



BARRY UNIVERSITY

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Effective & Efficient Use of NCBI/PubMed

- tools to help you do what you need to do -

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National Center for Biotechnology (NCBI)

National Library of Medicine (NLM)

National Institutes of Health (NIH)

TABLE OF CONTENTS

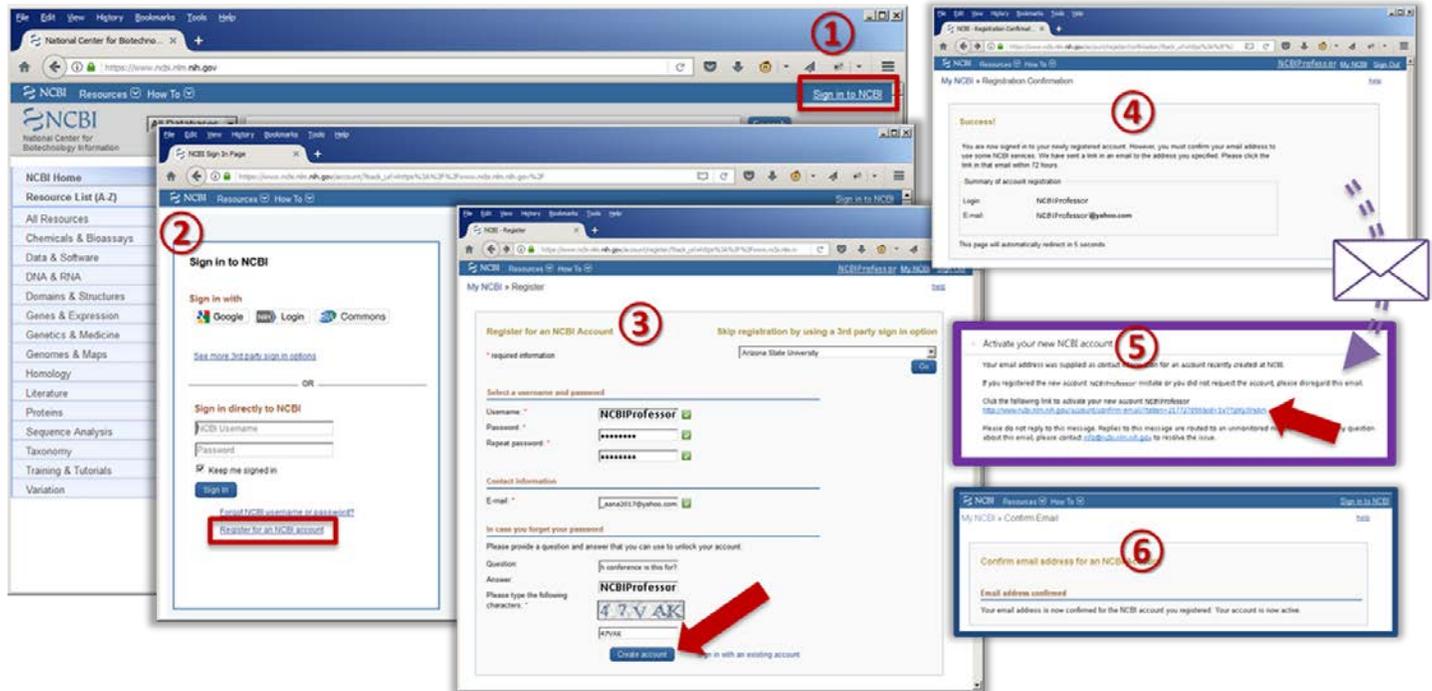
WHY SHOULD I GET AN NCBI ACCOUNT?	2
REGISTERING FOR AN NCBI ACCOUNT	2
THE MY NCBI DASHBOARD	3
CREATING EFFECTIVE SEARCHES	4
Searching with a phrase	4
Using booleans	4
Automatic Term Mapping (ATM)	4
Truncating search terms	4
Searching terms in specific database fields.....	4
Using the Advanced Search Builder	5
Combining searches using History.....	5
Tips on Using Medical Subject Header terms (MeSH) in PubMed	5
CUSTOMIZING SEARCH RESULTS DISPLAYS	6
Setting the format of highlighting for search terms	6
Adjusting the number of records displayed and sort criteria.....	6
Choosing preferred Document Delivery Services.....	6
Identifying preferred Outside Tools.....	7
Selecting Preferred Labs listed in the Genetic Testing Registry.....	7
USING THE FILTER SIDEBAR & CREATING CUSTOM FILTERS	7
Using the filter sidebar	7
Creating your own custom filters and choosing the filters to display	8
SAVING SEARCH STRATEGIES & AUTOMATING EMAILED ALERTS OF NEW RECORDS	9
SAVING & SHARING COLLECTIONS OF RECORDS	9
Save records by creating a new Collection or adding records to an existing Collection	9
Getting a public URL to share a Collection	10
Using My Bibliography - <i>a specialty-Collection</i> – and sharing it.....	10
THINGS TO KEEP IN MIND FOR NIH GRANT FUNDING	11
Linking your eRA Commons & NCBI accounts.....	11
Creating your grant application’s biosketch with SciENCv.....	11
Complying with the NIH Public Access Policy and grant reporting	11
Tracking NIHPA compliance and reporting NIH grant-funded publications with My Bibliography	11

WHY SHOULD I GET AN NCBI ACCOUNT?

