

# NCI Metaphrase User Guide



**TABLE OF CONTENTS**

**ABOUT THIS GUIDE..... 1**

**ABOUT NCI METATHESAURUS ..... 1**

    THE NCI LOCAL SOURCES AND THEIR INTENDED USAGE ARE: ..... 2

**THE NCI THESAURUS VERSUS THE NCI METATHESAURUS ..... 2**

**USING THE NCI METAPHRASE SERVLET WEB PAGE..... 3**

    HINT ABOUT DISPLAY RESOLUTION ..... 3

**USING THE NCI METAPHRASE SERVLET ..... 3**

    SEARCHING ..... 3

    HERE ARE SOME TIPS ON SEARCHING FOR WORDS OR PHRASES IN NCI METATHESAURUS 4

    HERE ARE SOME TIPS TO IMPROVE SEARCH SPEED. .... 5

    HERE ARE SOME TIPS WHEN SEARCHING FOR CODES. .... 5

**SELECTING AMONG SEARCH RESULTS..... 5**

    HINTS ON NAVIGATION ..... 7

**TYPE OF INFORMATION..... 9**

**TIPS ON USING THE INFORMATION IN NCI METATHESAURUS ..... 9**

    NCI THESAURUS AND OTHER NCI LOCAL SOURCES ..... 9

    CONCEPTS VERSUS TERMS AND THEIR ROLE IN VOCABULARY MAPPING ..... 10

    THE THREE TYPES OF CONCEPT NUMBER AND CODING OR KEYWORDING ..... 10

    DEFINITIONS ..... 11

    SYNONYMS ..... 11

    SOURCES ..... 11

    MORE GENERAL CONCEPTS ..... 15

    MORE SPECIFIC CONCEPTS ..... 15

    RELATED CONCEPTS ..... 15

    NAVIGATION IN THE MORE GENERAL, MORE SPECIFIC AND RELATED CONCEPTS LISTS 15

    VIEWING THE NCI THESAURUS HIERARCHY ..... 17

Send comments and inquiries to

Frank Hartel  
301 435 3869  
[hartel@nih.gov](mailto:hartel@nih.gov)

## About This Guide

This Guide describes the NCI Metaphrase servlet Web page <http://ncievs.nci.nih.gov/>, and describes the data available in NCI Metathesaurus. Access to the above URL is restricted to the nih.gov domain. There is a public version of the NCI Metathesaurus that is accessible from anywhere on the Internet, at <http://ncimeta.nci.nih.gov/>. The only difference between the public and restricted versions is that in the public version certain proprietary vocabulary sources have been removed in accordance with license restrictions placed on NCI by the licensors.

End users will find the Web servlet a useful interactive desk tool.

Software developers will find this Guide useful for the insights it provides about the intended use of the NCI Metathesaurus data. NCI Metathesaurus is a database service that is available through a Java application-programming interface. Software developers should refer to the NCI EVS Web site, <http://ncicb.nci.nih.gov/core/EVS> for documentation, technical advice and example code showing how to use the API.

## About NCI Metathesaurus

The NCI Metathesaurus is intended to provide NCI with the complete universe of terminology relevant to NCI's operations in a single, integrated resource. Basic, translational, clinical and population-based researchers have distinct terminologies and different ways of organizing their terminologies. Therefore NCI Metathesaurus contains vocabulary from each of these domains, including a great deal of general biological, medical and epidemiological terminology. The terminologies of these four communities partially overlap, but terminological differences impede collaboration. NCI Metathesaurus "maps" terminology used in these communities to corresponding terms used in the others, thereby facilitating collaboration and sharing of information among disciplines.

The NCI Metathesaurus contains vocabularies that are part of the National Library of Medicine's Unified Medical Language System (UMLS) Metathesaurus (UMLS sources), vocabularies that NCI creates and maintains (NCI local sources) and sources that NCI, has licensed.

The UMLS vocabularies are included to provide vocabulary that broadly covers four communities: medicine, nursing and certain other clinical disciplines and biological science.

The NCI local sources are included to address specific needs of the four communities or of the Institute. The local sources as of July, 2002 are enumerated in the table on the following page.

**The NCI local sources and their intended usage are:**

| <b>Vocabulary</b> | <b>Content</b>   | <b>Intended Use</b>   |
|-------------------|--|---|
| <b>CTEP</b>       | CTEP terminology; National Cancer Institute Thesaurus. Version 1.0b1. Bethesda (MD): National Cancer Institute; 1998.              | Clinical trials reporting administration, etc   |
| <b>ELC2001</b>    | NCBI/Lash tissue culture terminology. Expression Library Classification, version 1, June 2001.                                     | Tissue classifications in genomics and proteomics   |
| <b>GO2001</b>     | The Gene Ontology Consortium, April 2001   | Used by NCI's genetic/proteomic researchers   |
| <b>ICDO3*</b>     | International Classification of Diseases for Oncology (ICD), Third Edition, 2000..   | Cancer genome activities, incidence reporting   |
| <b>MDBCAC</b>     | Mitelman Database of Chromosome Aberrations in Cancer (2000). Mitelman F, Johansson B and Mertens F (Eds.)                         | Cancer genome activities  |
| <b>NCI</b>        | NCI Thesaurus. 2002. Bethesda (MD) All codes, keywords and special purpose vocabulary in use within NCI                            | Reference terminology for internal NCI use  |
| <b>NCISEER</b>    | NCI Surveillance, Epidemiology, and End Results (SEER) conversions between ICD-9-CM and ICD-10 neoplasm codes.                     | Mapping between ICD-9 and ICD-10.   |
| <b>PDQ2000</b>    | PDQ (Physician Data Query Online System). Bethesda (MD): National Cancer Institute, August, 2000.                                  | Source of clinical cancer disease and drug terminology. Useful to NCI staff, physicians and the public. |
| <b>PMA2001</b>    | Portfolio Management Application (PMA); NCI Division of Cancer Control and Population Studies (DCCPS), Rockville MD. October 2001. | DCCPS Grants Portfolio Management application   |
| <b>WHOTNS01</b>   | WHO Classification of Diseases, Pathology & Genetics: Tumours of the Nervous System, 2000.   | Authoritative classification of nervous system tumors   |

