



DGldb walkthrough

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Introduction

- DGIdb is a database and web interface for identifying known and potential drug-gene relationships.
- Genes are defined initially by Entrez Gene but then expanded and grouped together with other gene definitions such as Ensembl as well as genes from drug-gene interactions and potentially druggable gene categories.
- Drugs are defined initially by PubChem but then expanded and grouped together with drugs from drug-gene interactions.
- Drug-gene interactions come from multiple sources including DrugBank, TTD, PharmGKB, and others.
- Potentially druggable gene categories (e.g., Kinase) are defined by GO, dGene, and published lists such as Russ & Lampel (2005) and Hopkins and Groom (2002).



Outline

- This walkthrough will cover basic functionality of the DGIdb web interface covering the following topics.
 1. General searches for genes of interest.
 2. Identifying known drug-gene interactions for a list of genes of interest.
 3. Identifying potentially druggable genes for a list of genes of interest.
 4. Browsing lists of potentially druggable gene categories.
 5. Getting help.



The DGIdb home page

1. Search Interactions

2. Search Categories

3. Browse Categories

4. Help



DGIdb

THE DRUG GENE INTERACTION DATABASE

Search Interactions

Search Categories

Browse Categories

Help ▾

Search Interactions search for drug-gene interactions by gene name ⓘ

[Show Tour](#)

Genes ⓘ ⓘ

Replace Genes with Demo List

Clear All Genes

Source Databases ⓘ 6 of 6 ▾

Source Trust Level ⓘ 2 of 2 ▾

Gene Categories ⓘ 39 of 39 ▾

Interaction Types ⓘ 35 of 35 ▾

Anti-Neoplastic Drugs Only ⓘ ☐

Find Drug Interactions

- The DGIdb home page can be accessed at www.dgldb.org.
- The top navigation bar allows easy access to the 4 key resources of DGIdb:



1. Performing a general search for druggable genes in DGIdb

DGIdb
THE DRUG GENE INTERACTION DATABASE

Search Interactions Search Categories Browse Categories

Search Interactions search for drug-gene interactions by gene name

[Show Tour](#)

Genes -

[Replace Genes with Demo List](#) [Clear All Genes](#)

