

Navigating and Searching CEBS

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Function

The purpose of this tutorial is to provide navigational instructions for the Chemical Effects in Biological Systems (CEBS) homepage.

The CEBS homepage is located at (<https://manticore.niehs.nih.gov/cebssearch/>)

1) Navigating within CEBS

From the CEBS homepage, the following options are available

- Perform a search of National Toxicology Program (NTP), non-NTP or all data in CEBS using the Search CEBS bar
- Select an NTP Guided Search: searches and/or downloads of specific NTP data sets
- Select an External Data Set: filter and download data sets from sources outside of the NTP
- Select Other Resources: more information about CEBS data, including: documentation, support information (help and FAQs), bulk data downloads, and a password protected area for unpublished data (My Data)

a) Returning to the Homepage

If any of the above options are selected, returning to the homepage can be accomplished using the following methods:

- For search results, NTP Guided Searches, External Data Sets, and Other Resources, click the 'Back' button of your browser
- For search result pages, you can also click 'Chemical Effects in Biological Systems (CEBS)' in the breadcrumb links at the top of the page

b) Navigating Pop-Up Windows

If a pop-up window opens (e.g. when viewing the study details of genetic toxicology studies) the screen containing the study data may have multiple tabs. Click to select the tab of interest. Navigate back to your search window or tab to return to your search results.

c) Navigating NTP Guided Searches

Guided searches within CEBS allow selections of search criteria. In some of these, use of the browser back button is not recommended as it will return the CEBS home page rather than the data selection screen. To navigate within the NTP Pathology Data guided search and the J&J Codelink Data external data set, use the 'Back to Filter Options' or 'Filter' button to return to your selections. When present, use the 'Clear Selections' or 'Reset Values' button to remove selections.

Other guided searches (e.g. Treatment-Related Findings) will preserve selections when using the back button of your browser. More detailed user guides for individual guided searches can be found on the [CEBS Support page](#).

2) Searching CEBS

The CEBS homepage allows users to search for desired data, test articles, studies, etc. from a single search bar. Users can follow the steps below to navigate the search, results, and data pages.

a) Using the Search Bar

The CEBS search bar appears on the CEBS homepage and on the results pages of searches. The search bar has the same functionality wherever it appears. Type your term of interest and press Enter to return any related test articles in CEBS. The categories of search terms currently supported are detailed in the [Search Options](#) table below.

Search Options

Search Term	Description	Example Searches
CAS #	Chemical Abstract Service Registry Number	700-06-1
Test Article Name	Name of test article administered to test subjects	Salicylic Acid
Publication	NTP publication number	TR-580, TOX-48
Project	NTP project or program of work	Radiofrequency radiation emissions from cellular phones
Study Number	Unique study identification number: CEBS accession, TDMSE or NTP study numbers	002-02223-0003-0000-4, 20203-01, C20203
Study Type	Type of study conducted	Micronucleus
Data Type	Type of data	Hematology

Search Limitations

Currently, the following searches are not fully supported from the CEBS search bar:

- **Assays/endpoints** – CEBS does not support searches of specific endpoints or assays, e.g. spleen weight, basophil count, cholesterol, etc. These types of searches result in a message that allows users to search for all test articles with that data type (e.g. organ weight, hematology, clinical chemistry, etc.) or directs users to related guided searches of NTP data. For example, searches for a tumor type (e.g. “Osteosarcoma”) will direct users to the NTP Pathology Data guided search, where individual animal data relating to that tumor can be searched and downloaded. Users can also access assay or endpoint data using the Download Data resource, or requesting help from CEBS-Support@mail.nih.gov.
- **Strains and Species** – CEBS does not support searches for test articles based on species or strain (e.g. rat, B6C3F1, F344). Searches for these terms will result in a message that directs users to access guided searches on the CEBS homepage. The following guided searches allow searching based on strain or species:
 - NTP Pathology Data
 - Organ Sites with Neoplasia
 - Treatment-Related Findings
- **Levels of Evidence** – CEBS does not currently support searches for studies or test articles based on the level of evidence or conclusion (e.g. negative, clear evidence). Searches for these terms will result in a message that directs users to access guided searches on the CEBS homepage. The following guided searches allow searching based on levels of evidence:
 - Treatment Related Findings