\* ICDO3 and ICD10 are provided by permission of the publisher for non-commercial use ONLY

**The NCI Thesaurus versus the NCI Metathesaurus**

The NCI Thesaurus is intended to become the reference terminology for cancer research. It exists as a stand-alone description logic vocabulary. In its stand-alone form, it is

intended to support the Institute's software systems used for database coding and key wording, database search, data mining, text indexing and natural language understanding. The stand-alone NCI Thesaurus is provided to NCI via DTS Ontylog, a separate service that is not part of the NCI Metaphrase service. The July, 2002 version of the NCI Thesaurus contains about 20,000 concepts that are represented by about 80,000 terms. The concepts are organized into hierarchies that are up to 15 levels deep, and are also linked by about 70,000 semantic relationships.

The NCI Metathesaurus is a great deal larger than the NCI Thesaurus, containing about 850,000 concepts represented by 1,556,000 terms. There are about 4,200,000 relationships in the NCI Metathesaurus. Not all of the sophisticated semantic relationships that exist in NCI Thesaurus are available in NCI Metathesaurus. Much of the content of the NCI Thesaurus is included in the NCI Metathesaurus so that NCI-specific terms will be mapped to corresponding terms used in standard biomedical vocabularies.

## Using the NCI Metaphrase Servlet Web Page

Go to the page <http://ncievs.nci.nih.gov/> or <http://ncimeta.nci.nih.gov/>. A servlet server running in front of the NCI Metathesaurus database generates this page. The servlet is an interactive tool that lets you search the contents of the NCI Metathesaurus with your Web browser and navigate among vocabularies and other resources.

### Hint about display resolution

The servlet Web page looks best when you set your monitor to 1024 X 768 or greater resolution. You can display the page at lower resolution, but there will be too little room horizontally for the layout to appear without some "line wrapping". That makes the layout look messy, but all the information will still be there.

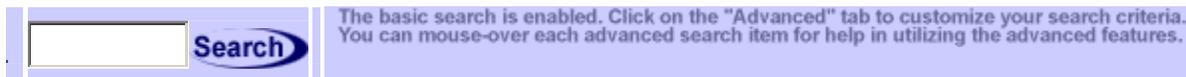
## Using the NCI Metaphrase Servlet

### Searching

The servlet searches using *lexical matching*, meaning that it searches for one or more authoritative terms that share "significant" *lexemes*, i.e., words or word bases, with the word or phrase you type in the search box. We say that such terms are *lexically related* to the search string (and vice versa). For example, "degenerative joint disease" is lexically related to "Joints, Knee", since they share the lexeme "joint". Of course, a closer lexical match would be "Joint disease, NOS", and an even better one would be "Disease, joint, degenerative", which is *lexically equivalent*--it contains exactly the same set of lexemes. NCI Metaphrase servlet server suggests authoritative terms for a given string by calculating a list of the most lexically related terms.

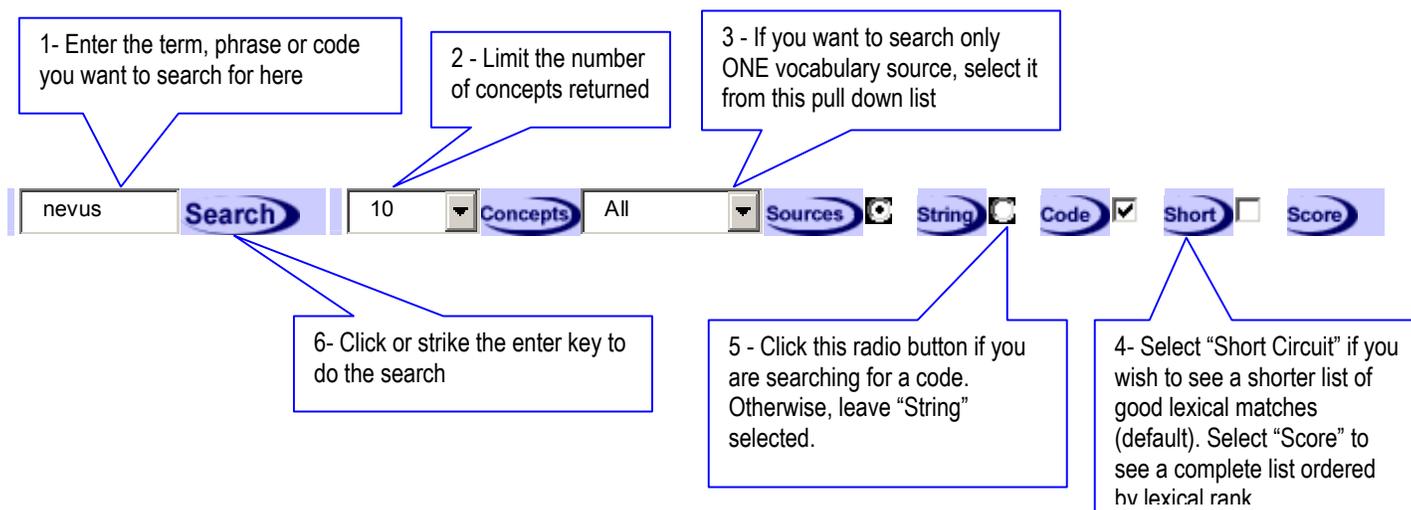
The search controls are at the top of the servlet Web page. There are two search alternatives, Basic and Advanced, selected by clicking the appropriate tab in the upper

right hand corner of the main panel. The basic search simply allows you to enter the word or phrase you wish to search for:



Most of the time just type the word or phrase you want to find and click “Search” or strike the enter key.