Source Databases 6 of 6

Source Trust Level 2 of 2

Gene Categories 39 of 39

Interaction Types 35 of 35

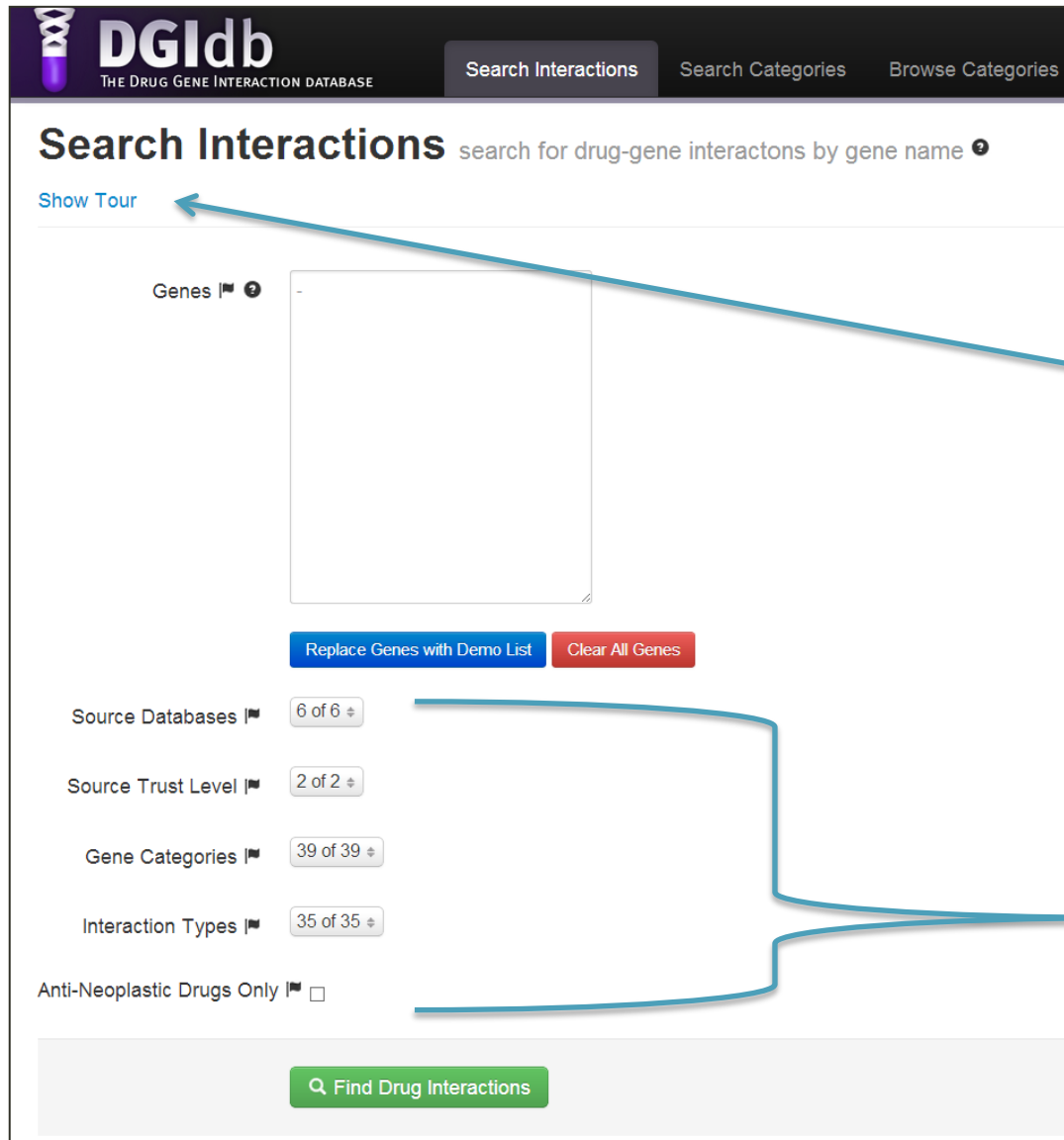
Anti-Neoplastic Drugs Only ☐

[Find Drug Interactions](#)

- Select 'Search Interactions' from the top navigation bar, enter a gene of interest, then click the green 'Find Drug Interactions' button.
- Help flags () are found throughout the web interface. Hover over these icons with your mouse to view definitions of terms and other tips.



1. Performing a general search for druggable genes in DGIdb



The screenshot shows the DGIdb (The Drug Gene Interaction Database) interface. At the top, there's a navigation bar with 'Search Interactions', 'Search Categories', and 'Browse Categories'. The main heading is 'Search Interactions' with a subtitle 'search for drug-gene interactions by gene name'. A 'Show Tour' link is present. Below this is a large text input field for 'Genes'. To the right of the input field are two buttons: 'Replace Genes with Demo List' and 'Clear All Genes'. Below the input field are four filter sections: 'Source Databases' (6 of 6), 'Source Trust Level' (2 of 2), 'Gene Categories' (39 of 39), and 'Interaction Types' (35 of 35). At the bottom left is a checkbox for 'Anti-Neoplastic Drugs Only'. At the bottom center is a green button labeled 'Find Drug Interactions'. Blue arrows point from the text on the right to the 'Show Tour' link, the 'Genes' input field, and the filter sections.

