# Using the caBIO Home Page Search for Biological Entities Tool to Find Compounds and Diseases Associated with a Gene

**Page Contents**



**Documentation Table of Contents**



**Need Additional Help?**

If you need additional support, please contact the NCICB Support Group.

**To Print the Guide**

We recommend you print one wiki page of the guide at a time. To do this, click the printer icon at the top right of the page; then from the browser File menu, choose Print. Printing multiple pages at one time is more complex. For instructions, refer to How do I print multiple pages?.

**Having Trouble Reading the Text?**

Resizing the text for any web page is easy. For information on how to do this in your web browser, refer to this W3C tutorial .

# Search for Biological Entities Gene Query Overview

The caBIO Home Page Search for Biological Entities is a flexible tool, and the workflow presented here is just one of the ways that it can be used. These steps illustrate how to query a specific type of Cancer Gene Index-associated object to identify those with attributes that are associated with your gene search term.

# Identifying a Gene Search Term

In order to search for genes that are associated with a given disease, you must first have a HUGO gene symbol . Although it is much easier to use the HUGO gene symbol, you may also use the gene's NCI Thesaurus concept code. To find this code, navigate to the NCI Thesaurus web page and select the `Contains` radio button (1). Enter you gene symbol (2) and click the Search button (3). If you cannot find the term for which you were looking, click on the Contact Us link at the bottom of the web page (4).

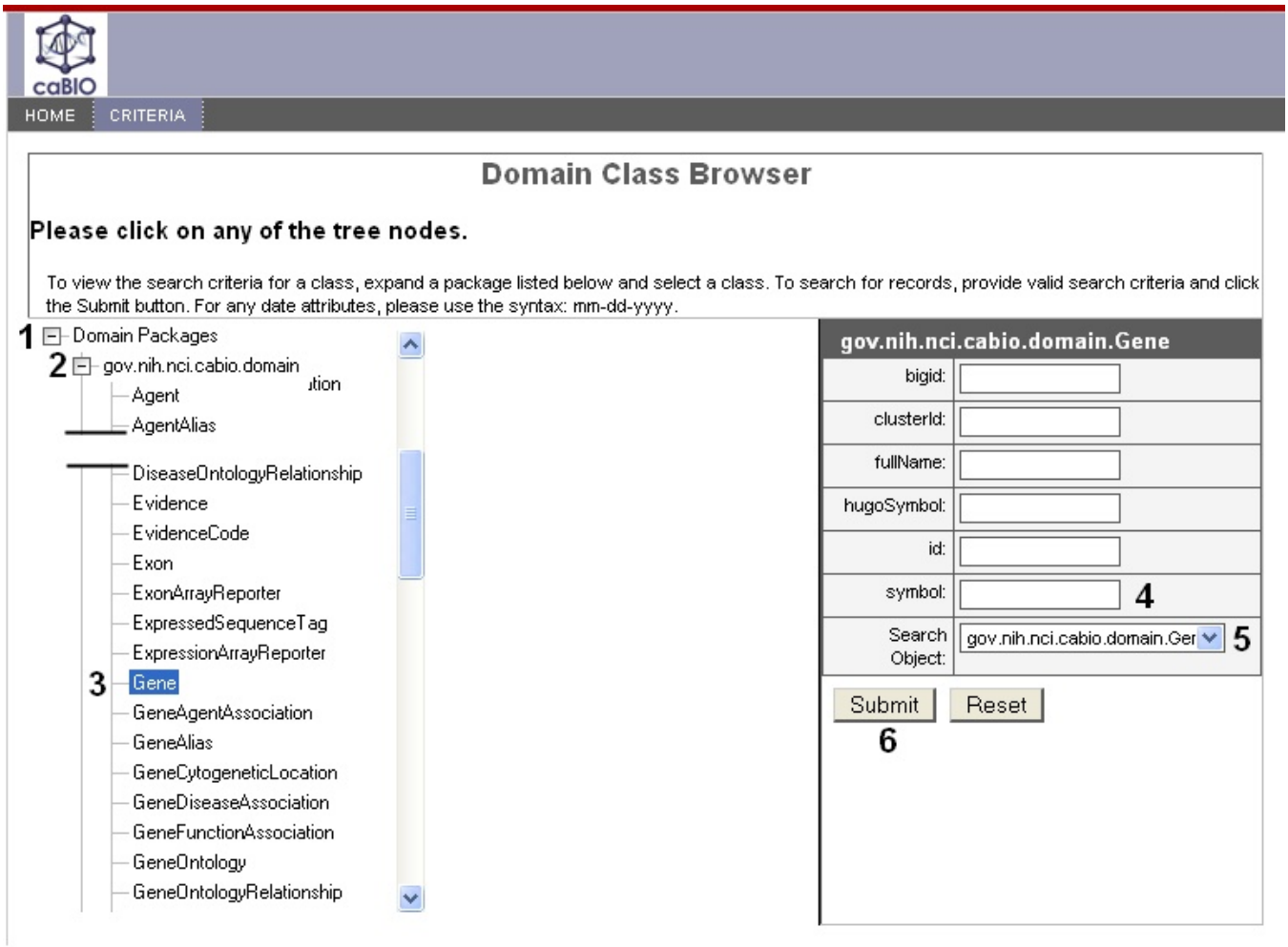
> **Tip**
>
> You may use the question mark wild card character after your search term (for example, "top2?") when using `Exact Match` or `Begins With`.