The NCBI account system was designed with customizable tools to support each user's specific needs. The NCBI account has an My NCBI dashboard with an integrated set of tools to allow you to set and customize your NCBI website function and display preferences. You can use this to:

- ✓ Set your preferred highlighting format for search terms
- ✓ Set Outside Tool, Document Delivery, and Genetic Testing Laboratory preferences
- ✓ Set default displayed and create your own custom search result filters
- ✓ Save and automate searches to send Emailed notifications of new records
- ✓ Create collections to save interesting database records
- ✓ Create and manage a collection of your publications listing (bibliography)
- ✓ Make publicly-available any of your collections with a direct URL to share
- ✓ Manage NIH Public Access compliance for grant-funded publications
- ✓ *and much more!*

REGISTERING FOR AN NCBI ACCOUNT



- (1) At the top of most NCBI/PubMed pages, click “Sign in to NCBI” located on the top right of the toolbar.
- (2) Click “Register for an NCBI account”.
- (3) Fill in the form and click “Create account”.
- (4) You should see a screen that has acknowledged with “Success!” the creation of the account and sends a message to the Email of record for validation.
- (5) On the Emailed message, click the activation link to validate the Email and confirm your account.
- (6) With the activation link clicked, a webpage will indicate confirmation of the account and the Email.

From now on, you may “Sign in” to your account by clicking on the “Sign in” link at the top of most NCBI/PubMed pages or directly from the NCBI account login page at:

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

THE MY NCBI DASHBOARD

When you are logged in to your NCBI account, the header of most NCBI pages will have links for your account. The first link will show your “username” which will take you to your Account Settings page, the “Sign Out” link will.....sign you out of the system, and the “My NCBI” link will take you to your personal My NCBI Dashboard.

The screenshot shows the My NCBI Dashboard interface. At the top, there is a navigation bar with links for 'NCBI', 'Resources', and 'How To'. On the right side of the header, there are links for '2_ncbi', 'My NCBI', and 'Sign Out'. The main content area is titled 'My NCBI' and contains several widgets: 'Search NCBI databases' (10), 'Saved Searches' (11), 'Collections' (13), 'Filters' (15), 'My Bibliography' (12), and 'Recent Activity' (14). At the bottom, there is a 'SciENcv' widget (16). The 'Collections' widget contains a table with the following data:

Collection Name	Items	Settings/Sharing	Type
Favorites	edit 0	Private	Standard
My Bibliography	edit 0	Private	Standard
Other Citations	edit 0	Private	Standard

- (1) **NCBI** – display the NCBI homepage.
- (2) **Resources** –quick access to select NCBI databases, tools and resources.
- (3) **How To** – access tutorials showing “how to” use NCBI database resources.
- (4) **Username** – access account details (such as, email address, password, linked 3rd party accounts, etc.)
- (5) **My NCBI** – display the My NCBI Dashboard.
- (6) **Sign Out** – log out of your NCBI account.
- (7) **Customize this page** – determine which widget items (numbers 13 -19) will be displayed on the My NCBI Dashboard.
- (8) **NCBI Site Preferences** – customize display preferences (such as, search term highlighting format, number of displayed and sort order for displayed records, and additional preferences).
- (9) **Video Overview & Help** – provides information on how to use My NCBI.
- (10) **Search NCBI databases** – use the dropdown box to search any of all of NCBI’s databases.
- (11) **Saved Searches** – provides automatic Emailed updates of saved search queries on a daily, weekly or monthly basis.
- (12) **My Bibliography** – save, upload and manually create your publication list - can be exported and shared with others.
- (13) **Collections** – collections of database records that can be accessed as needed and shared with others.
- (14) **Recent Activity** – a history of searches and records in NCBI databases – cleared automatically every 8 hours.
- (15) **Filters** – narrow down search results based on your preferred filters. (PubMed has a limit of 15 displayed filters, while all other NCBI databases limit displayed filters to 5.)
- (16) **SciENcv** – create official biosketches to include with grant applications for National Institutes of Health (NIH), National Science Foundation (NSF) and Institutes of Educational Science (IES).

CREATING EFFECTIVE SEARCHES

Documentation: https://www.ncbi.nlm.nih.gov/books/NBK3827/#pubmedhelp.Searching_PubMed

Searching with a phrase

The Entrez Search system does not perform term adjacency searching. To define a phrase to search, you can use an *underscore*, `_`, between each word or you can place quotes, `" "`, around them. However, if the phrase is not found in the indexed list of terms, then the presence of the underscore or quotes is ignored and the phrase is processed with each individual word separately.