- Organ Sites with Neoplasia

b) Searches Returning Multiple Results

Searches for a test article that produce more than one result take users to a results page that allows users to filter results. This page has the following components:

- The number of search results, and the search criteria. Displayed at the top left of the page above the filter options
- The test articles resulting from the search; each test article is displayed with the following information (if available):
 - CAS # (shown in square brackets)
 - Test article name
 - Related pages e.g. publications or programs of work associated with the test article
 - Term matching the searched term
 - Study count (NTP and non-NTP)
 - Year or range of years that the studies conducted were started
- The option to sort the test article results by: study start date, study count, or closest match to the search
- If multiple pages of results exist, pagination buttons to navigate through results pages are displayed to the right of the page, both above and below the test article results.
- Options to filter the results are displayed to the left of the test article results

Filtering results

Filters can be applied to search results. The following types of filters are available:

- **NTP Start Date** – Selection of one or more start date range(s) limits the results to those test articles with studies that started in the selected date range(s). The filter does not eliminate test articles with studies both within and outside of the selected start date ranges.
- **NTP Study Types** – Selection of one or more study type(s) limits the results to test articles with those study types. The filter does not eliminate test articles with additional study types other than the type(s) selected. Study types are displayed in General Toxicology, Genetic Toxicology, and Other groups.
- **Data** – Selection of one or more data type(s) limits the results to test articles with those data types. The filter does not eliminate test articles with additional data types other than the type(s) selected.

When filters are applied they appear above the Filter Results box. Filters of the same type (e.g. multiple NTP Study Types) are grouped together with parentheses. Multiple selections within one filter type will return test articles that have studies matching any of the selected options of that filter type, noted by the “OR” between selections. Filters of different types (e.g. a Start Date range and a Data type) will return test articles that match all selected filter types, noted by the “AND” between selections. Filters can be cleared using the ‘Reset filters’ button at the top of the Filter Results box. For an example of a search with filters, see the [filter search example](#) below.

Once you have found the test article of interest, click the name and CAS # to view the page for that test article. You can also select the buttons for any related pages (e.g. a TR). These pages are described below in [searches with a single result](#).

c) Searches Returning a Single Result

When you use the search bar and CEBS only contains a single result for that search, you will be taken directly to the page for that test article, publication, or project. Each page may have some or all of the following sections.

Study Results

This section contains any NTP level of evidence or study result available. Each level of evidence or study result is displayed beneath a heading grouped by study type and species, if applicable. The ‘View’ button next to the level of evidence or result will highlight the title of the corresponding study in light blue wherever it occurs on the current page. If the page is long and the corresponding study is not currently visible, selection of the view button automatically scrolls down the page until the study is visible.

Publications

This section contains the citation information for any publications for which CEBS has available information. This includes NTP publications, such as technical reports and journal articles. Selection of the publication number for an NTP report (e.g. TR-584) takes the user to a CEBS publication page which contains information on all the studies included in the selected publication. In addition, if an abstract is available a link is present under the citation.

Study Data

This section contains the list of studies, grouped by study type, that CEBS contains for the test article, publication, or project. Below are the possible study type groupings:

Toxicity and Carcinogenicity

Short-term toxicity and chronic carcinogenicity studies are listed in this section. Studies are ordered with short-term studies listed before chronic studies.

Genetic Toxicology

All genetic toxicology studies, for example, Micronucleus, Ames, and Mammalian Cell Cytogenetics, are listed in this section.

Other NTP

Other NTP studies are listed in this section including: Immunotoxicology, Nematode, Tox21, Toxicogenomics, Toxicokinetics, Zebrafish, and more.