Select the desired result from the list of retrieved thesaurus terms in order to view the term's concept page. You may use Thesaurus Code (1) with the Search for Biological Entities tool.

# Using the Search for Biological Entities Tool

Compounds and diseases associated with a particular gene in the Cancer Gene Index data may be accessed by selecting the `Gene` class in the package `gov.nih.nci.cabio.domain`. The line breaks in the tree represent classes that have been removed for space. Enter the HUGO gene symbol in the `symbol` field or the NCI Thesaurus gene concept code in the `id` field, select `gov.nih.nci.cabio.domain.GeneFunctionAssociation` as the Search Object, and click Submit. Retrieved results are shown as records in Gene/Agent and Gene/Disease tables.

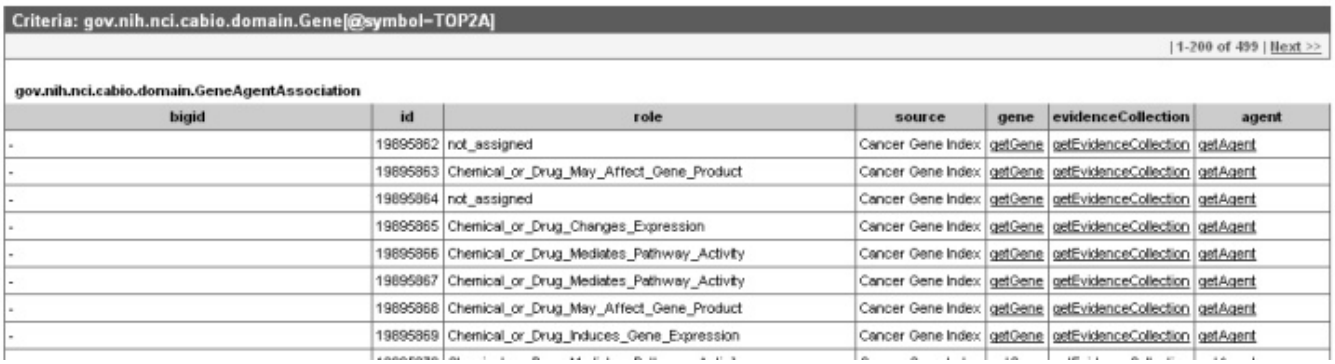
> **Tip**
>
> Although the Cancer Gene Index refers to pharmacological substances by the term "compound" or even "drug," caBIO and the NCI Thesaurus use the term "agent" for this concept.