Using booleans

The Entrez Search system employs operators used to exclude or combine 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 the term from your search.

****PubMed applies the AND Boolean operator automatically between terms, for example, *vitamin c common cold* is translated to *vitamin c AND common cold* .****

Automatic Term Mapping (ATM)

The Entrez Search system tries to assist users by attempting to automatically recognize specific terms and improve the specificity of the search. The Entrez search activates ATM when there are no quotation marks, underscores, asterisks or delimited-indexing fields in the query. For PubMed searches, it first tries to match terms indexed within these specific PubMed indexing fields, in this order: 1) MeSH terms, 2) Journal, and then 3) Author

As soon as the Entrez Search system finds a match in the specific fields, it stops processing the search terms. If no match is found, Entrez breaks apart any phrases phrase and repeats the process in the specific fields until a match is found. Finally, the phrases and individual terms are searched in [All Fields](#) and any results obtained are displayed.

Documentation:

https://www.ncbi.nlm.nih.gov/books/NBK3827/#pubmedhelp.How_PubMed_works_automatic_te

Truncating search terms

Truncating a search term means to search for all terms that begin with a word and followed by an asterisk (*), the wildcard character (e.g., `tox*`). The Entrez Search system alphabetically iterates the first 600 variations of a truncated term. If more than 600 variations are found, a warning message displays to lengthen the root word to search for all endings. Please keep in mind that this turns off Automatic Term Mapping *mentioned in the box above*.

Searching terms in specific database fields

Database records are structured in specific fields for specific data. The Advanced Search Builder provides a list of database-indexed fields with the ability to see an alphabetical display of all terms indexed in each database search field.

To increase specificity for your search, you can indicate a specific field in which to search for matches to the term. To do this, after the search term add the specific field name or its abbreviation in square brackets (“field delimiters”), for example: `“morris rc”[author]` or `“morris rc”[au]` . Please note that inclusion of indexed field terms manually bypasses the Automatic Term Mapping system *mentioned in the box above*.

Video: <https://www.youtube.com/watch?v=uyF8uQY9wys>

Documentation: https://www.ncbi.nlm.nih.gov/books/NBK3827/#_pubmedhelp_Search_Field_Descriptions_and

Using the Advanced Search Builder

In addition to displaying a list of database-indexed fields, the Advanced Search Builder can assist the step-wise creation of effective searches by helping in the formation of specifically indexed terms in designated fields and encouraging the use of Booleans to connect multiple search terms.

- Go to the Advanced Search Builder page by clicking “Advanced” below the search query textbox.
- To see the list of *Indexing fields, click and scroll down the “All Fields” pull-down menu.
- To see the terms listed in a particular field, click the name of the indexing field of your choice.
- Click “Show Index” to see an alphabetized list of the terms indexed in that field with the number shown in the parentheses (200 are shown at a time).
- To see if a term is listed or to zoom-down through the list quickly, type in the text box next to the field name and then click “Refresh Index”. (You may notice that some fields have an autocomplete feature.)
 - Click on a term of interest and notice that it will both be added to the text box next to the field. It will also be added to the Search Builder’s shaded box at the top with the field listed in square brackets. You can edit this text directly, if desired, by clicking the “Edit” below the shaded box.

More information about using the Advanced Search Builder:

In a traditional search, terms entered in the text box are automatically combined with the Boolean operator AND unless otherwise specified. However, the Advanced Search Builder automatically adds OR terms. In addition, it also processes the terms in a specific order from left-to-right adding parentheses for multiple terms selected from the Search Builder.

Combining searches using History

Searches can be combined or used in subsequent searches using the search number from Advanced Search History which is located at the bottom of the Advanced Search Builder page.

- To access the “History” service, click “Advanced” under the search query text box.
- In the History section, click **Add** to move a previous search into the Builder text box.
 - Alternatively, click the search number to display additional options to add the search to the Builder, including Boolean operators OR or NOT.
- Add additional search terms to the Builder, if desired.
- Click Search.

More information about using History:

The history feature requires your web browser to be set to accept cookies. Searches listed in the history will be cleared automatically after 8 hours of inactivity on the NCBI web site or you can manually delete all searches by clicking “Clear history”.

Documentation: https://www.ncbi.nlm.nih.gov/books/NBK3827/#pubmedhelp.Combining_searches_using_Hist

Tips on Using Medical Subject Header terms (MeSH) in PubMed

MeSH is a controlled vocabulary created by the National Library of Medicine for indexing of scientific and medical literature. MeSH terms are manually added to PubMed records to improve searching. However, this takes time, so while PubMed records may be visible in PubMed it may take a few months before a PubMed search exploiting MeSH field indexing is effective in retrieving the record.

