odontalgia is an entry term for the MeSH term toothache.

More information about automatic term mapping:

- Click Details to verify how your terms are translated. If you want to report a translation that does not seem accurate for your search topic, please e-mail the information to the NLM custserv@nlm.nih.gov.

2. Journals translation table

The Journals translation table contains the:

- full journal title
- MEDLINE abbreviation
- ISSN number.

These will automatically map to the journal abbreviation which is used to search journals in PubMed.

For example, if you enter the journal title, new england journal of medicine, in the PubMed query box and click Details you'll see that PubMed translates this search to: "N Engl J Med"[Journal].

3. Full Author translation table

The full author translation table includes full author names for articles published from 2002 forward, if available. Enter a full author name in natural or inverted order, e.g., julia s wong or wong julia s.

More information about full author searching:

- A comma following the last name for searching is optional. For some names, however, it is necessary to distinguish which name is the last name by using the comma following the last name, e.g., james, ryan.
- Omit periods after initials and put all suffixes at the end, e.g., vollmer charles jr
- Initials and suffixes are not required, if you include a middle initial or suffix, you will only retrieve citations for articles that were published using the middle initial or suffix.
- To distinguish author initials that may match a full author name use the [fau] search tag, e.g., peterson do[fau].

4. Author index

If the term is not found in the above tables, except for Full Author, and is not a single term, PubMed checks the author index for a match. When combining multiple authors, to avoid a match with full author names, include initials or use the [au] search tag, e.g., ryan[au] james[au].

5. If no match is found?

PubMed breaks apart the phrase and repeats the above automatic term mapping process until a match is found. PubMed ignores stopwords (Table 7) in searches.

If there is no match, the individual terms will be combined (ANDed) together and searched in all fields.

Cookies

A "cookie" is information stored by a Web site server (e.g., PubMed) on your computer. See the NLM Privacy Policy [<http://www.nlm.nih.gov/privacy.html>] for additional information.

In the case of PubMed, it is information about your interactions that may be needed later to perform a function. Cookies allow PubMed to provide more interactive features such as Preview/Index, Clipboard, History, and My NCBI. Cookies placed by PubMed are removed from your computer after a set time period unless you choose to use a persistent cookie with the My NCBI automatic sign in function.

To use these interactive features you need to enable cookies on your computer. Please consult your browser's Help for information on enabling cookies.

If you have problems using cookie-dependent features of PubMed even after enabling cookies, possible reasons may include:

- Cookies are blocked by your provider or institution. Check with your Internet provider and/or the system administrator at your institution to see if cookies can be accepted. Even if you have them enabled in your Web browser, if they are blocked by your provider or institution (e.g., by a firewall, proxy server, etc.), cookie-dependent features of PubMed won't work.
- Your computer's date and time settings are incorrect. Check your computer's time settings to ensure that they are correct.

MeSH Subheadings

See the MeSH Subheadings (Table 5) and scope notes and allowable categories [<http://www.nlm.nih.gov/mesh/topsubscope2004.html>] on the NLM website.

MEDLINE display format

The MEDLINE Display Format tags table (Table 8) defines the data tags that compose the PubMed MEDLINE display format. The tags are presented in alphabetical order. Some of the tags (e.g., CIN) are not mandatory and therefore will not be found in every PubMed MEDLINE display format. Other tags (e.g., AU, MH, RN) may occur multiple times in one record.

Not all fields are searchable in PubMed. See the search field descriptions and tags (Table 1).

NLM Author Indexing Policy

NLM's author indexing policy is as follows:

- 1966 - 1984: MEDLINE did not limit the number of authors.
- 1984 - 1995: The NLM limited the number of authors to 10, with "et al" as the eleventh occurrence.
- 1996 - 1999: The NLM increased the limit from 10 to 25. If there were more than 25 authors, the first 24 were listed, the last author was used as the 25th, and the twenty-sixth and beyond became "et al."
- 2000 - Present: MEDLINE does not limit the number of authors.

Note:

- Until 1990, only five transliterated (Japanese and Cyrillic) authors were included on each citation. Since 1990, the first ten transliterated authors have been entered. Chinese ideograms for co-authors are not transliterated at all if the journal lists only a single transliterated name in the table of contents.

