



PubMed®: Database of Biomedical Citations

A collection of abstracts for biomedical literature from selected journals

<https://www.ncbi.nlm.nih.gov/pubmed/>

National Center for Biotechnology Information • National Library of Medicine • National Institutes of Health • Department of Health and Human Services

Scope

PubMed® is a database of biomedical research literature that provides bibliographic information such as MEDLINE®, as well as the following:



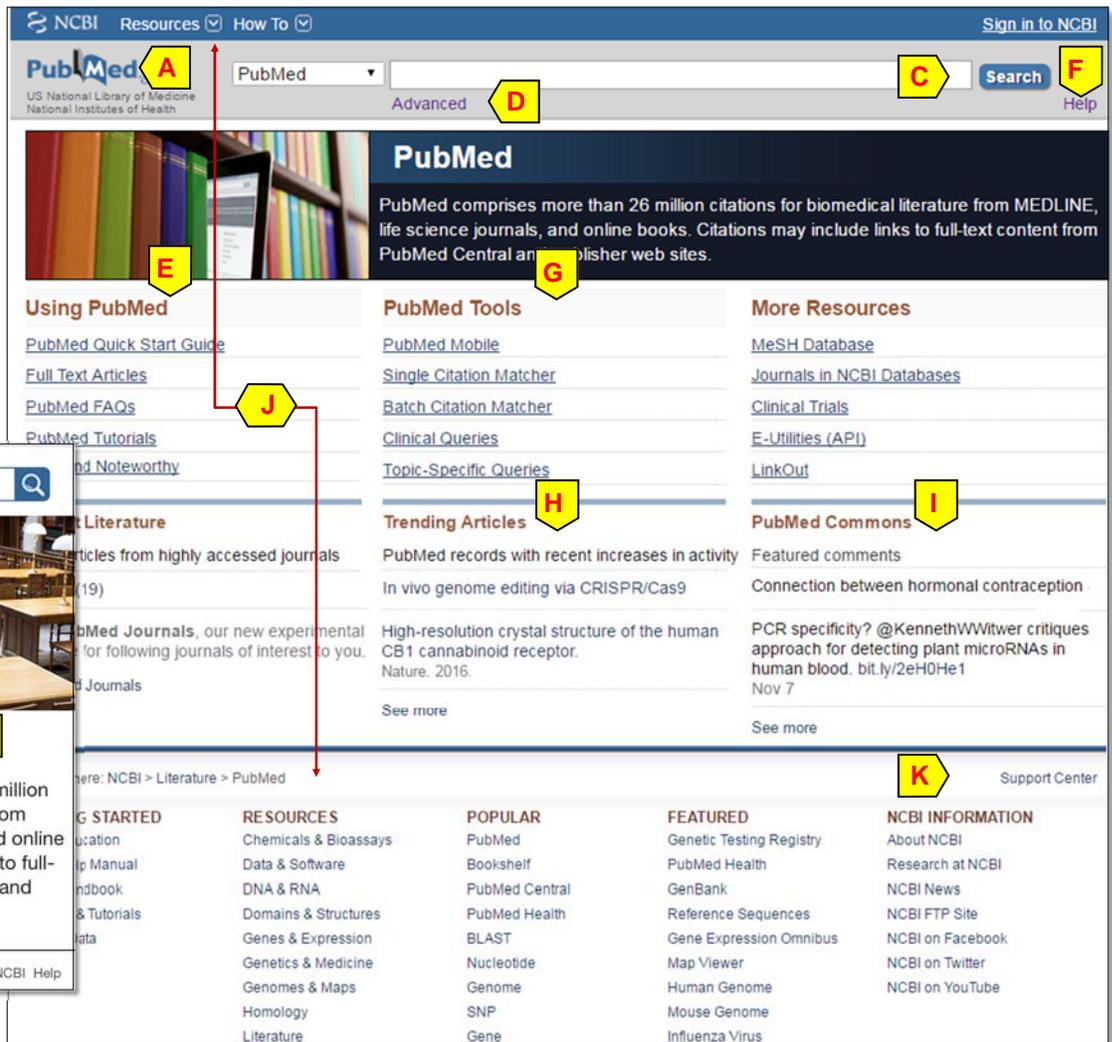
- Out-of-scope citations from general science and chemistry journals whose life science articles are indexed for MEDLINE®
- Citations that precede the date a journal was selected for MEDLINE indexing
- Citations from additional life science journals that submit full-text content to PubMed Central (PMC) and receive a qualitative review by NLM
- Abstracts of certain book entries from NCBI Bookshelf