Websites: <https://www.nlm.nih.gov/mesh/> & <https://www.ncbi.nlm.nih.gov/mesh>

Video: <https://www.youtube.com/watch?v=uyF8uQY9wys>

CUSTOMIZING SEARCH RESULTS DISPLAYS

Customization within the NCBI databases allows users to:

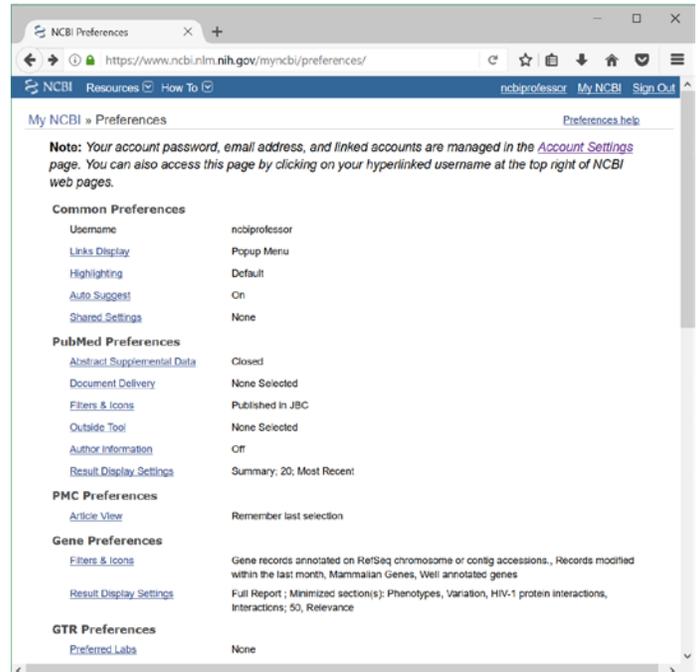
- ✓ Highlight search terms to quickly scan results.
- ✓ Sort records based on your preference.
- ✓ Display up to 200 search results per page.

Video: <https://youtu.be/mih7gJwd5HI?list=PL88E9E5EA3BECE0D7>

Documentation: <https://www.nlm.nih.gov/bsd/viewlet/results/display.html>

Setting the format of highlighting for search terms

- Sign in to your NCBI account using: <https://www.ncbi.nlm.nih.gov/account>
- Click **My NCBI** to access your Dashboard.
- Click **NCBI Site Preferences**, located on the right.
- Locate the *Common Preferences* section and click **Highlighting**.
- Select the designated color from the pop-up window and click **Save**.



Adjusting the number of records displayed and sort criteria

- On the **NCBI Site Preferences** page, locate the *PubMed Preferences* section and click **Result Display Settings**.
- In the *Default items per page* section, click the number of records you want to display by default (up to 200 records).
- In the *Default sort by* section, click your preferred parameter for default sorting (most recent, best match, publication date, first author, last author, journal or title).
- Click **Save**.

Choosing preferred Document Delivery Services

A feature of PubMed that allows you to order articles from an institution of your affiliation. By default, orders are set to [Loansome Doc](#), the document delivery service of the National Library of Medicine.

To change the Document Delivery Service:

- On the **NCBI Site Preferences** page, locate the *PubMed Preferences* section and click **Document Delivery**.
- Select your choice of document delivery service.

The service will only work while signed into your My NCBI account

To order a document:

- Conduct your search in PubMed: <https://www.ncbi.nlm.nih.gov/pubmed/>
- Check the left-hand side box next to the citation you wish to order.
- Sign in to your NCBI account by clicking “**Sign in to NCBI**”, if not already signed in.
- Click the **Send to** link and click the **Order** radio button.
- You will be directed to the Document Delivery Service form for the service of your choice.



Identifying preferred Outside Tools

Outside Tool allows libraries to add a link from PubMed citations to connect you to the available materials within your library. The materials may include access information on local print holdings to electronic full text.

- Sign in to your NCBI account using: <https://www.ncbi.nlm.nih.gov/account>
- Click **NCBI Site Preferences**, located on the right.
- Locate the *PubMed Preferences* section and click **Outside Tool**.
- Select your affiliated institution and click **Save**.

Selecting Preferred Labs listed in the Genetic Testing Registry

Pre-select your choice of vendors listed in the Genetic Testing Registry (GTR) to limit search results shown to tests offered by these laboratories.

- Sign in to your NCBI account using: <https://www.ncbi.nlm.nih.gov/account>
- Click **My NCBI** to access your Dashboard.
- Click **NCBI Site Preferences**, located on the right.
- Locate the *GTR Preferences* section and click **Preferred Labs**.
- Click the **GTR website** to be redirected to locate your preferred vendor.