PubMed Character Conversions

PubMed uses certain characters to have special meaning in searches, while others are converted to spaces, see PubMed character conversions.

Table 1. Search Field Descriptions and Tags

Search Field	Tag	Description
Affiliation	[AD]	May include the institutional affiliation and address (including e-mail address) of the first author of the article as it appears in the journal. This field can be used to search for work done at specific institutions (e.g., cleveland [ad] AND clinic [ad]).
All Fields	[ALL]	Includes all searchable PubMed fields. However, only terms where there is no match found in one of the translation tables or indexes using automatic term

Search Field	Tag	Description
Author	[AU]	<p>mapping will be searching in all fields. PubMed ignores stopwords (Table 7) in search queries.</p> <p>The format to search for this field is: last name followed by a space and up to the first two initials followed by a space and a suffix abbreviation, if applicable, all without periods or a comma after the last name (e.g., fauci as or o'brien jc jr). Initials and suffixes may be omitted when searching.</p> <p>PubMed automatically truncates on an author's name to account for varying initials, e.g., o'brien j [au] will retrieve o'brien ja, o'brien jb, o'brien jc jr, as well as o'brien j. To turn off this automatic truncation, enclose the author's name in double quotes and tag with [au] in brackets, e.g., "o'brien j" [au] to retrieve just o'brien j.</p> <p>Full names display in the FAU field on the MEDLINE display format (Table 8). The FAU field is not searchable. Various limits on the number of authors included in the MEDLINE citation have existed over the years (see NLM policy on author names).</p> <p>The data in these fields are citations to other associated journal publications, e.g., comments or errata. Often these link to the respective citation. Comments/ Corrections data can be retrieved by the search term that follows each type:</p> <ul style="list-style-type: none"> ● Comment in: hascommentin ● Comment on: hascommenton ● Erratum in: haserratumin ● Erratum for:: haserratumfor ● Corrected and republished in: hasrepublishedin ● Corrected and republished from: hasrepublishedfrom ● Retraction in: hasretractionin
Comment Correction Type		

Search Field	Tag	Description
		<ul style="list-style-type: none"> ● Retraction of: hasretractionof ● Update in: hasupdatein ● Update of: hasupdateof ● Summary for patients in: hassummaryforpatientsin ● Original Report in: hasoriginalreportin
Corporate Author	[CN]	<p>Identifies the corporate authorship of an article. Corporate names display exactly as they appear in the journal.</p> <p>Note: Citations indexed pre-2000 and some citations indexed in 2000-2001 retain corporate authors at the end of the title field. For comprehensive searches, consider including terms and/or words searched in the title field [ti].</p>
EC/RN Number	[RN]	<p>Number assigned by the Enzyme Commission (EC) to designate a particular enzyme or by the Chemical Abstracts Service (CAS) for Registry Numbers, e.g., 1-5-20-4[rn]</p>
Entrez Date	[EDAT]	<p>Date the citation was added to the PubMed database. The Entrez Date is set to the Publication Date on citations before September 1997, when this field was first added to PubMed. Citations are displayed in Entrez Date order which is last in, first out.</p> <p>Dates or date ranges must be entered using the format YYYY/MM/DD [edat], e.g., 1998/04/06 [edat]. The month and day are optional (e.g., 1998 [edat] or 1998/03 [edat]).</p> <p>To enter a date range, insert a colon (:) between each date (e.g., 1996:1997 [edat] or 1998/01:1998/04 [edat]).</p> <p>Note: The Entrez Date is not changed to reflect the date a publisher supplied record is elevated to in process or when an in process record is elevated to indexed for MEDLINE.</p>
Filter	[FILTER] [SB]	<p>Technical tags used by LinkOut [/entrez/linkout/doc/linkoutoverview.html], filters include:</p> <ul style="list-style-type: none"> ● loall[sb] - Citations with LinkOut links in PubMed.