The following subsections describe how to view associated #disease terms and #compound terms

## Gene-Compound Association Results

In the Gene/Agent tables, columns include each object's identifier, the Role Code and/or Role Detail associated with the gene-compound concept pair, notation that the data derive from the Cancer Gene Index, and three method links - `getGene`, `getEvidenceCollection`, and `getAgent`.



Criteria: gov.nih.nci.cabio.domain.Gene[@symbol=TOP2A]

| 1-200 of 499 | Next >>

gov.nih.nci.cabio.domain.GeneAgentAssociation

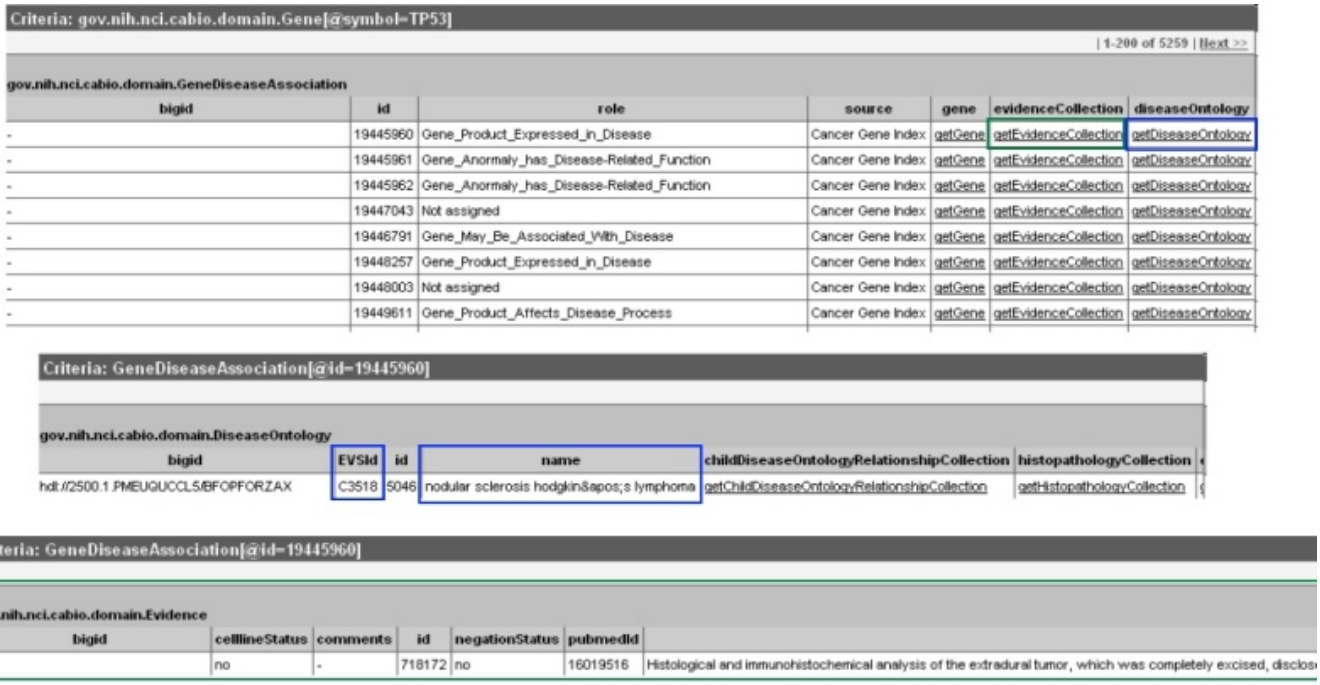
| bigid | id | role | source | gene | evidenceCollection | agent |
|---|---|---|---|---|---|---|
| - | 19895862 | not_assigned | Cancer Gene Index | getGene | getEvidenceCollection | getAgent |
| - | 19895863 | Chemical_or_Drug_May_Affect_Gene_Product | Cancer Gene Index | getGene | getEvidenceCollection | getAgent |
| - | 19895864 | not_assigned | Cancer Gene Index | getGene | getEvidenceCollection | getAgent |
| - | 19895865 | Chemical_or_Drug_Changes_Expression | Cancer Gene Index | getGene | getEvidenceCollection | getAgent |
| - | 19895866 | Chemical_or_Drug_Mediates_Pathway_Activity | Cancer Gene Index | getGene | getEvidenceCollection | getAgent |
| - | 19895867 | Chemical_or_Drug_Mediates_Pathway_Activity | Cancer Gene Index | getGene | getEvidenceCollection | getAgent |
| - | 19895868 | Chemical_or_Drug_May_Affect_Gene_Product | Cancer Gene Index | getGene | getEvidenceCollection | getAgent |
| - | 19895869 | Chemical_or_Drug_Induces_Gene_Expression | Cancer Gene Index | getGene | getEvidenceCollection | getAgent |