Other (Non-NTP)

Finally, studies in CEBS performed by institutions, laboratories or organizations other than NTP are listed in this section.

Study titles are displayed in one of two ways: as a link or as a static title with a chevron icon (>) to indicate a dropdown list. Clicking a study title link displays study data on a new page. Clicking a chevron displays links to data tables containing summary or individual animal data (Excel or PDF format). All study data tables can be viewed and downloaded. To collapse the data tables for a study, click the chevron icon again.

Citation Information

This section contains the CEBS citation information for the test article, publication, or project page. This citation should be used when referencing data from this page.

Related Links

This section contains links to other CEBS pages relating to the current page. This section might contain the following types of links:

- Publication pages (e.g. TR-584)
- Project pages (e.g. Radiofrequency radiation emissions from cellular phones)
- Test article pages (e.g. Indole-3-carbinol)

Using the Related Links, a test article can be associated with the related publication and project pages.

3) Additional Instructions/Information

- 1) 'Chemical Effects in Biological Systems (CEBS)' breadcrumb link or the back button of the browser will return users to the CEBS homepage. The 'Home' breadcrumb link will return users to the NTP homepage

- 2) Downloading and displaying text files in Excel: Most downloads from CEBS are Excel files or PDFs. On some pages, the Download Data button appears, with the file type (.txt or text document). To view these data in Excel after saving, follow these steps:
 - Open the saved file in Notepad or your favorite text editor
 - Select all by choosing Ctrl + A (PC) or Command + A (Mac); this function will highlight the entire document
 - Right click your mouse and select copy
 - Open a new Excel document
 - Right click your mouse and select paste
 - Save as an Excel document
 - To add filtering options, navigate to the Data Tab in Excel and select Filter
- 3) Flash movie running flex code for CEBS indicates a software platform is being used to create graphics or texts for CEBS
- 4) For complete instructions on how to cite data in CEBS; navigate to the CEBS Support page, and selecting the [How do I cite CEBS](#) document under FAQs. Here, instructions can be found on citing NTP Data as well as non-NTP data in CEBS.

4) Examples

The following examples demonstrate how to search for studies and data of interest using the CEBS search bar

a) Search for NTP Publications on Benzene

- From the CEBS homepage, search for “benzene”
 - To search for benzene, type “benzene” and press enter. All test articles with names or synonyms containing “benzene” will be displayed. To view the Technical Report for benzene, click the button for TR-289 underneath the Benzene name
- To view a list of publications for Benzene, select the CAS # and name of “Benzene” at the top of the results
- Under Publications, view the list of NTP publications on Benzene, including TR-289 and GMM-08
- Select the TR-289 or GMM-08 title to go to those publication pages in CEBS. The data for studies included associated with the publication will be available on that publication page
- Select the “[Abstract]” link to go to the abstract for the technical report

b) Search for Test Articles Tested after 2010, with Chronic Studies and Microarray Data

- From the CEBS homepage, search for “chronic”; select the “Filter on: General Toxicology >> Long Term” item from the following page
- On the next page, select the 2010 – 2019 check box beneath NTP Start Date in the Filter Results box
- The Long Term check box beneath NTP Study Types and General Toxicology should already be checked
- Finally, select the Microarray check box under Data
- Select the test article(s) of interest from the filtered list

c) Searching for Data Files for the NTP Study Number C20203

- From the CEBS homepage, search for “C20203” and press enter
- You will be taken to the test article page for Green Tea Extract
- Find the study of interest, for example, the chronic study on rats, underneath “Study Data” and “Toxicity and Carcinogenicity”
 - This study has the title: Evaluation of the Chronic Toxicity and Carcinogenicity (C20203) of Green Tea Extract (GREENTEAEXTR) in Wistar Han Rats Exposed via Gavage
- Click the title or chevron icon to expand the study
- Click on the desired study table or individual animal data file to download