Additional functions are available under the “advanced” alternative. To invoke this alternative, click the “Advanced” tab at the top of the page.



### Here are some tips on searching for words or phrases in NCI Metathesaurus

- Case is ignored, do not worry about capitalizing names or acronyms.
- Punctuation (except for ".", see below) is treated as white-space (separating lexemes), and so may be replaced with a <space>, or may be omitted entirely if not in the middle of a "word".
- The words "of", "and", "with", "for", "nos", "to", "in", "by", "on", and "the" are ignored, and can be omitted.
- Word order is largely ignored, although adjacent sets of lexemes are looked up before non-adjacent sets. In general, though, don't give any thought to it.
- Rather than typing out long words, abbreviate with a period. A "." following two or more letters is treated as a *wildcard*, matching any word fragment which completes the given string of letters to form a complete lexeme. For example, typing " car. pn." will quickly return a list of matches, the first being "Pneumocystis carinii".
- You can usually omit common or redundant words, e.g., "addison" will typically return "Addison's disease" at, or near, the top of the list, and "non insulin dependent diabetes" will retrieve terms like to "Non insulin dependent diabetes mellitus" if there is no "exact" match.

- Metaphrase has spell-correction built-in, and so can usually correct simple spelling and typing errors; you can usually get the same results without going back to edit the errors in what you've already typed. Of course, in cases where there are many possible corrections, this will tend to bog down the server (since it will have to look up all of them), so you might want to correct it yourself if you don't get a speedy response.

**Here are some tips to improve search speed.**

- When searching for general words like “cancer” it can take a long time for the server to download all the information in the database. By limiting the search to one source vocabulary you can speed things up.
- When making heavy use of spell-correction and/or abbreviation, especially with many-word queries, setting the return limit to one or at most 10 may speed server response, sometimes dramatically.

**Here are some tips when searching for codes.**

- Generally you will search by code when you know the code number of a term or phrase in one source vocabulary and you want to find its corresponding number in another source vocabulary.
- Enter the code you know.
- Select the “Code” radio button in Advanced searching.
- Select the source vocabulary from which the code came from the pull down list of “Sources”.
- The spell checking and wild card features do not work with codes. You have to enter the code correctly.

## Selecting Among Search Results

NCI Metaphrase servlet server suggests authoritative terms for a given string by calculating a list of the most lexically related terms.

This lexical matching may result in search results that are exact matches, partial matches and occasionally complete misses. If you search all sources for the phrase “knock out mouse”, these are the results you will get. “Knock-out Mouse” is a complete lexically equivalent match, and as such is shown first. “Knocked out” matches two out of three lexemes, and so is shown next, even though its meaning is totally off the mark. Finally the individual words in the phrase are retrieved. This pattern of showing the most complete lexical matches first and the successively less inclusive matches in order is a characteristic of the servlet search results display.

| Matching Concepts               |                                       |
|---------------------------------|---------------------------------------|
| <a href="#">Knock-Out Mouse</a> | Mammal; Experimental Model of Disease |
| <a href="#">Knocked out</a>     | Injury or Poisoning                   |
| <a href="#">knock</a>           | Spatial Concept                       |
| <a href="#">Out</a>             | Mammal                                |
| <a href="#">Mouse</a>           |                                       |

If you did not find the concept you're looking for, and you're sure your spelling is correct, please click:

*Annotations:*  
 - "List of Search Results" points to the search results table.  
 - "Semantic Type of each search result" points to the semantic types listed in the table.  
 - "Brings up a dialog box for you to suggest additions or changes to NCI Metathesaurus" points to the "Suggest New Term" button.

However, perfect lexical matching does not guarantee that the results match the meaning in which you are interested<sup>1</sup>. Take the term “mole” for example.

| Matching Concepts  |                      |
|--|----------------------|
| <a href="#">Mole &lt;1&gt; (Mole the mammal)</a>           | Mammal               |
| <a href="#">Mole &lt;4&gt; (Melanocytic Nevus)</a>         | Neoplastic Process   |
| <a href="#">Mole (Benign Melanocytic Nevus)</a>            | Neoplastic Process   |
| <a href="#">mole &lt;3&gt; (Mole, unit of measurement)</a> | Quantitative Concept |
| <a href="#">Mole (Nevus)</a>                               | Neoplastic Process   |

If you did not find the concept you're looking for, and you're sure your spelling is correct, please click:

If you have searched all sources in NCI Metathesaurus for the term “mole” you would have gotten the results shown above. These results will appear in the servlet Web page just below the search controls.

The term mole is semantically ambiguous. That is, mole can mean several things that are semantically different. In the above example, you should look at the semantic type of each search result, and click on the search result with the meaning you are interested in.