Currently, PubMed contains close to 30 million entries. A subset of these records have links to free full-text articles through PMC and/or publishers. This handout highlights key features of the PubMed web interface.

Access

The common way to access PubMed is through the homepage at <https://www.ncbi.nlm.nih.gov/pubmed/> (A) using a web browser. An enhanced mobile version is also available at <https://www.ncbi.nlm.nih.gov/m/pubmed/> (B). In the homepage, searches can be performed using the query box and search button (C). The “Advanced” (D) page provides additional functions to construct complex queries using the query constructor or search history. The direct link to the “Advanced” page is <https://www.ncbi.nlm.nih.gov/pubmed/advanced>.

The PubMed homepage provides links to PubMed help documents (E, F), and access to specialized search tools, such as “Batch Citation Matcher” and “Clinical Queries” under the “PubMed Tools” section (G). Access to trending articles and author comments on citations (H, I) are also available.



The “Resources” pull-down menu and the standard footer (J) provide convenient way to navigate to other NCBI resources. The “Support Center” (K) links to a web form for users to ask questions, report issues, or send feedback to NLM.

Searching PubMed

Typing query terms in the search box, the autocomplete function responds by providing a list of suggested terms related to those entered (A). Clicking an entry from the suggested list brings it into the search box and runs the search, while continued typing ignores the suggestion. Clicking "Turn off" at the bottom (B) turns off this feature. Clicking the "Search" button executes a search with the entered term.

Search Summary

PubMed displays search results in the summary format. The display format, sorting order, and the total number of retrieved records are given at the top (C). The "Facet" display (D) replaces the old Limits page and makes filtering of search results by various criteria a click away. Links to tools and results relevant to the query can be found in the right column. The "Results by year" (E) charts the retrieved records according to their year of publication, thus providing a quick way to gauge the intensity of studies in the field. Mousingover a year displays the year and number of publications; clicking a year narrows the retrieved set to that select year. The "PMC images search for ..." (F) displays representative images from full-text records pertaining to the query terms. Records with title words containing the query terms are listed in the "Titles with your search terms" section (G). The "Format" and "Sort by" (H) link to popups through which settings can be adjusted. For number of record displayed, use the "Per Page" link at the bottom (not shown). The "Send to" dialog box (I) allows the saving of retrieved records through the "File" radio button, or delivery via email in a selected format and sort order through the "Email" radio button (J).

The screenshot shows the PubMed search results page for the query "neural stem cell differentiation". The search bar at the top contains the query and a dropdown menu with "neural stem cells" selected. A list of suggestions is visible below the search bar, with "neural stem cells" highlighted. A "Turn off" button is at the bottom of the suggestions list. The search results are displayed in a summary format, showing 14716 items. The first three results are listed, each with a title, authors, journal, and PMID. The "Format" and "Sort by" options are set to "Summary" and "Most Recent". The "Send to" dialog box is open, showing options for "File" and "E-mail". The "Titles with your search terms" section is visible at the bottom.

A: Search bar containing the query "neural stem cells" and a dropdown menu with suggestions.

B: "Turn off" button at the bottom of the suggestions list.

C: Search results summary showing "Items: 1 to 20 of 14716".

D: "Format" and "Sort by" dropdown menus.

E: "Results by year" chart showing the distribution of records over time.