To view the sentence and annotation information, select the `getEvidenceCollection` method (green box in top panel) to call up the associated `Evidence` type object (green box in middle panel). For additional information on these data and metadata, refer to the Data, Metadata, and Annotations section.

**Search Tip**

If you do not want to spend time navigating through the caBIO object model for candidate gene-compound associations that were found to be false positives, you should first view the `Evidence` objects (bottom panel) and scroll to the right to check that the `sentenceStatus` is "finished" and `negationIndicator` is no before clicking through to gene name information in the `Gene` object.

Click the `getAgent` method link to the name and EVS identifier of the associated compound term in the `fullName` and `EVSid` columns, respectively.



Criteria: gov.nih.nci.cabio.domain.Gene[@symbol=TP53]

| 1-200 of 5259 | Next >>

gov.nih.nci.cabio.domain.GeneDiseaseAssociation

| bigid | id | role | source | gene | evidenceCollection | diseaseOntology |
|---|---|---|---|---|---|---|
| - | 19445960 | Gene_Product_Expressed_in_Disease | Cancer Gene Index | getGene | getEvidenceCollection | getDiseaseOntology |
| - | 19445961 | Gene_Anormaly_has_Disease-Related_Function | Cancer Gene Index | getGene | getEvidenceCollection | getDiseaseOntology |
| - | 19445962 | Gene_Anormaly_has_Disease-Related_Function | Cancer Gene Index | getGene | getEvidenceCollection | getDiseaseOntology |
| - | 19447043 | Not assigned | Cancer Gene Index | getGene | getEvidenceCollection | getDiseaseOntology |
| - | 19446791 | Gene_May_Be_Associated_With_Disease | Cancer Gene Index | getGene | getEvidenceCollection | getDiseaseOntology |
| - | 19448257 | Gene_Product_Expressed_in_Disease | Cancer Gene Index | getGene | getEvidenceCollection | getDiseaseOntology |
| - | 19448003 | Not assigned | Cancer Gene Index | getGene | getEvidenceCollection | getDiseaseOntology |
| - | 19449611 | Gene_Product_Affects_Disease_Process | Cancer Gene Index | getGene | getEvidenceCollection | getDiseaseOntology |

Criteria: GeneDiseaseAssociation[@id=19445960]

gov.nih.nci.cabio.domain.DiseaseOntology

| bigid | EVSId | id | name | childDiseaseOntologyRelationshipCollection | histopathologyCollection |
|---|---|---|---|---|---|
| hdl://2500.1.PMEUGUCCL5/BFOPFORZAX | C3518 | 5046 | nodular sclerosis hodgkin's lymphoma | getChildDiseaseOntologyRelationshipCollection | getHistopathologyCollection |