<sup>1</sup> **Semantic** navigation means getting from a set of terms that refer to one meaning, or *concept*, to a set of terms that refer to a similar concept. All of the terms given in the example below are *semantically related* to each other; however, the term "mole", while lexically related, are semantically unrelated. Conversely, the term "Osteoarthritis, NOS", while lexically unrelated to "Disease, joint, degenerative", is *semantically equivalent* to "Disease, joint, degenerative". That is, they both refer to the same concept. Semantic navigation in the NCI Metathesaurus is supported by an extensive, though incomplete, knowledge base of binary relationships between concepts. Concepts are usually represented for the user as a single, "NCI preferred" term.

When you click on a search result, the information in the NCI Metathesaurus relating to that result is displayed in the right side of the servlet Web page. The first part of the information about “Mole (Nevus)” is shown below.

### **Hints on Navigation**

NCI Metaphrase depends heavily on the browser’s back and forward buttons (or <ALT> Left and Right Arrow if your browser buttons are not visible). The back and forward buttons affects the content of the right frame of the servlet Web page. You will find that you will follow links that appear in the right frame to view related information, and then that you will want to return to the information you had been looking at originally. Think of the information as a series of loose-leaf pages stacked up on your desk. The stack gets higher as you view new information in the right frame. The servlet Web page depends on your using the back and forward buttons to “flip” through the stack of loose-leaf pages.

You can also use the “Go To” feature of your browser to do the same thing, but experience shows that most people prefer to use the back and forward buttons.

Generally there is far more information about a concept in NCI Metathesaurus than can be displayed at one time on the right side of the servlet Web page. You can use the slider bar to the right of the information to scroll down to see the whole body of information, or you can use the links to additional information to jump directly to each sort of information.

The following Table summarizes the sort of information that NCI Metathesaurus contains. Each Row in the Table corresponds to one of the hyper-links that run across the top of the right side of the servlet Web page. Not every concept in the NCI Metathesaurus has each type of information. Tips on using each type of information are provided below.

[Concept](#) | [Definitions](#) | [Synonyms](#) | [Sources](#) | [Broader Concepts](#) | [Narrower Concepts](#)  
[Related Concepts](#) | [Medications](#) | [Procedures](#) | [Laboratory](#) | [Diagnosis](#) |  
[Open NCI Hierarchy](#) | [View Hierarchy Location](#)

C0027960: Nevus ?

Neoplastic Process

Nevus Definitions ?

Definitions for Concept

| Source           | Definition   |
|------------------|--|
| <b>MSH2001</b>   | A circumscribed stable malformation of the skin and occasionally of the oral mucosa, which is not due to external causes and therefore presumed to be of hereditary origin. ...  |
| <b>STED26</b>    | <b>nevi</b> . Plural of nevus.   |
| <b>STED26</b>    | <b>nevus, nevi</b> . 1. A circumscribed malformation of the skin, especially if colored by hyperpigmentation or increased vascularity; a nevus may be predominantly epidermal, adnexal, melanocytic, vascular, or ...  |
| <b>ICDO3</b>     | C44._  |
| <b>NCI</b>       | An area on the skin (usually dark in color) that contains a cluster of melanocytes.  |
| <b>STED26</b>    | <b>mole (mol)</b> . 1. An intrauterine mass formed by the degeneration of the partly developed products of conception. 2. In the SI system, the unit of amount of substance, defined as that amount of a substance containing as many "elementary entities" .... |
| <b>NCI-GLOSS</b> | A benign growth on the skin, such as a mole. A mole is a cluster of melanocytes and surrounding supportive tissue ...  |

(The definitions in the above sample have been truncated.)

Generally there is far more information about a concept in NCI Metathesaurus than can be displayed at one time on the right side of the servlet Web page. You can use the slider bar to the right of the information to scroll down to see the whole body of information, or you can use the links to additional information to jump directly to each sort of information.

The following Table summarizes the sort of information that NCI Metathesaurus contains. Each Row in the Table corresponds to one of the hyper-links that run across the top of the right side of the servlet Web page. Not every concept in the NCI Metathesaurus has each type of information. Tips on using each type of information are provided below.

|                                    | <b>Type of Information</b>   | <b>Comment</b>                                     |
|------------------------------------|--|--|
| <b>Definitions</b>                 | Indicates the current concept's meaning                                  | Sources vary in their focus, affecting definitions |
| <b>Synonyms</b>                    | Approximate synonyms   |  |
| <b>Sources</b>                     | Sources that contain the concept   |  |
| <b>Concepts More General Than</b>  | Parents of the concept   | Not necessarily true is_a                          |
| <b>Concepts More Specific Than</b> | Children of the concept  | Not necessarily true is_a                          |
| <b>Concepts Related to</b>         | Concepts with a semantic relationship to the concept                     |  |
| <b>Medications</b>                 | Drugs co-occurring with concept in last three years of Medline           | For concepts with a MeSH headings only             |
| <b>Procedures</b>                  | Clinical procedures co-occurring with concept in last 3 years of Medline | For concepts with a MeSH headings only             |
| <b>Laboratory</b>                  | Lab tests co-occurring with concept in last 3 years of Medline           | For concepts with a MeSH headings only             |
| <b>Diagnosis</b>                   | Diagnoses co-occurring with concept in last 3 years of Medline           | For concepts with a MeSH headings only             |