F: "PMC Images search for ..." section displaying representative images from full-text records.

G: "Titles with your search terms" section listing records with title words containing the query terms.

H: "Format" and "Sort by" popups for adjusting settings.

I: "Send to" dialog box for saving or delivering records.

J: "E-mail" option in the "Send to" dialog box.

Filtering Search Results

A set of PubMed search results can be filtered using criteria given in the left-hand column. The example (A) is a filtered display showing only those with free full-text articles. The timeline chart under "Results by year" can also be used to filter a set records by their publication date - clicking a bar reduces the set to records from that selected year (B). Check the

"Search details" section (not shown) in the right column to see the exact queries PubMed uses to arrive at the filtered set.

The screenshot shows the PubMed search interface. On the left, a sidebar contains filter options: 'Choose additional filters', 'Text availability', 'Abstract available', 'Free full text available' (marked with a yellow 'A'), 'Full text available', 'Publication dates', 'Species', and 'Humans'. The main search results area shows a list of articles, with the first one highlighted. On the right, there is a 'Results by year' chart with a bar for the year 2004, which is selected (marked with a yellow 'B'). Below the chart are links for 'PMC Images search' and 'Filter your results'.

Displaying PubMed Records

Clicking the title of a PubMed record shown in the summary format displays its abstract. In the example shown below, links to full text (if available) are given as icons at the upper right-hand corner (C). Relevant content from other NCBI databases are given in the right-hand column (not shown). Citation information is placed at the top of the abstract (D), while its PubMed ID (PMID) and cognate PMCID are placed under the abstract (E). Images from the full text, given as thumbnails, link to the full display in PMC (F). Two sections below the image strip are closed by default. When opened, "Publication Types" (G) displays the publication type, indexed MeSH terms, substances described in the record, and grants funding the research, while "LinkOut" (H) displays the full-text providers and other relevant resources.

The screenshot shows a detailed PubMed record page. At the top, the title is 'Primary human mDC1, mDC2, and pDC dendritic cells are differentially infected and activated by respiratory syncytial virus.' (marked with a yellow 'D'). Below the title is the author list and the abstract. The abstract text is highlighted in red. Under the abstract, the PMID (21297989) and PMCID (PMC3030580) are listed, along with a 'Free PMC Article' link (marked with a yellow 'E'). To the right of the abstract, there are links for 'Save items', 'Related citations in PubMed', and 'Review' articles. Below the abstract, there is a section for 'Images from this publication' with several thumbnails (marked with a yellow 'F'). At the bottom, there are sections for 'Publication Types, MeSH Terms, Substances, Grant Support' (marked with a yellow 'G') and 'LinkOut - more resources' (marked with a yellow 'H').

Printing the Abstract of a PubMed Record

PubMed can print well-formatted PubMed records directly through the Print function of web browsers. For PubMed records displayed in 'Abstract' format, the printout will have items in the Discovery column removed. An example is shown to the right. For simplicity, it does not show the expanded "MeSH Terms, Substances" sections included in such a print out.

PLoS One, 2011 Jan 28;6(1):e16458. Open access to full text on **FREE** full text article in PubMed Central

Primary human mDC1, mDC2, and pDC dendritic cells are differentially infected and activated by respiratory syncytial virus.

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Abstract
Respiratory syncytial virus (RSV) causes recurrent infections throughout life. Vaccine development may depend upon understanding the molecular basis for induction of ineffective immunity. Because dendritic cells (DCs) are critically involved in early responses to infection, their interaction with RSV may determine the immunological outcome of RSV infection. Therefore, we investigated the ability of RSV to infect and activate primary mDCs and pDCs using recombinant RSV expressing green fluorescent protein (GFP). At a multiplicity of infection of 5, initial studies demonstrated ~6.8% of mDC1 and ~0.9% pDCs were infected. We extended these studies to include CD1c(-)CD141(+) mDC2, finding mDC2 infected at similar frequencies as mDC1. Both infected and uninfected cells upregulated phenotypic markers of maturation. Divalent cations were required for infection and maturation, but maturation did not require viral replication. There is evidence that attachment and entry/replication processes exert distinct effects on DC activation. Cell-specific patterns of RSV-induced maturation and cytokine production were detected in mDC1, mDC2, and pDC. We also demonstrate for the first time that RSV induces significant TIMP-2 production in all DC subsets. Defining the influence of RSV on the function of selected DC subsets may improve the likelihood of achieving protective vaccine-induced immunity.