DGIdb
THE DRUG GENE INTERACTION DATABASE

Search Interactions search for drug-gene interactions by gene name

[Show Tour](#)

Genes

[Replace Genes with Demo List](#) [Clear All Genes](#)

Source Databases 6 of 6

Source Trust Level 2 of 2

Gene Categories 39 of 39

Interaction Types 35 of 35

Anti-Neoplastic Drugs Only ☐

[Find Drug Interactions](#)

- For an in-depth explanation of the various search filters and key features, click the 'Show Tour' button.
- The tour explains the 5 available filters that can be used for a search. These are below the search box, here.



Search results

Interaction Search Results

drug interactions for your genes

[Interaction Results](#)[Search Results Summary](#)[Search Term Summary](#)[By Gene](#)[By Source](#)

Primary Results

Search terms matching exactly one gene that has one or more drug interactions.

[Download as TSV](#)

10 records per page

Search Term	Gene	Drug
EGFR	EGFR - epidermal growth factor receptor	SYM004
EGFR	EGFR - epidermal growth factor receptor	RO5083945
EGFR	EGFR - epidermal growth factor receptor	MM-151
EGFR	EGFR - epidermal growth factor receptor	MEHD7945A
EGFR	EGFR - epidermal growth factor receptor	CETUXIMAB
EGFR	EGFR - epidermal growth factor receptor	NECITUMUMAB
EGFR	EGFR - epidermal growth factor receptor	NIMOTUZUMAB
EGFR	EGFR - epidermal growth factor receptor	PANITUMUMAB
EGFR	EGFR - epidermal growth factor receptor	ABT-806
EGFR	EGFR - epidermal growth factor receptor	DACOMITINIB

- Search Results display all entities within the database that match the search term
- In this case, the search term matched an exact entry for the gene group 'EGFR'.
- The DGIdb Gene Group for EGFR is the result most likely to be useful. Select the linked text for 'EGFR-epidermal growth factor receptor' to see a summary of this gene in DGIdb.



Gene summary page

EGFR data sources and alternate names ⓘ

[Interactions for EGFR](#) [Categories for EGFR](#)

Hit the buttons above to obtain drug-gene interaction or category views for this gene. The following section provides a summary of information from each DGIdb source for the current gene. Sections are colored by source type (green for gene info, blue for interactions, orange for categories, and red for drugs). Each section contains information specific to this type of source. Link outs to relevant records from the original source databases are provided wherever possible (marked with a special icon beside them). The 'By Source' tab summarizes the alternate names for this gene as used by each individual source.

[Detailed View](#) [By Source](#)

All

Category

Gene

Interaction

Entrez: 1956 ⓘ

Version: 17-Sep-2012

Alternate Names

MENA	Gene Synonym
ERBB	Gene Synonym
ERBB1	Gene Synonym
HER1	Gene Synonym
1956	Entrez Gene Id
ENSG00000146648	Ensembl Gene Id
epidermal growth factor receptor	Gene Description
EGFR	Gene Symbol
PIG61	Gene Synonym

Metadata

None found.

Citations

Entrez Gene: gene-centered information at NCBI. Maglott D, Ostell J, Pruitt KD, Tatusova T. Nucleic Acids Res. 2011 Jan;39(Database issue):52-7. Epub 2010 Nov 28. PMID: [21115458](#) ⓘ

Ensembl: ENSG00000146648 ⓘ

Version: 68_37

Alternate Names

EGFR	Ensembl Gene Name
ENSG00000146648	Ensembl Gene Id

Metadata

Gene Biotype	PROTEIN_CODING
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Citations

Ensembl 2011. Flícek P, Amode MR, ..., Vogel J, Searle SM. Nucleic Acids Res. 2011 Jan;39(Database issue):800-6. Epub 2010 Nov 2. PMID: [21045057](#) ⓘ

- The gene summary page shows all information and sources for a gene group in DGIdb.
- A second view/tab summarizes all gene names and synonyms for the gene group by their source (see next slide).