## **Tips on using the information in NCI Metathesaurus**

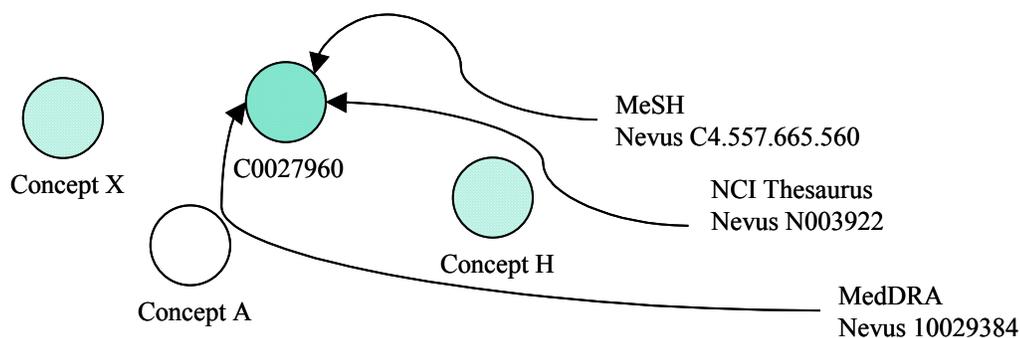
### **NCI Thesaurus and other NCI Local Sources**

The version of the NCI Thesaurus in the NCI Metathesaurus has sub-sources. This is unique among source vocabularies in NCI Metathesaurus. These sub-sources represent information that is specific to only a part of the Institute, for example RAEB. The major affect of these sub-sources is that they provide a way to identify definitions that are "owned" by RAEB or some other part of the Institute.

## Concepts versus Terms and their Role in Vocabulary Mapping

The mechanism used in NCI Metathesaurus to map between a term in one source and corresponding terms in other sources is to assign each term to a concept. All the terms and phrases in NCI Metathesaurus are linked to one or more concepts. A concept in NCI Metathesaurus is simply a unique reference number. In NCI Metathesaurus concepts become meaningful because of the information associated with them. At a minimum, all concepts have a semantic type and an associated “term” in addition to a unique concept number.

In the example in the following figure, the concept C0027960 has the semantic type “Neoplastic Process”, denoted by the solid green fill color. “Atoms” or terms from three sources are mapped to it. (An “atom” is simply a term in a specific source). This means that the NCI EVS editors or the NLM UMLS editors have determined that the MeSH atom Nevus, the NCI Thesaurus atom Nevus and the MedDRA atom Nevus all have the same meaning. Within a source, each term or “atom” has an “atom ID number”. In the example, the Mesh atom ID is C4.557.665.560.



The Concepts X and H in the above drawing have the same semantic type, which is not the same as either Concept A or Concept C0027960. For example, Concept A might have the semantic type “Mammal” while the other two might be semantic type “Quantitative Process”.

In summary, terms within sources have atom ID numbers that uniquely identify the term within that source. Atoms are associated to concept numbers, which are unique across the entire NCI Metathesaurus. Finally, all concepts are of at least one semantic type. It is these formal properties of the NCI Metathesaurus database, along with the expertise of the NCI EVS editors, which enable you to translate from one source to another.

## The Three Types of Concept Number and Coding or Keywording

One major difference between NLM UMLS Metathesaurus and the NCI Metathesaurus is that in UMLS Metathesaurus all concepts have concept numbers of the form C#####. In NCI Metathesaurus there are sources that do not appear in UMLS, such as Stedman’s Medical Dictionary and the NCI local sources. Therefore in NCI Metathesaurus you will see concept numbers of the form CL##### and CS##### as well as C#####. All

three concept number formats function the same, but the CL lets you know that the concept occurs only in a NCI local source, and the CS that it occurs only in Stedman's Medical Dictionary.

If you are using NCI Metathesaurus to obtain concept numbers that you use in coding or key wording data, **we recommend you use only C##### and CL##### numbers as codes or keywords**, as the CS numbers may disappear in the future if licensing for the Dictionary is not available in future years.

## Definitions

Many concepts in NCI Metathesaurus have definitions from multiple sources. In general they will differ in wording or emphasis but not in meaning. If you encounter a concept with definitions that frankly differ in meaning it is an error on our part. Please call it to our attention.

Regarding the NCI local sources, most NCI Thesaurus terms have a definition that is labeled "NCI". In addition, the term may have other definitions labeled, for example, "RAEB" or "NCI-GLOSS".

All NCI atoms will eventually have a consensus definition, which will be labeled "NCI". These "NCI" definitions are intended to be scientifically correct, precise definitions. Some NCI atoms will have a second definition labeled "NCI-GLOSS". NCI-GLOSS is short for NCI Glossary. These definitions are generally correct definitions requiring a lower reading level. They are intended suitable for the lay reader of NCI Web pages and so on. A few NCI atoms will also have "RAEB" definitions. RAEB definitions are intended to be useful in internal NCI operations. These may not be true definitions but rather a sort of "scope note" intended to assist coders in using the RAEB coding terms correctly.

## Synonyms

Synonyms are displayed in the main panel of the servlet Web page below the definitions. The synonymy displayed for all sources should be interpreted as being approximately correct. In many cases there are fine distinctions to be made between nominal synonyms, and in some there are synonyms that are arguably incorrect. This lack of precision is unavoidable given the imprecise nature of English and the limitations of our semantic tools for mapping among atoms. Nonetheless the synonyms are valuable because the synonyms enable one to search using any one of many terms and to generally find the right underlying concept. (See Mapping, below.)

## Sources

Below the list of synonyms is a list of the sources that contain one or more atoms mapped to the concept for which you searched. These sources are denoted by their acronyms. (You can check the meaning of a source acronym by clicking on the "Sources" link in the

navigation bar to the extreme left of the browser window. A separate window will open containing all the sources.)