PMID: 21297989 [PubMed - indexed for MEDLINE] PMCID: PMC3030580 [Free PMC Article](#)

The Advanced Search Builder

The "Advanced" page provides a query builder function for users to construct complex queries. It provides access to indexing fields (A) and terms indexed under them (through the "Show index list" link, B). Selecting a term automatically enters it into the query box (C). Custom query terms, such as search history numbers, can be manually entered in the query box after clicking the "Edit" (D) link. The example (E) combines searches #4 and #5 from the History. Clicking the "Add to history" link (F) examines the number of records retrieved and adds an entry in the search history without leaving the page. Clicking the number (G) under the "Items found" column retrieves those records and displays them in summary format.

The screenshot shows the PubMed Advanced Search Builder interface. Annotations are as follows:

- A:** Points to the MeSH Terms dropdown menu in the Builder section.
- B:** Points to the "Show index list" link on the right side of the Builder section.
- C:** Points to the search input field containing "respiratory syncytial viruses"[MeSH Terms].
- D:** Points to the "Edit" link above the search input field.
- E:** Points to the search input field containing "#4 AND #5".
- F:** Points to the "Add to history" link below the search input field.
- G:** Points to the "Items found" column in the History table, specifically the number 127.

Builder

MeSH Terms ▾ "respiratory syncytial viruses"[MeSH Terms]

respiratory syncytial virus, human/radiation effects (1)
respiratory syncytial virus, human/ultrastructure (10)
respiratory syncytial viruses (6714)
respiratory syncytial viruses/analysis (1787)
respiratory syncytial viruses/anatomy and histology (1)
respiratory syncytial viruses/chemistry (98)
respiratory syncytial viruses/classification (266)

AND ▾ All Fields ▾

Search or Add to history

History

| Search | Add to builder | Query | Items found | Time |
|--------|----------------|---|-------------|----------|
| #6 | Add | Search #4 AND #5 | 127 | 12:49:40 |
| #5 | Add | Search collins pl[Author] | 361 | 12:49:22 |
| #4 | Add | Search murphy br[Author] | 423 | 12:48:37 |
| #3 | Add | Search "respiratory syncytial virus vaccines"[MeSH Terms] | 356 | 12:47:42 |
| #1 | Add | Search tao t AND murphy br | 7 | 12:40:37 |

Saving and Automating Searches

You can automate PubMed searches you want to on a regular base by taking advantage of the "Create Alert" functions (H), which saves and automatically performs these searches and alerts you of the search results. You will need to login to your My NCBI account to do so. See PubMed Help for details: <http://bit.ly/ncbi-factsheet-0009>

The screenshot shows the PubMed search results page for the query "osteosarcoma cancer clinical trials". Annotation H points to the "Create alert" link.

PubMed.gov Search

US National Library of Medicine
National Institutes of Health

Create RSS Create alert **Advanced**

Article types: Clinical Trial, Review, Customize ...

Format: Summary ▾ Sort by: Most Recent ▾ Per page: 20 ▾ Send to ▾

Search results

Items: 1 to 20 of 480

<< First < Prev Page 1 of 24 Next > Last >>

Text availability: Abstract, Free full text, Full text

1. [Treatment pathway of bone sarcoma in children, adolescents, and young adults.](#)
Reed DR, Hayashi M, Wagner L, Binittie O, Stepan DA, Brohl AS, Shinohara ET, Bridge JA, Loeb DM, Borinstein SC, Isakoff MS.