Search Field	Tag	Description
		<ul style="list-style-type: none"> ● free full text[sb] - Citations that include a link to a free full-text article. ● full text[sb] - Citations that include a link to a full-text article. <p>Use Preview/Index to browse the LinkOut index. Select Filter from the All Fields pull-down menu, enter 'loprov' in the query box, select Index. PubMed displays an alphabetic list of the LinkOut providers [http://www.ncbi.nlm.nih.gov/entrez/journals/active_providers.html]. The 'losubj' and 'loattr' entries are links indexed by Subject Types and Attributes [http://www.ncbi.nlm.nih.gov/entrez/linkout/doc/subjecttypes.html]. The 'loftext' entries include a link to the online full-text of a journal citation.</p>
First Author Name	[1AU]	The first personal author name in a citation.
Full Author Name	[FAU]	The full author name for articles published from 2002 forward, if available. Full author searching can be entered in natural or inverted order, e.g., julia s wong or wong julia s.
Grant Number	[GR]	Research grant numbers, contract numbers, or both that designates financial support by any agency of the US PHS (Public Health Service). The three pieces of the grant number (LM05545 - number, LM - acronym, and NLM - institute mnemonic) are each individually searchable using the [gr] tag.
Issue	[IP]	The number of the journal issue in which the article was published.
Investigator	[IR]	Names of the NASA-funded principal investigator(s) who conducted the research. Search names following the Author field format, e.g., sollar b [ir]
Journal Title	[TA]	The journal title abbreviation, full journal title, or ISSN number (e.g., J Biol Chem, Journal of Biological Chemistry, 0021-9258). The Journals database is available from the PubMed homepage sidebar to look up the full name, abbreviation, and ISSN number of a journal. If a journal title contains special characters, e.g., parentheses, brackets, enter the name without these characters, e.g., enter J Hand Surg [Am] as J Hand Surg Am.
Language	[LA]	The language in which the article was published. Note that many non-English articles have English language abstracts. You can either enter the language or enter just the first three characters of

Search Field	Tag	Description
MeSH Date	[MHDA]	<p>most languages, e.g., chi [la] retrieves the same as chinese [la]. The most notable exception is jpn [la] for Japanese.</p> <p>The date the citation was indexed with MeSH Terms and elevated to MEDLINE for citations with an Entrez Date after March 4, 2000. The MeSH Date is initially set to the Entrez Date when the citation is added to PubMed. If the MeSH Date and Entrez Date on a citation are the same, and the Entrez Date is after March 4, 2000, the citation has not yet been indexed.</p> <p>Dates must be entered using the format yyyy/mm/dd [mhda], e.g. 2000/03/15 [mhda] . The month and day are optional (e.g., 2000 [mhda] or 2000/03 [mhda]).</p> <p>To enter a date range, insert a colon (:) between each date (e.g., 1999:2000 [mhda] or 2000/03:2000/04 [mhda]).</p>
MeSH Major Topic	[MAJR]	<p>A MeSH term that is one of the main topics discussed in the article denoted by an asterisk on the MeSH term or MeSH/Subheading combination, e.g., Cytokines/physiology* See MeSH Terms [MH] below.</p>
MeSH Subheadings	[SH]	<p>MeSH Subheadings are used with MeSH terms to help describe more completely a particular aspect of a subject. For example, the drug therapy of asthma is displayed as asthma/drug therapy, see MeSH/Subheading Combinations in MeSH Terms [MH] below.</p> <p>The MeSH Subheading field allows users to "free float" Subheadings, e.g., hypertension [mh] AND toxicity [sh].</p> <p>MeSH Subheadings automatically include the more specific Subheading terms under the term in a search. To turn off this automatic feature, use the search syntax [sh:noexp], e.g., therapy [sh:noexp].</p> <p>In addition, you can enter the MEDLINE two-letter MeSH Subheading abbreviations (Table 5) rather than spelling out the Subheading, e.g., dh [sh] = diet therapy [sh].</p>
MeSH Terms	[MH]	<p>NLM's Medical Subject Headings [http://www.nlm.nih.gov/mesh/meshhome.html] controlled vocabulary of biomedical terms that is used to describe the subject of each journal article in MEDLINE. MeSH contains more than 22,000 terms and is updated annually to reflect changes in medicine and medical terminology. MeSH terms are arranged hierarchically by subject categories with more specific terms arranged beneath broader terms.</p>