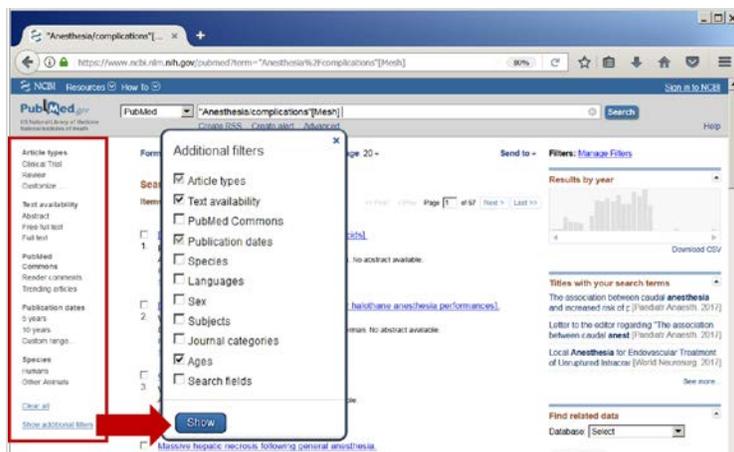
USING THE FILTER SIDEBAR & CREATING CUSTOM FILTERS

Filters assist in narrowing down search results to smaller groups of data in the NCBI databases. PubMed has a built-in filter sidebar and the ability to create custom filters to achieve more efficient and effective results.

Using the filter sidebar

Narrow search results by article types, text availability, publication dates, species, languages, sex, subjects, journal categories, ages and search fields.

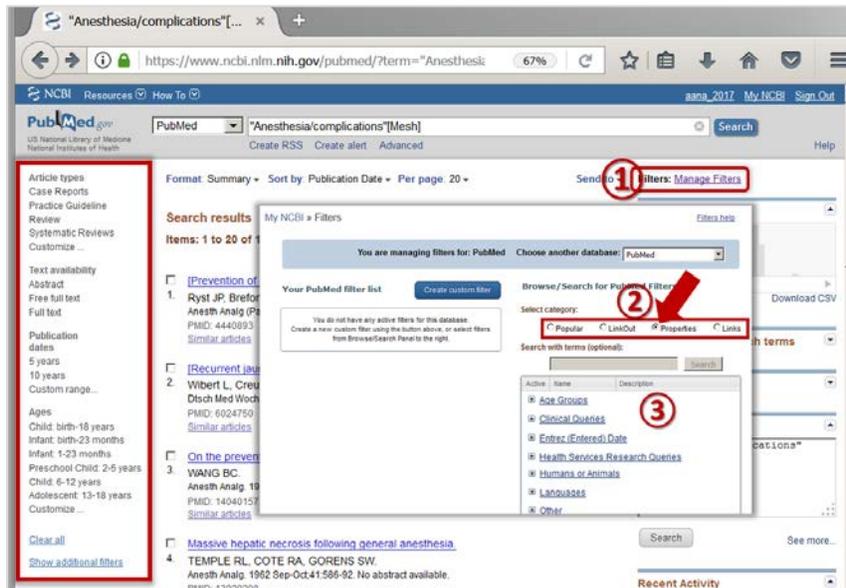
- Perform a search.
- Click a term in the Filter sidebar (on the left) to filter the list of results.
- Click the “Show additional filters” link to add more or remove filter categories displayed in to the sidebar.



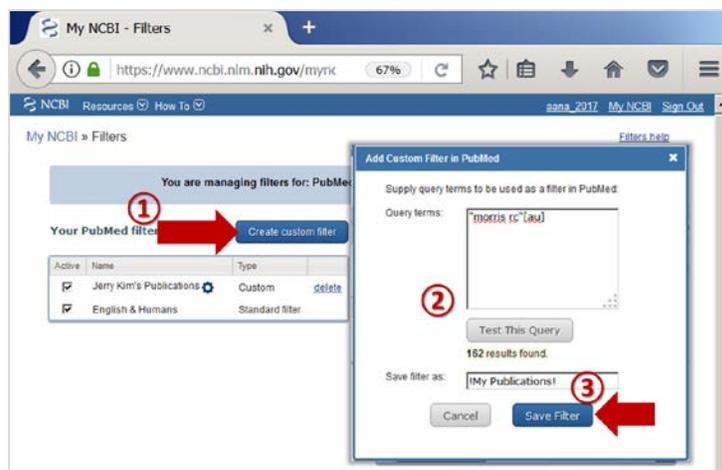
Please note: A checkmark will appear beside the activated filter and subsequent searches will be filtered until the selected filters are cleared. To remove the filter, click “clear” to remove an individual filter or click “clear all” for all at once.

Creating your own custom filters and choosing the filters to display

- Sign in to your NCBI account using: <https://www.ncbi.nlm.nih.gov/account>
- Click **Manage Filters** link in the *Filters* portlet (on the top, right-hand side of the page).
- Browse and select from the list of filters pre-defined filters:
 - Popular – most commonly requested filters.
 - LinkOut – links to resources provided by outside organizations.
 - Properties -groups based on specific criteria (such as: gender, language, age groups, etc.)
 - Links – other NCBI databases.



- Create a custom filter by clicking **Create custom filter** button.
 - Custom filters will *not* automatically be active. You must click to select them for display.
 - Custom filters may be removed by clicking the “Delete” link.
 - Edit custom filters any time by clicking the gear icon. Here, modify the query and click “Save filter”.