Gene summary by source

EGFR

data sources and alternate names

interactions for EGFR

categories for EGFR

Hit the buttons above to obtain drug-gene interaction or category views for this gene. The following section provides a summary of information from each DGIdb source for the current gene. Sections are colored by source type (green for gene info, blue for interactions, orange for categories, and red for drugs. Each section contains information specific to this type of source. Link outs to relevant records from the original source databases are provided wherever possible (marked with a special icon beside them). The 'By Source' tab summarizes the alternate names for this gene as used by each individual source.

Detailed View

By Source

50 records per page

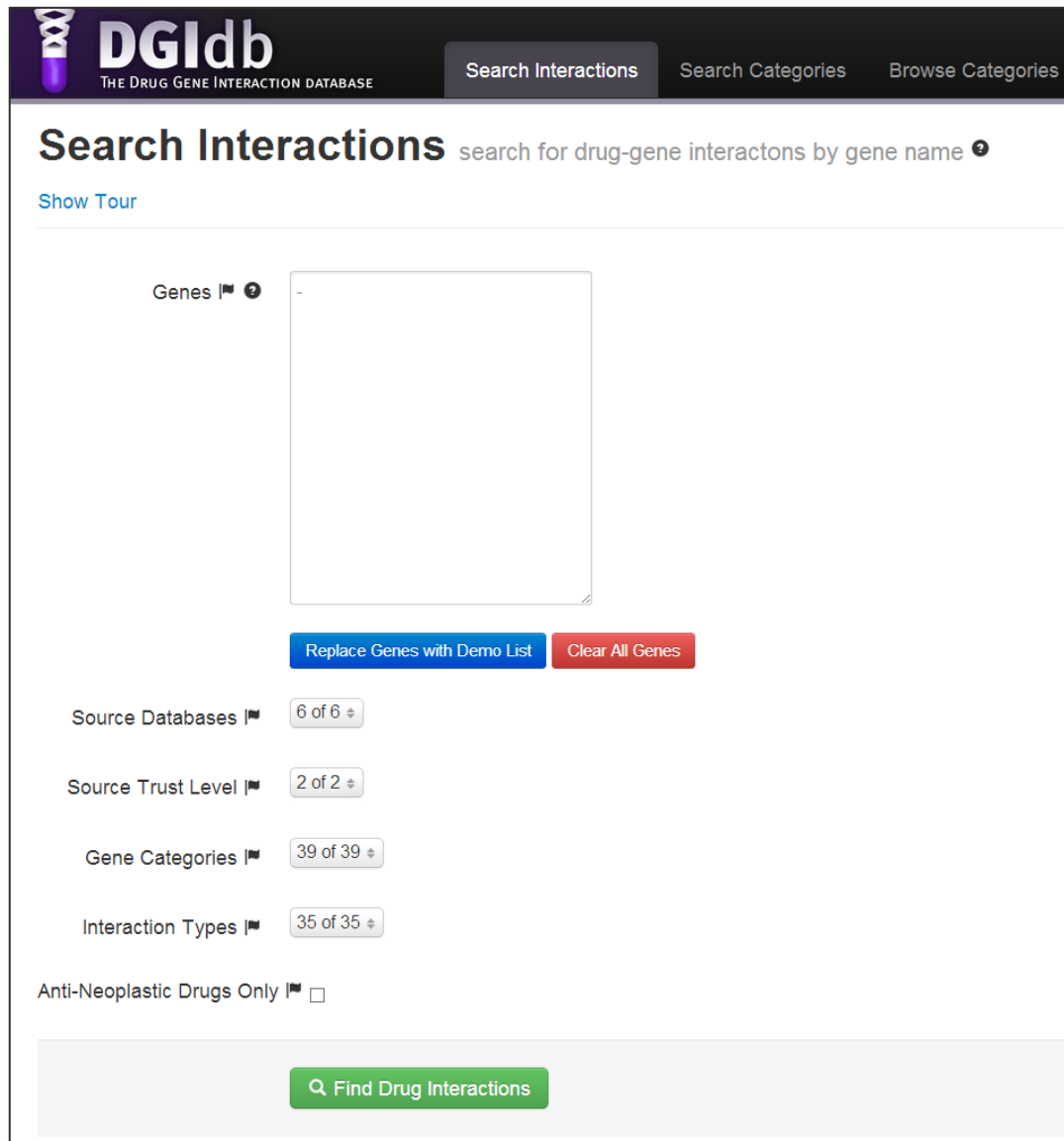
Filter results:

Name	Entrez	Ensembl	TTD	TALC	DrugBank	dGene	HopkinsGroom	RussLampel	GO	TEND	MyCancerGenome	PharmGKB	Count
EGFR	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	12
1956	✓		✓	✓	✓	✓	✓			✓	✓	✓	9
ENSG00000146648	✓	✓	✓		✓		✓	✓		✓		✓	8
P00533			✓		✓		✓		✓	✓			5
epidermal growth factor receptor	✓		✓				✓					✓	4
EGFR_HUMAN							✓			✓			2
844					✓								1
C9JYS6									✓				1
E9PFD7									✓				1
EGFR (HER1/ERBB1)											✓		1
EGFR (HER1/ERBB1)HER2 (ERBB2/neu)HER3 (ERBB3)											✓		1
EGFR (HER1/ERBB1)HER2 (ERBB2/neu)HER4 (ERBB4)											✓		1
EGFR-TK			✓										1
EPIDERMAL GROWTH FACTOR RECEPTOR ERBB-1			✓										1

- Gene group (EGFR) summarized by source. This view is accessed by clicking the “By Source” tab next to the “Detailed View” tab.



2. Searching for known drug-gene interactions



The screenshot shows the DGIdb (The Drug Gene Interaction Database) search interface. At the top, there's a navigation bar with 'DGIdb' logo and 'THE DRUG GENE INTERACTION DATABASE' text. Below this, there are three tabs: 'Search Interactions' (active), 'Search Categories', and 'Browse Categories'. The main heading is 'Search Interactions' with a subtitle 'search for drug-gene interactions by gene name'. A 'Show Tour' link is present. The 'Genes' section has a large text input box with a minus sign. Below it are two buttons: 'Replace Genes with Demo List' and 'Clear All Genes'. There are four filter sections: 'Source Databases' (6 of 6), 'Source Trust Level' (2 of 2), 'Gene Categories' (39 of 39), and 'Interaction Types' (35 of 35). At the bottom left, there's a checkbox for 'Anti-Neoplastic Drugs Only'. A green 'Find Drug Interactions' button is at the bottom center.

- 'Search interactions' allows the user to input one or more genes and determine whether those genes are thought to be targeted by (or interact with) any drugs.
- Genes can be typed/pasted into the 'Genes' box. A set of default genes can also be entered for illustrative purposes.
- Results can be limited to any or all of the interaction source databases and filtered according to several pre-defined criteria, defined on the next slide.
- Once the gene list has been entered or uploaded, select the 'Find Drug Interactions' button to view results of the search.



Search Interactions: Filters

Search Interactions search for drug-gene interactions by gene name ⓘ

[Show Tour](#)

Genes ⓘ

[Replace Genes with Demo List](#) [Clear All Genes](#)

Source Databases ⓘ 6 of 6

Source Trust Level ⓘ

Gene Categories ⓘ

Interaction Types ⓘ

Anti-Neoplastic Drugs Only ⓘ

☒ DrugBank

☒ MyCancerGenome

☒ PharmGKB

☒ TALC

☒ TEND

☒ Check all ☒ Uncheck all ⓘ

- When searching for gene-drug interactions, the results can be put through 5 available filters.
- Upon clicking on the box, a drop-down menu appears with the available options. Shown is the filter for Source Databases. Clicking each option toggles the check, including or excluding that source in the data output.
- The Source Trust Level filter can be used to only include 'Expert Curated' or 'non-curated' data.
- The Gene Categories Filter allows the results to include only the gene functions desired (ABC Transporters, Cell Signalling.. Etc.)
- The Interaction Types filter allows for the search to include only specific drug action types to be included (inhibitor, allosteric modulator... Etc.)
- Checking the 'Anti-Neoplastic Drugs Only' filter will include only drugs proven to be for the treatment of Cancers.