Search Field	Tag	Description
		<p>PubMed allows you to view this hierarchy and select terms for searching in the MeSH Database.</p> <p>Skilled subject analysts examine journal articles and assign to each the most specific MeSH terms applicable - typically ten to twelve. Applying the MeSH vocabulary ensures that articles are uniformly indexed by subject, whatever the author's words.</p> <p>Notes on MeSH Terms and Major MeSH Topic search fields:</p> <ul style="list-style-type: none"> ● To search the term only as a MeSH term, it must be tagged using the search field, e.g., [mh] for MeSH Terms or [majr] for MeSH Major Topic. A tagged term is checked against the MeSH translation table. And mapped to the appropriate MeSH term. Some concepts may map to two or more MeSH terms. To turn off this mapping, enclose the MeSH term in double quotes and tag with [mh], e.g., "cold" [mh]. ● MeSH terms are arranged hierarchically by subject categories with more specific terms arranged beneath broader terms. MeSH terms in PubMed automatically include the more specific MeSH terms in a search. For more detailed information about MeSH vocabulary including the hierarchical structure, please see the MeSH home page [http://www.nlm.nih.gov/mesh/meshhome.html]. ● MeSH/Subheading Combinations: To directly attach MeSH Subheadings, use the format MeSH Term/ Subheading, e.g., neoplasms/diet therapy. You may also use the MEDLINE two-letter MeSH Subheading abbreviations, e.g., neoplasms/dt (Table 5). The [mh] tag is not required, however [majr] may be used, e.g., plants/genetics[majr]. Only one Subheading may be directly attached to a MeSH term. For a MeSH/Subheading combination, PubMed always includes the more specific terms arranged beneath broader terms for the MeSH term and also includes the more specific terms

Search Field	Tag	Description
		<p>arranged beneath broader Subheadings [http://www.nlm.nih.gov/mesh/subhierarchy2004.html]. The broader Subheading, or one of its indentions', will be directly attached to the MeSH term or one of its indentions'. For example, hypertension/therapy also retrieves hypertension/diet therapy; hypertension/drug therapy; hypertension, malignant/therapy; hypertension, malignant/drug therapy, and so on, as well as hypertension/therapy.</p> <ul style="list-style-type: none"> ● To turn off the automatic inclusion of the more specific terms, use the syntax [field:noexp], e.g., hypertension [mh:noexp], or hypertension [majr:noexp], or hypertension/therapy [mh:noexp]. The latter example turns off the more specific terms in both parts, searching for only the one Subheading therapy attached directly to only the one MeSH term hypertension. ● If parentheses are embedded in a MeSH term, replace the parentheses with a space and tag with [mh] e.g., enter the MeSH term Benzo(a)pyrene as benzo a pyrene [mh]. ● MeSH terms can be selected for searching in the MeSH database and from Preview/Index.
NLM Unique ID	[JID]	The alpha-numeric identifier for the cited journal that was assigned by NLM's Integrated Library System LocatorPlus [http://130.14.16.152/], e.g., 0375267 [jid].
Other Term	[OT]	Mostly non-MeSH subject terms (keywords), including NASA Space Flight Mission, assigned by an organization other than NLM. The Other Term data may be marked with an asterisk to indicate a major concept, however asterisks are for display only. You cannot search Other Terms with a major concept tag. The OT field is searchable with the Text Word [tw] and Other Term [ot] search tags.