Video - Using and Setting Sidebar Filters: <http://www.nlm.nih.gov/bsd/viewlet/myncbi/filters.html>

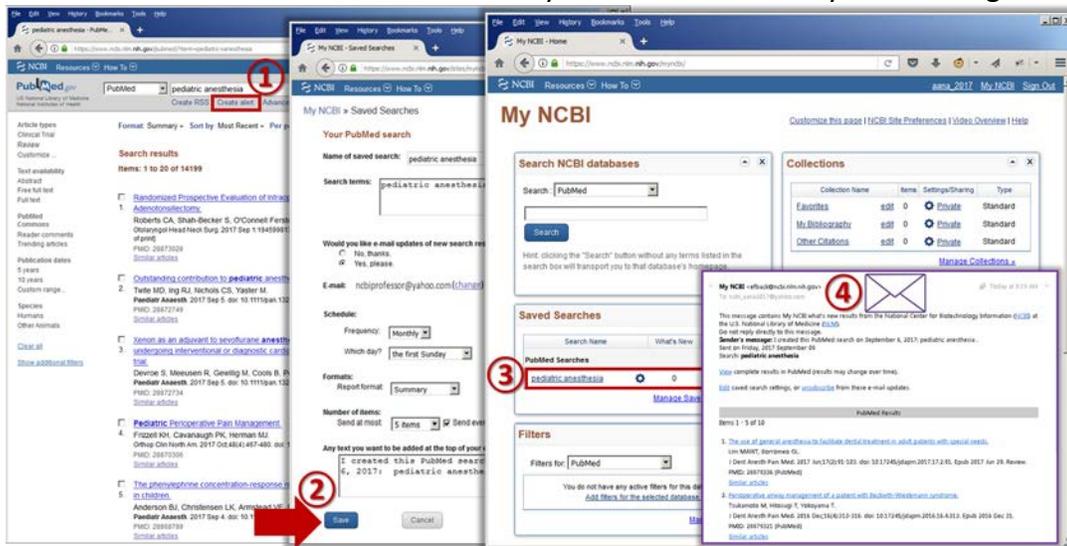
Video - Creating Custom Filters: <https://www.youtube.com/watch?v=696R9GbOyvA>

Documentation: https://www.nlm.nih.gov/bsd/viewlet/myncbi/custom_filters/index.html

SAVING SEARCH STRATEGIES & AUTOMATING EMAILED ALERTS OF NEW RECORDS

Save search queries for PubMed and NCBI databases with the ability to have automatic e-mail updates on a daily, weekly or monthly basis.

- Sign in to your NCBI account using: <https://www.ncbi.nlm.nih.gov/account>
- Run a search in PubMed.
- Click **Create alert**, located below the search box.
 - Click *Save search* if using a different NCBI database.
- The pop out window will allow you to edit the search name (up to 100 characters).
The name of the search will be the in the Subject line of the e-mail
- Schedule the email saved searches and review the remaining fields.
Select "Send even when there aren't any new results" to verify it is running correctly



Video: <https://www.youtube.com/watch?v=WbFjV91YNNY>

Documentation: https://www.ncbi.nlm.nih.gov/books/NBK3827/#pubmedhelp.Saving_and_Emailing_Results_a

SAVING & SHARING COLLECTIONS OF RECORDS

Searches can be shared and saved. Within a My NCBI account, there are two ways to save citations. My Bibliography saves your authored citations from NCBI databases or citations may be manually entered. Collections is a reference tool that saves citations from the NCBI data base authored by other researchers.

Save records by creating a new Collection or adding records to an existing Collection

- In the search results, use the check boxes to select citations.
- Click **Send to** (at the top-right of the results listing).
- Select an existing or create a new Collection in which to add your citation.

Documentation:

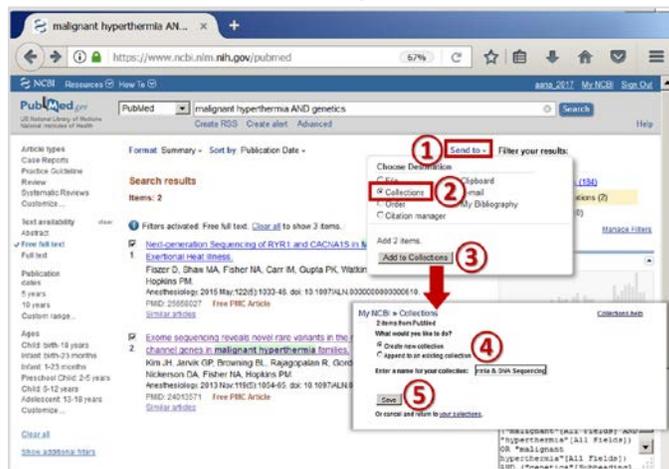
<https://www.ncbi.nlm.nih.gov/books/NBK53590/>