The source acronyms are all links. If you click on one, the right frame of the servlet Web page will display the preferred term, synonyms, and acronyms and their atom ID numbers, and in some sources, part of the hierarchy from the source you click on<sup>2</sup>. (Use the back button or ALT\_Left\_Arrow to restore the display of sources.

Below the list of sources you will see “View Neighborhood in” followed by a pull down list of sources and an “OK” button. If you select a source in the pull down list and click OK, you will see the same list of synonyms as you would see had you clicked on the source’s hyperlink, but below the synonym list you would see a (usually long) list of “semantically related” atoms from the source. The notion of neighborhood is easy to define, it is the list of all atoms within the source you pick from the pull down that are a distance of one from link from the atom you are displaying when you click “OK”. However since in NCI Metaphrase the meaning of the links differs depending on the source, the neighborhood displayed may be perfectly rational and easy to understand in one source and puzzling in another.

**Nevus Sources** 

[NCI](#) [MDBCAC](#) [NCIPDQ](#) [ICDO3](#) [BI98](#) [CCPSS99](#) [COS89](#) [CSP2000](#) [CST95](#) [DXP94](#)  
[MDR33](#) [MSH2001](#) [MTH](#) [RCD99](#) [SNM198](#) [WHO97](#)

View neighborhood in   **Table**

Click on a source to see the preferred name, synonyms and hierarchy of the concept in that source

Choose a source and click OK to see the synonyms and network neighborhood of the concept in that source

The NCI Thesaurus neighborhoods typically consist of the NCI atoms associated with concepts that are immediately more general and more specific than the concept you were displaying when you click “OK”.

<sup>2</sup> See **Viewing the NC Thesaurus Hierarchy** at the end of this document.

**Concepts More General Than Nevus**



- (associated\_with) [Dermatologic](#)
- [Fetal disorder NOS](#)
- (inverse\_isa) [Melanocytic Neoplasm](#)
- (inverse\_isa) [Melanocytic Nevus](#)
- (inverse\_isa) [Melanocytic Skin Neoplasm](#)
- [Neoplasm](#)
- (inverse\_isa) [NEVI AND MELANOMAS](#)
- [Skin Appendage Diseases](#)
- [Skin lesion NOS](#)
- [Skin Neoplasm](#)

Click on a link to see that concept's information

**Concepts More Specific Than Nevus**



- (associated\_with) [Benign Melanocytic Nevus](#)
- (isa) [Benign Nevus](#)
- (isa) [Blue Skin Nevus](#)
- [Compound Skin Nevus](#)
- (has\_manifestation) [Dysplastic naevus syndrome](#)
- (associated\_with) [Dysplastic Nevus](#)
- [Epidermal Nevus](#)
- (isa) [Eyelid Nevus](#)
- [Hairy Nevus](#)
- [Halo nevus](#)
- (isa) [Intradermal Nevus](#)
- (isa) [Iris Nevus](#)
- [MACULOPAPULAR NEVUS](#)
- [Melanocytic Nevus](#)
- (etc.)

The neighborhoods from sources such as ICDO3, which have atom ID numbers that specify hierarchy location, often provide the more interesting neighborhoods.

**Neighborhood of 'Nevus' in ICDO3**

| Synonyms     |                         |   |  |
|--------------|-------------------------|---|--|
| ICDO3/       | SY                      | <a href="#">8720/0</a>  | <a href="#">Nevus, NOS</a>   |
| Neighborhood |                         |   |  |
|              | <b>Code</b>             | <b><a href="#">Name</a></b>   | Click Code and Name to change neighborhood display back and forth from numeric to alphabetic order |
| ICDO3/ HT    | <a href="#">800</a>     | <a href="#">NEOPLASMS, NOS</a>  |  |
| ICDO3/ PT    | <a href="#">8000/1</a>  | <a href="#">Neoplasm, uncertain whether benign or malignant</a>           |  |
| ICDO3/ SY    | <a href="#">8000/1</a>  | <a href="#">Neoplasm, NOS</a>   |  |
| ICDO3/ SY    | <a href="#">8000/1</a>  | <a href="#">Tumor, NOS</a>  |  |
| ICDO3/ SY    | <a href="#">8000/1</a>  | <a href="#">Unclassified tumor, borderline malignancy</a>                 |  |
| ICDO3/ SY    | <a href="#">8000/1</a>  | <a href="#">Unclassified tumor, uncertain whether benign or malignant</a> |  |
| ICDO3/ HT    | <a href="#">872-879</a> | <a href="#">NEVI AND MELANOMAS</a>  |  |
| ICDO3/ ET    | <a href="#">8720/0</a>  | <a href="#">Hairy nevus</a>   | List of all atoms in the chosen source that are directly linked to the target atom                 |
| ICDO3/ SY    | <a href="#">8720/0</a>  | <a href="#">Melanocytic nevus</a>   |  |
| ICDO3/ PT    | <a href="#">8720/0</a>  | <a href="#">Pigmented nevus, NOS</a>                                      |  |
| ICDO3/ SY    | <a href="#">8723/0</a>  | <a href="#">Regressing nevus</a>  |  |
| ICDO3/ PT    | <a href="#">8723/0</a>  | <a href="#">Halo nevus</a>  |  |
| ICDO3/ PT    | <a href="#">8727/0</a>  | <a href="#">Dysplastic nevus</a>  |  |
| ICDO3/ SY    | <a href="#">8750/0</a>  | <a href="#">Dermal nevus</a>  |  |
| ICDO3/ PT    | <a href="#">8750/0</a>  | <a href="#">Intradermal nevus</a>   |  |
| ICDO3/ SY    | <a href="#">8760/0</a>  | <a href="#">Dermal and epidermal nevus</a>                                |  |
| ICDO3/ PT    | <a href="#">8760/0</a>  | <a href="#">Compound nevus</a>  |  |
| ICDO3/ PT    | <a href="#">8780/0</a>  | <a href="#">Blue nevus, NOS</a>   |  |
| ICDO3/ SY    | <a href="#">8780/0</a>  | <a href="#">Jadassohn blue nevus</a>                                      |  |