Search Field	Tag	Description
Owner		Acronym that identifies the organization that supplied the citation data. Search using owner + the owner acronym, e.g. ownernasa.
Pagination	[PG]	Enter only the first page number that the article appears on. The citation will display the full pagination of the article but this field is searchable using only the first page number.
Personal Name as Subject	[PS]	Use this search field tag to limit retrieval to where the name is the subject of the article, e.g., varmus h[ps]. Search names following the Author field format, e.g., varmus h[ps].
Pharmacologic Action MeSH Terms	[PA]	Substances known to have a particular pharmacologic action. Each pharmacologic action term index is created with the drug/substance terms known to have that affect. This includes both MeSH terms and terms for Supplementary Concept Records.
Place of Publication	[PL]	Indicates the cited journal's country of publication. Geographic Place of Publication regions are not searchable. In order to retrieve records for all countries in a region (e.g., North America) it is necessary to OR together the countries of interest. Note: This field is not included in All Fields or Text Word retrieval.
Publication Date	[DP]	<p>The date that the article was published. Dates or date ranges must be searched using the format YYYY/MM/DD [dp], e.g. 1998/03/06 [dp]. The month and day are optional (e.g., 1998 [dp] or 1998/03 [dp]). To enter a date range, insert a colon (:) between each date (e.g., 1996:1998 [dp] or 1998/01:1998/04 [dp]).</p> <p>Use the following format to search X days, months or years immediately preceding today's date where X = numeric value:</p> <ul style="list-style-type: none"> ● "last X days"[dp] ● "last X months"[dp] ● "last X year"[dp] <p>Note: Journals vary in the way the publication date appears on an issue. Some journals include just the year, whereas others include the year plus month or year plus month plus day. And, some journals use the year and season (e.g., Winter 1997). The publication date in the citation is recorded as it appears in the journal.</p>

Search Field	Tag	Description
Publication Type	[PT]	Describes the type of material the article represents (e.g., Review, Clinical Trial, Retracted Publication, Letter); see full listing (Table 6), e.g., review[pt].
Publisher Identifier	[AID]	Includes article identifiers submitted by journal publishers such as DOI.
Secondary Source ID	[SI]	The SI field identifies secondary source databanks and accession numbers of outside resources discussed in MEDLINE articles. The field is composed of the source followed by a slash followed by an accession number and can be searched with one or both components, e.g., genbank [si], AF001892 [si], genbank/AF001892 [si]. The SI field and the Entrez sequence database links are not linked. The PubMed links to these databases are created from the reference field of the GenBank or GenPept flatfile. These references include citations that discuss the specific sequence presented in these flatfiles.
Subset	[SB]	Method of restricting retrieval by subject, citation status and journal/citation subsets. Searchable with [SB]. See also Limits and Finding Related Links for a Citation Using LinkOut).
Substance Name	[NM]	The name of a chemical discussed in the article. Synonyms to the Supplementary Concept Substance Name will automatically map when tagged with [nm]. This field was implemented in mid-1980. Many chemical names are searchable as MeSH terms before that date.
Text Words	[TW]	Includes all words and numbers in the title, abstract, other abstract, MeSH terms, MeSH Subheadings, chemical substance names, personal name as subject, MEDLINE Secondary Source, and Other Terms (see Other Term [OT] above) typically non-MeSH subject terms (keywords), including NASA Space Flight Mission, assigned by an organization other than NLM.
Title	[TI]	Words and numbers included in the title of a citation.
Title/Abstract	[TIAB]	Words and numbers included in the title, abstract, and other abstract of a citation.
Unique Identifier	[UID]	PubMed Unique Identifier PMID. To search for the PMID type in the number with or without the search field tag [uid]. You can search for several ID numbers by entering each number in the query box separated by a space (e.g., 95091318 97465762); PubMed will OR the terms together.

Search Field	Tag	Description
Volume	[VI]	To search in combination with other terms, you must enter the search field tag, e.g., smith [au] AND (10403340 [uid] OR vaccines [mh]). The number of the journal volume in which an article is published.

Table 2. Journal/Citation Subsets

Subset Code	Journal/Citation Subset
AIM	Abridged Index Medicus [http://www.nlm.nih.gov/bsd/aim.html] is a list created 20 years ago of 120 core clinical English language journals that corresponds to "Core clinical journals" subset in Limits.
D	Dentistry journals
E	Citations from bioethics journals or selected bioethics citations from other journals
H	Health administration journals, non-Index Medicus
IM	Index Medicus journals
K	Consumer health journals, non-Index Medicus
N	Nursing journals
Q	History of medicine journals and selected citations from other journals
S	Citations from space life sciences journals and selected space life sciences citations from other journals
T	Health technology assessment journals, non-Index Medicus
X	AIDS/HIV journals (selected citations from other journals 1980-2000)

Table 3. PubMed Citation Status Subsets

Status Tag	How to Search	Citation Status
PubMed - as supplied by publisher	publisher[sb]	This tag displays on citations recently added to PubMed via electronic submission from a publisher, and are soon to proceed to the next stage, PubMed - in process (see below). This tag is also on citations received before late 2003 if they are from journals not indexed for MEDLINE, or from a journal that was accepted for MEDLINE after the citations' publication date. These citations have not been reviewed for accurate bibliographic data.
PubMed - in process	in process[sb]	This tag indicates the citations will be reviewed for accurate bibliographic data and indexed, i.e., the articles will be reviewed and MeSH vocabulary will be assigned (if the subject of the article is within the scope of MEDLINE).