Video – Saving Records in Collections:

<https://www.youtube.com/watch?v=iXSttEKntCE>

Video - Editing Collections:

https://www.nlm.nih.gov/bsd/viewlet/myncbi/coll_edit/coll_edit.html

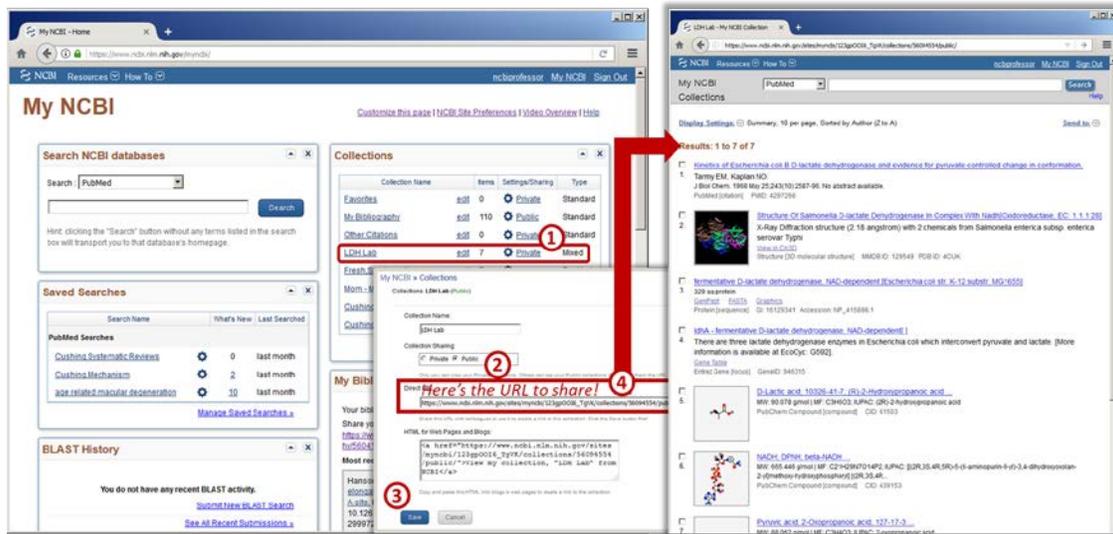


Getting a public URL to share a Collection

All Collections (including My Bibliography) in your My NCBI Dashboard is set as “Private” (inaccessible by a URL) by default. You can manually change the collection to become “Public” which will generate a URL that you can share with others. Please note the URL will not be indexed by search engines but will be visible by those who have and type or paste the URL into a web browser.

To get a public URL for a collection

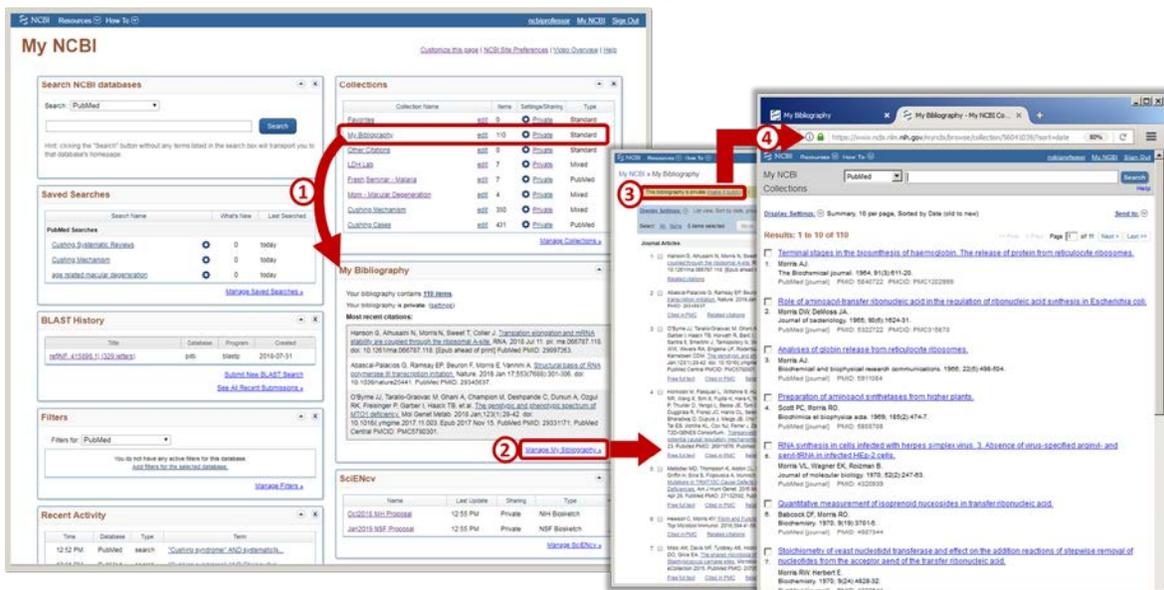
- Sign in to your NCBI account using: <https://www.ncbi.nlm.nih.gov/account>
- Click **My NCBI** to access your dashboard.
- In the *Settings/Sharing* column of the *Collections* widget, click **Private** for your selected Collection.
- Next to *Collection Sharing*, click the **Public** radio button, and then click **Save**.
- You can always click the gear next to a collection to gain details of the Collection, such as the URL.