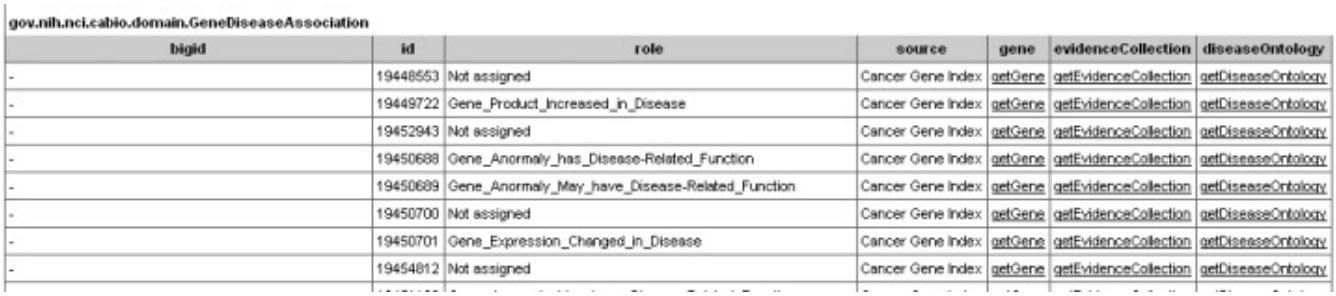
Criteria: GeneDiseaseAssociation[@id=19445960]

gov.nih.nci.cabio.domain.Evidence

| bigid | cellLineStatus | comments | id | negationStatus | pubmedId | |
|---|---|---|---|---|---|---|
| - | no | - | 718172 | no | 16019516 | Histological and immunohistochemical analysis of the extradural tumor, which was completely excised, disclos |

## Gene-Disease Association Results

Retrieved gene-disease results are listed as records in a single table, which includes each object's identifier, the Role Code and/or Role Detail associated with the gene-disease concept pair, notation that the data derive from the Cancer Gene Index, and three method links - `getGene`, `getEvidenceCollection`, and `getDiseaseOntology`.



gov.nih.nci.cabio.domain.GeneDiseaseAssociation

| bigid | id | role | source | gene | evidenceCollection | diseaseOntology |
|---|---|---|---|---|---|---|
| - | 19448553 | Not assigned | Cancer Gene Index | getGene | getEvidenceCollection | getDiseaseOntology |
| - | 19449722 | Gene_Product_Increased_in_Disease | Cancer Gene Index | getGene | getEvidenceCollection | getDiseaseOntology |
| - | 19452943 | Not assigned | Cancer Gene Index | getGene | getEvidenceCollection | getDiseaseOntology |
| - | 19450688 | Gene_Anormaly_has_Disease-Related_Function | Cancer Gene Index | getGene | getEvidenceCollection | getDiseaseOntology |
| - | 19450689 | Gene_Anormaly_May_have_Disease-Related_Function | Cancer Gene Index | getGene | getEvidenceCollection | getDiseaseOntology |
| - | 19450700 | Not assigned | Cancer Gene Index | getGene | getEvidenceCollection | getDiseaseOntology |
| - | 19450701 | Gene_Expression_Changed_in_Disease | Cancer Gene Index | getGene | getEvidenceCollection | getDiseaseOntology |
| - | 19454812 | Not assigned | Cancer Gene Index | getGene | getEvidenceCollection | getDiseaseOntology |

To view the gene-disease sentence and annotation information, select the `getEvidenceCollection` method (green box in top panel) to call up the associated `Evidence` type object (green box in middle panel).

**Search Tip**

If you do not want to spend time navigating through the caBIO object model for candidate gene-disease associations that were found to be false positives, you should first view the `Evidence` objects (bottom panel) and scroll to the right to check that the `sentenceStatus` is "finished" and `negationIndicator` is no before clicking through to gene name information in the `DiseaseOntology` object.

Click the `getDiseaseOntology` method link to the name and EVS identifier of the associated disease term in the `fullName` and `EVSid` columns, respectively. You may also view parent and child concepts for your disease of interest and explore gene-disease associations with those disease concepts, as well (2). Black double lines indicated breaks in the view of an object in this figure. You can find parent disease concepts by scrolling to the right and selecting the `getParentDiseaseOntologyRelationshipCollection` link; child disease concepts can be accessed by clicking on the `getChildDiseaseOntologyRelationshipCollection` link.