Status Tag	How to Search	Citation Status
PubMed - indexed for MEDLINE	medline[sb]	This tag displays on citations that have been indexed with MeSH Terms, Publication Types, Substance Names, etc., and have been reviewed for accurate bibliographic data.
PubMed	pubmednotmedline[sb]	This tag identifies citations that have been reviewed for accurate bibliographic data but will not receive MEDLINE indexing, because they are for articles in non-MEDLINE journals, or they are for articles in MEDLINE journals but the articles are out of scope or they are from issues published prior to the date the journal was selected for indexing, or citations to articles from journals that deposit their full text articles in PubMed Central but have not yet been recommended for indexing in MEDLINE.
PubMed - OLDMEDLINE for Pre1966	oldmedline[sb]	This tag identifies citations in the OLDMEDLINE [http://www.nlm.nih.gov/databases/databases_oldmedline.html] subset.

Table 4. PubMed Citation Display Formats

Display Format	Format Description
Summary	This format may include: Authors, Corporate Authors, Title, Journal source, Review Publication Type, language if the article is not in English, "No abstract available" notation, PMID, Comment/Correction links, and citation status. Summary also displays icon links next to each citation to indicate whether or not the citation includes an abstract, or when the full article is available free in PubMed Central or elsewhere.
Brief Abstract	Authors, first 30 characters of the Title, and PMID. This format may include: Journal source, Comment/Correction links, Title, language if article is not in English, Authors, Corporate Author, Author Affiliation, Abstract (if present), Publication Types (except for the Journal Article publication type), Personal Name as Subject, PMID, and citation status.
Citation	This format may include: Journal Source, Comment/Correction links, Title, language if article is not in English, Authors, Corporate Author, Author Affiliation, Abstract (if present), Publication Types (except for the Journal Article publication type), MeSH Terms, Personal Name as Subject, Chemical Substances, Secondary Source databank accession numbers, Grant numbers, PMID, and citation status.
MEDLINE	Two-character tagged field format (Table 8) for the complete record. Use this format to export citations into reference management programs.
ASN.1	ASN.1 (Abstract Syntax Notation One) is an international standard used to achieve inter-operability between platforms, including computer-to-computer, pager-to-computer, and many other possible combinations.

Display Format	Format Description
XML	Extensible Markup Language tagged format is a standard maintained by the World Wide Web Consortium (W3C). The XML standard defines a syntax used to create markup languages to specify information structures. PubMed XML output conforms to several DTDs. A document describing the MEDLINE XML [http://www.nlm.nih.gov/bsd/licensee/data_elements_doc.html] data element descriptions is available.
UI List	Use this format with Send to File or the printer-friendly version to list only PMIDs.