In the above example, ICDO3 was chosen as the source, and nevus as the atom. By default the atoms in the neighborhood are displayed in alphabetical order. However you can display them ordered either by the numerical order of their atom ID numbers, or by the alphabetical order of their names. In the above example they are displayed by numeric order. By clicking on the blue underlined "Name" link one could display them in alphabetic order. If you did the bold "Code" would turn into a link, and by clicking it, one could return the display to numeric order.

### **More General Concepts**

The list of more general concepts shows the next more general concept from every source that contains the current concept. Put another way, if a source contains an atom that is linked to the current concept, and if the source is a hierarchical source, there will most likely be a atom in the source that the source authors consider more general than the atom linked to the current concept. The broader concepts list shows each of these more general atoms.

### **More Specific Concepts**

The list of more specific concepts shows the next more specific concept from every source that contains the current concept. Again, if a source contains an atom that is linked to the current concept, and if the source is a hierarchical source, there will most likely be an atom in the source that the source authors consider more specific than the atom linked to the current concept. The more specific concepts list shows each of these atoms.

### **Related Concepts**

The list of related concepts shows the semantically related concepts from every source that contains the current concept. Again, if a source contains an atom that is linked to the current concept, and if the source has semantic relationships, there may be a atom in the source that the source authors consider related in some way to the atom linked to the current concept. The narrower concepts list shows each of these semantically related atoms.

If broader and narrower relationships organize concepts vertically, semantic relations can be thought of as relating them horizontally. Semantic relationships in some sources are very sophisticated and specific, representing ontologic information such as the fact that a specific bacterium is the etiologic agent that causes a specific disease. In other sources there are only some primitive indication that some sort of undefined relationship exists among two or more concepts.

The NCI Metathesaurus cannot differentiate among these relationship, but lumps the sophisticated precise relationships from sources such as the NCI Thesaurus with the vague ones. The way to think of the related concepts in NCI Metathesaurus, is that in one or more source, some sort of horizontal relationship is stated between the current concept and the concepts whose atoms appear in the list of related concepts.

### **Navigation in the More General, More Specific and Related Concepts Lists**

All the atoms listed in the more general, more specific and related lists are hyperlinks. If you click on one, the contents of the right panel of the servlet Web page changes to display information about the concept to the atom on which you clicked. Use the page back commands of your Web browser to restore the information that was displayed before you clicked.

Some of the atoms in the broader, narrower, and related lists have a notation appended to them that describes the specific type of broader relationship (for example, inverse is\_a, is\_associated\_with), narrower relationship (is\_a, part\_of) or related relationship (is\_mapped\_from). We display this information when it is available in the source. It is intended to help you determine if you want to follow the link to view the information on the concept pointed to by the link.

Some of the atoms in the three lists are **highlighted in blue**. These are atoms from the NCI local sources.

This servlet supports *lexical* and *semantic* navigation of the NCI Metathesaurus terminology database.

All concepts in NC Metathesaurus that have atoms in MeSH that are MeSH headings will have lists of links in each of the medications, procedures, laboratory and diagnosis sections at the bottom of the right side of the servlet Web page.

We index the most recent three years of Medline to create a list of citations. In each citation, the current concept co-occurred with one or more concepts contained in the MeSH that denote a medication, a diagnostic procedure, a clinical laboratory test, or a clinical diagnosis.

There are blue hyperlinks and green hyperlinks displayed. The green links are links to Medline. If you follow the green link, a new browser window opens, the National Center for Biotechnology Information Entrez site is contacted, and a query is executed that causes a list of all citations in Medline to be displayed that mention both the current concept and the blue linked concept to the right. If you follow the blue link, the right frame of the servlet Web page will display the concept information for the atom you click on.

This feature of the servlet Web page is intended to assist those interested in finding a quick bibliography of clinically relevant articles, or as a way to find out more about the meaning of concepts and how they fit into the clinical enterprise.

**Medications**

- [MedLine Monoclonal Antibodies](#)
- [MedLine Proteins](#)
- [MedLine Antibiotics, Tetracycline](#)
- [MedLine Antineoplastic Agent](#)
- [MedLine Growth Factors](#)
- [MedLine Hemostatic Agents](#)
- [MedLine Keratolytic agent, NOS](#)
- [MedLine Tetracycline](#)
- [MedLine Tretinoin](#)
- [MedLine acitretin](#)
- [MedLine hydrocortisone](#)

**Procedures**

- [MedLine Tissue Expansion](#)
- [MedLine Laser Surgery](#)
- [MedLine Physical examination, NOS](#)
- [MedLine Computed Tomography](#)
- [MedLine Image Interpretation, Computer-Assisted](#)
- [MedLine Kidney Transplantation](#)
- [MedLine Magnetic resonance angiography, NOS](#)
- [MedLine Self-Examination](#)
- [MedLine Single Photon Emission Computed Tomography](#)
- [MedLine endoscopy](#)

**Laboratory**

- [MedLine Microscopy](#)

### Viewing the NCI Thesaurus Hierarchy

Some sources have atom numbers that specify the location of each atom in the source's hierarchy. Examples include PDF 2000, MeSH and Snomed Version 3. When you display the current concept in one of these sources<sup>3</sup>, you will see the fragment of the source hierarchy from the current concept back to the top, or "root" of the source's hierarchy tree. This is useful in seeing where a concept fits in the hierarchy of the specific source.