Video - Sharing Collections: https://www.nlm.nih.gov/bsd/viewlet/myncbi/sharing_collections.html

Using My Bibliography - a specialty-Collection – and sharing it

“My Bibliography” is an enhanced/special “Collection” for you to list your own PubMed- and PMC-listed publications, as well as those not listed at NCBI (such as publications in non-PubMed listed journals or textbook chapters). This Collection has the same functionality as others, such as the ability to export or share - for example as a hyperlink in a Faculty Profile or webpage. My Bibliography can also serve as a source for the SciENcv application, which can help you create a federal grant application biosketch.



Video – My Bibliography: <https://youtu.be/9gApmLHdCSM>

Documentation – My Bibliography: <https://www.ncbi.nlm.nih.gov/books/NBK53595/>

THINGS TO KEEP IN MIND FOR NIH GRANT FUNDING

Learn about grants offered by NIH and up-to-date funding opportunities: <https://grants.nih.gov>

Linking your eRA Commons & NCBI accounts

The NIH Electronic Research Administration provides an online system (eRA Commons) for researchers to track the status of their grant applications, view award notices, submit required documentation and create annual progress reports using the Research Performance Progress Report (RPPR). Linking an eRA Commons account an NCBI account will help in pre-award grant application preparation and post-award reporting.

Website: <https://era.nih.gov/>

Documentation: https://www.ncbi.nlm.nih.gov/books/NBK3842/#MyNCBI.Adding_a_Partner_Organization_as

Creating your grant application's biosketch with SciENcv

The NCBI, in collaboration with many other federal agencies and organizations, has created the Science Experts Network Curriculum Vitae (SciENcv). This is an NCBI application that produces federal grant proposal biosketches for inclusion with federal grant applications. The data included is automatically repurposed from an existing My Bibliography, eRA Commons, and other 3d party accounts such as ORCID and NSF.

Website: <https://www.ncbi.nlm.nih.gov/sciencv/>

Video: <https://www.youtube.com/watch?v=PRWy-3GXhtU>

Documentation: https://www.ncbi.nlm.nih.gov/books/NBK154494/#sciencv.Creating_SciENcv_Biosketches

Complying with the NIH Public Access Policy and grant reporting

The NIH Public Access Policy (NIHPA) is based on a legal statute [Division G, Title II, Section 218 of Public Law 110-161 - Consolidated Appropriations Act, 2008] and requires that:

“all investigators funded by the NIH submit or have submitted for them to the National Library of Medicine's PubMed Central an electronic version of their final, peer-reviewed manuscripts upon acceptance for publication, to be made publicly available no later than 12 months after the official date of publication: Provided, That the NIH shall implement the public access policy in a manner consistent with copyright law.”

Website – NIH Public Access: <https://publicaccess.nih.gov/index.htm>

Documentation – eRA Commons NIHPA Compliance Guide: https://era.nih.gov/grantees/manage_publications.cfm

Tracking NIHPA compliance and reporting NIH grant-funded publications with My Bibliography

NIHPA Compliance requires submission of NIH-funded publications to the NIH Manuscript Submission (NIHMS) System which processes the documents for inclusion in the PubMed Central (PMC) database.

Website – NIHMS: <https://www.nihms.nih.gov/db/sub.cgi>

Documentation – NIHPA Submission Methods: https://publicaccess.nih.gov/submit_process.htm

Video – NIHMS Submission: <https://www.youtube.com/watch?v=IIEBtfnSqMA>

The progress of grant-funded publications, from submission through processing and inclusion in PMC, can be tracked in My Bibliography and this tool will repurpose this information to generate the required C.1 publication table for your Annual and Final Research Performance Progress Reports (RPPRs).

Documentation: Managing NIHPA Compliance with your NCBI account

https://www.ncbi.nlm.nih.gov/books/NBK53595/#mybibliography.Managing_Compliance_to_th

Video – Public Compliance with My Bibliography: https://youtu.be/JYODIOD_YYE

Documentation – NIH RPPR Guide: https://grants.nih.gov/sites/default/files/rppr_instruction_guide.pdf

Finally, organizations can track the compliance status of their institution's NIH grant-funded publications with the NIHPA Compliance Monitor - which can be accessed with an NCBI account.

Website – NIH Public Access Compliance Monitor: <https://www.ncbi.nlm.nih.gov/pmc/utis/pacm/>

Documentation – Compliance Monitor Guide: <https://www.ncbi.nlm.nih.gov/pmc/utis/pacm-user-guide.pdf>