Table 5. MeSH Subheadings

Abbreviation	MeSH Subheading	Abbreviation	MeSH Subheading
AB	Abnormalities	MA	Manpower
AD	Administration and Dosage	ME	Metabolism
AE	Adverse Effects	MT	Methods
AG	Agonists	MI	Microbiology
AA	Analogs and Derivatives	MO	Mortality
AN	Analysis	NU	Nursing
AH	Anatomy and Histology	OG	Organization and Administration
AI	Antagonists and Inhibitors	PS	Parasitology
BI	Biosynthesis	PY	Pathogenicity
BS	Blood Supply	PA	Pathology
BL	Blood	PK	Pharmacokinetics
CF	Cerebrospinal Fluid	PD	Pharmacology
CS	Chemical Synthesis	PH	Physiology
CI	Chemically Induced	PP	Physiopathology
CH	Chemistry	PO	Poisoning
CL	Classification	PC	Prevention and Control
CO	Complications	PX	Psychology
CN	Congenital	RE	Radiation Effects
CT	Contraindications	RA	Radiography
CY	Cytology	RI	Radionuclide Imaging
DF	Deficiency	RT	Radiotherapy
DI	Diagnosis	RH	Rehabilitation
DU	Diagnostic Use	SC	Secondary
DH	Diet Therapy	SE	Secretion
DE	Drug Effects	ST	Standards
DT	Drug Therapy	SN	Statistics and Numerical Data
EC	Economics	SD	Supply and Distribution
ED	Education	SU	Surgery
EM	Embryology	TU	Therapeutic Use
EN	Enzymology	TH	Therapy
EP	Epidemiology	TO	Toxicity
ES	Ethics	TM	Transmission
EH	Ethnology	TR	Transplantation
ET	Etiology	TD	Trends
GE	Genetics	US	Ultrasonography
GD	Growth and Development	UL	Ultrastructure
HI	History	UR	Urine
IM	Immunology	UT	Utilization
IN	Injuries	VE	Veterinary
IR	Innervation	VI	Virology
IS	Instrumentation		

Abbreviation	MeSH Subheading	Abbreviation	MeSH Subheading
IP	Isolation and Purification		
LJ	Legislation and Jurisprudence		

Table 6. Publication Types

Addresses
 Bibliography
 Biography
 Case Reports
 Classical Article [for republished seminal articles]
 Clinical Conference [for reports of clinical case conferences only]
 Clinical Trial [includes all types and phases of clinical trials]
 Clinical Trial, Phase I
 Clinical Trial, Phase II
 Clinical Trial, Phase III
 Clinical Trial, Phase IV
 Comment [for comment on previously published article]
 Congresses
 Consensus Development Conference
 Consensus Development Conference, NIH
 Controlled Clinical Trial
 Corrected and Republished Article [consider Published Erratum]
 Dictionary
 Directory
 Duplicate Publication [duplication of material published elsewhere]
 Editorial
 Evaluation Studies
 Festschrift [for commemorative articles]
 Government Publications
 Guideline [for administrative, procedural guidelines in general]
 Historical Article [for articles about past events]
 Interview
 Journal Article [excludes Letter, Editorial, News, etc.]
 Lectures
 Legal Cases [includes law review, legal case study]
 Legislation
 Letter [includes letters to editor]
 Meta-Analysis [quantitative summary combining results of independent studies]
 Multicenter Study
 News [for medical or scientific news]
 Newspaper Article
 Overall [collection of articles; consider Meeting Report]
 Patient Education Handout
 Periodical Index [for cumulated indexes to journals]
 Practice Guideline [for specific health care guidelines]
 Published Erratum [consider Corrected and Republished Article]
 Randomized Controlled Trial
 Retraction of Publication [author's statement of retraction]
 Retracted Publication [article later retracted by author]
 Review [includes all reviews; consider specific types]
 Review, Multicase [review with epidemiological applications]
 Review of Reported Cases [review of known cases of a disease]
 Review, Tutorial [broad review for non-specialist or student]
 Scientific Integrity Review [U.S. Office of Scientific Integrity reports]
 Technical Report

Twin Study [for studies of twins]
Validation Studies

Table 7. Stopwords

	Stopwords
A	a, about, again, all, almost, also, although, always, among, an, and, another, any, are, as, at
B	be, because, been, before, being, between, both, but, by
C	can, could
D	did, do, does, done, due, during
E	each, either, enough, especially, etc
F	for, found, from, further
H	had, has, have, having, here, how, however
I	i, if, in, into, is, it, its, itself
J	just
K	kg, km
M	made, mainly, make, may, mg, might, ml, mm, most, mostly, must
N	nearly, neither, no, nor
O	obtained, of, often, on, our, overall
P	perhaps
Q	quite
R	rather, really, regarding
S	seem, seen, several, should, show, showed, shown, shows, significantly, since, so, some, such
T	than, that, the, their, theirs, them, then, there, therefore, these, they, this, those, through, thus, to
U	upon, use, used, using
V	various, very
W	was, we, were, what, when, which, while, with, within, without, would