Interaction search results

Results are organized according to five different views/tabs. The main view shown here gives a complete detailed result of all the drug-gene interactions matching the search terms (genes) provided. For example, it was found that the search term “FLT1” unambiguously matches a DGIdb gene (FLT1), passed the basic filter, and is thought to be inhibited by a number of drugs according to the MyCancerGenome database.

Interaction Search Results drug interactions for your genes

Results can be further filtered by any gene, source, or the summaries using these tabs.

Interaction Results Search Results Summary Search Term Summary By Gene By Source

Primary Results

Search terms matching exactly one gene that has one or more drug interactions.

Download as TSV

10 records per page

Filter results:

Search Term	Gene	Drug	Interaction Type	Source
FLT1	FLT1 - fms-related tyrosine kinase 1 (vascular end...	MGCD265	inhibitor	MyCancerGenome
FLT1	FLT1 - fms-related tyrosine kinase 1 (vascular end...	TIVOZANIB	inhibitor	MyCancerGenome
FLT1	FLT1 - fms-related tyrosine kinase 1 (vascular end...	PAZOPANIB	inhibitor	MyCancerGenome
FLT1	FLT1 - fms-related tyrosine kinase 1 (vascular end...	E-3810	inhibitor	MyCancerGenome
FLT1	FLT1 - fms-related tyrosine kinase 1 (vascular end...	NINTEDANIB	inhibitor	MyCancerGenome
FLT1	FLT1 - fms-related tyrosine kinase 1 (vascular end...	REGORAFENIB	inhibitor	MyCancerGenome
FLT1	FLT1 - fms-related tyrosine kinase 1 (vascular end...	MOTESANIB	inhibitor	MyCancerGenome
FLT1	FLT1 - fms-related tyrosine kinase 1 (vascular end...	AXITINIB	inhibitor	MyCancerGenome
FLT1	FLT1 - fms-related tyrosine kinase 1 (vascular end...	XL647	inhibitor	MyCancerGenome
FLT1	FLT1 - fms-related tyrosine kinase 1 (vascular end...	VATALANIB	inhibitor	MyCancerGenome

Showing 1 to 10 of 35 entries

← Previous 1 2 3 4 Next →



Interaction search results (cont'd)

(1)

Ambiguous Results

Search terms matching multiple genes, where some of those genes have drug interactions.

Download as TSV

10 records per page

Search Term	Gene
STK1	FLT3 - fms-related tyrosine kinase 3
STK1	FLT3 - fms-related tyrosine kinase 3
STK1	FLT3 - fms-related tyrosine kinase 3
STK1	FLT3 - fms-related tyrosine kinase 3
STK1	FLT3 - fms-related tyrosine kinase 3
STK1	FLT3 - fms-related tyrosine kinase 3
STK1	CDK7 - cyclin-dependent kinase 7
STK1	CDK7 - cyclin-dependent kinase 7

The main 'Interaction Results' view/tab also summarizes: (1) search terms with ambiguous matches to genes in DGIdb which have interactions that pass filter criteria; (2) search terms with ambiguous matches to genes in DGIdb but with no interactions; (3) search terms with definite matches to genes in DGIdb but with no interactions; (4) search terms with no matches to any genes in DGIdb

NOTE: It is advised that for any ambiguous matches, the input list should be modified to use the official gene symbol to eliminate ambiguity.

Examples shown are generated with the demo list available.

(2)

Ambiguous Search Terms With No Interactions

Search terms matching multiple genes, but none have interactions.

[PFDN5](#)

For search term: MM1

[PLXNB2](#)

For search term: MM1

(3)

Matched Genes With No Interactions

Search terms matching one gene, but no interactions are present.