<sup>3</sup> See **Sources**, above

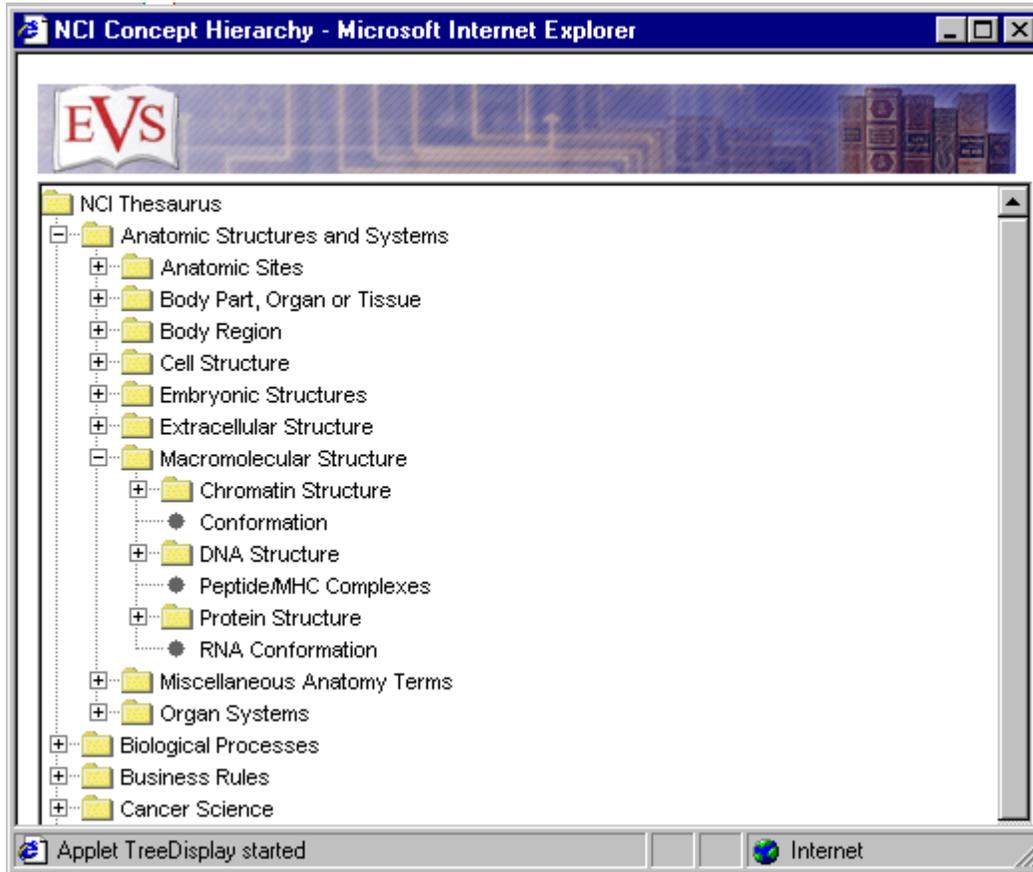
There are at least two issues that you should be aware of, one relating to the limitation of the NCI Metaphrase software, and the other related to a change in the philosophy and practice of vocabulary construction.

When you display the current concept in a source, you will see a hierarchy fragment only for sources that use atom numbers that specify hierarchical location. Furthermore, NCI Metaphrase has no means of letting you browse the entire hierarchy of any source. At best you will see the fragment from the current concept to the root.

The sources that use hierarchical numbering have found that it causes them serious problems. If a lot of new information is discovered that results in a large number of new atoms being added to an already heavily populated part of their hierarchy, they run out of numbers to assign to the new atoms. The labor expense involved in renumbering is too great to be tolerable. Therefore most major vocabulary publishers are moving to use of numbers that do not specify tree position.

The NCI Thesaurus and our other local sources use numbers that are unique, but do not specify hierarchy location. Nonetheless we want to provide a means for NCI staff to browse the NCI Thesaurus from within the NCI Metaphrase Web page. We have provided a Java applet to serve this function. You can invoke the function by clicking on the link "Browse" in the navigator bar to the left of the browser display screen.

A new window is created for the NCI thesaurus tree display. Double-click the "NCI Thesaurus" folder that appears at the top left of the window. The NCI tree display allows you to expand the hierarchy by clicking on the plus icons. If you wish to see the Metathesaurus entry for a concept you find in the tree, click on the concept, do an EDIT/COPY or (CTRL-C), then EDIT/PASTE (CTRL-V) into the Search window in the Metathesaurus Browser main page and click Search.



---

Parts of the foregoing are included in the Metaphrase distribution, ©1997-2001 Lexical Technology Inc. and Apelon Inc. All rights reserved.

For more information, visit <http://www.apelon.com> or <http://www.lexical.com/>, or email [info@lexical.com](mailto:info@lexical.com).

Lexical, Metaphrase, Metaphrase Enabled, and the Metaphrase and Metaphrase Enabled logos are trademarks of Lexical Technology, Inc.