Table 8. MEDLINE Display

Tag	Name	Description
AB	Abstract	Abstract
AD	Affiliation	Institutional affiliation and address of the first author, and grant numbers
AID	Article Identifier	Article ID values may include the pii (controlled publisher identifier) or doi (Digital Object Identifier)
AU	Author	Authors
CI	Copyright Information	Copyright statement
CIN	Comment In	Reference containing a comment about the article
CN	Corporate Author	Corporate author or group names with authorship responsibility
CON	Comment On	Reference upon which the article comments
DA	Date Created	Used for internal processing at NLM
DCOM	Date Completed	Used for internal processing at NLM
DEP	Date of Electronic Publication	Electronic publication date
DP	Publication Date	The date the article was published
EDAT	Entrez Date	The date the citation was added to PubMed

Tag	Name	Description
EFR	Erratum For	Cites the original article needing the correction
EIN	Erratum In	Reference containing a published erratum to the article
FAU	Full Author Name	Full Author Names
FIR	Full Investigator	Full investigator name
FPS	Full Personal Name as Subject	Full Personal Name of the subject of the article
GN	General Note	Supplemental or descriptive information related to the document
GR	Grant Number	Research grant numbers, contract numbers, or both that designate financial support by any agency of the US PHS (Public Health Service)
GS	Gene Symbol	Abbreviated gene names (used 1991 through 1996)
IP	Issue	The number of the issue, part, or supplement of the journal in which the article was published
IR	Investigator	NASA-funded principal investigator
IRAD	Investigator Affiliation	Affiliation of NASA-funded principal investigator
IS	ISSN	International Standard Serial Number of the journal
JID	NLM Unique ID	Unique journal ID in NLM's catalog of books, journals, and audiovisuals
LA	Language	The language in which the article was published
LR	Last Revision Date	The date a change was made to the record during a maintenance procedure
MH	MeSH Terms	NLM's controlled vocabulary
MHDA	MeSH Date	The date MeSH terms were added to the citation. The MeSH date is the same as the Entrez date until MeSH are added
OAB	Other Abstract	Abstract supplied by an NLM collaborating organization
OCI	Other Copyright Information	Copyright owner
OID	Other ID	Identification numbers provided by organizations supplying citation data
ORI	Original Report In	Displays on Patient Summary. Cites original article associated with the patient summary
OT	Other Term	Non-MeSH subject terms (keywords) assigned by an organization identified by the Other Term Owner
OTO	Other Term Owner	Organization that provided the Other Term data
OWN	Owner	Organization acronym that supplied citation data
PG	Pagination	The full pagination of the article
PHST	Publication History Status Date	History status date
PL	Place of Publication	Journal's country of publication
PMID	PubMed Unique Identifier	Unique number assigned to each PubMed citation
PS	Personal Name as Subject	Individual is the subject of the article
PST	Publication Status	Publication status
PT	Publication Type	The type of material the article represents

Tag	Name	Description
PUBM	Publishing Model	Article's model of print or electronic publishing
RF	Number of References	Number of bibliographic references for Review articles
RIN	Retraction In	Retraction of the article
RN	EC/RN Number	Number assigned by the Enzyme Commission to designate a particular enzyme or by the Chemical Abstracts Service for Registry Numbers
ROF	Retraction Of	Article being retracted
RPF	Republished From	Original article
RPI	Republished In	Corrected and republished article
SB	Subset	Journal/Citation Subset values representing various topic areas
SFM	Space Flight Mission	NASA-supplied data space flight/mission name and/or number
SI	Secondary Source Identifier	Identifies a secondary source that supplies information, e.g., other data sources, databanks and accession numbers of molecular sequences discussed in articles
SO	Source	Composite field containing bibliographic information
SPIN	Summary For Patients In	Cites a patient summary article
STAT	Status Tag	Used for internal processing at NLM
TA	Journal Title Abbreviation	Standard journal title abbreviation
TI	Title	The title of the article
TT	Transliterated / Vernacular Title	Non-Roman alphabet language titles are transliterated.
UIN	Update In	Update to the article
UOF	Update Of	The article being updated
VI	Volume	Journal volume