[AQP9](#)

For search term: AQP9

(4)

Search Terms With No Matches

Search terms that could not be matched to a gene

- [LOC100508755](#), [FAKE1](#)



Interaction search results summary

Interaction Search Results

drug interactions for your genes

[Interaction Results](#)[Search Results Summary](#)[Search Term Summary](#)[By Gene](#)[By Source](#)

Search Results Summary

Summary of genes mapped and drug interactions found for those genes.

Search Terms Entered: 7
Search Terms Matched Definitely: 4
Search Terms Matched Ambiguously: 2
Search Terms With No Matches: 1
Number Of Interactions For Definite Matches: 83
Number Of Interactions For Ambiguous Matches: 35
Number Of Search Terms With At Least One Interaction: 4

The second view/tab on the Interaction Search Results page provides basic statistics for the search term list such as: Number of search terms provided as input, number of terms with definite matches to genes in DGIdb, number of interactions for definite matches, etc.



Interaction search results term summary

Interaction Search Results drug interactions for your genes

[Interaction Results](#) [Search Results Summary](#) [Search Term Summary](#) [By Gene](#) [By Source](#)

Search Term Summary

Summary of the attempt to map gene names supplied by the user to gene records in DGIdb.

[Download as TSV](#)

10 records per page

Filter results:

Search Term	Match Type	Matches
AQP9	Definite	AQP9
FLT1	Definite	FLT1
FLT2	Definite	FGFR1
FLT3	Definite	FLT3
LOC100508755, FAKE1	None	None
MM1	Ambiguous	PFDN5 , PLXNB2
STK1	Ambiguous	CDK7 , FLT3

Showing 1 to 7 of 7 entries

[← Previous](#) [1](#) [Next →](#)

The third view/tab on the Interaction Search Results page provides a summary of how search terms matched results in DGIdb on a term-by-term basis.



Interaction search results gene summary

Interaction Search Results drug interactions for your genes

[Interaction Results](#) [Search Results Summary](#) [Search Term Summary](#) [By Gene](#) [By Source](#)

Results Summarized by Gene

Drug interaction count and druggable categories associated with each gene.

[Download as TSV](#)

10 records per page

Filter results:

Search Term	Gene	Distinct Drug Count	Druggable Gene Categories
FLT1	FLT1 - fms-related tyrosine kinase 1 (vascular endothe...	24	TYROSINE KINASE , DRUGGABLE GENOME , KINASE
FLT2	FGFR1 - fibroblast growth factor receptor 1	16	TYROSINE KINASE , TUMOR SUPPRESSOR , KINASE , DRUGGABLE GENOME
FLT3	FLT3 - fms-related tyrosine kinase 3	16	TYROSINE KINASE , DRUGGABLE GENOME , KINASE , CELL SURFACE

Showing 1 to 3 of 3 entries

[← Previous](#) [1](#) [Next →](#)

The Fourth Tab in the menu gives a gene-by-gene breakdown of interaction count for available drugs as well as the catalogged drug categories in the database.




Interaction search results by source

Interaction Search Results <small>drug interactions for your genes</small>							
Interaction Results Search Results Summary Search Term Summary By Gene By Source							
Results Enumerated by Source							
Drug-gene interactions broken down by the source(s) that reported them.							
Download as TSV							
50 records per page							
Filter results:							
Interaction	DrugBank	MyCancerGenome	PharmGKB	TALC	TEND	TTD	Count
SUNITINIB and FLT3	✓	✓		✓	✓	✓	5
SUNITINIB and FLT1	✓		✓	✓	✓		4
AXITINIB and FLT1		✓	✓	✓			3
SORAFENIB and FLT3	✓			✓	✓		3
AMUVATINIB and FLT3		✓		✓			2
AS703569 and FLT3		✓		✓			2
AZD4547 and FGFR1		✓		✓			2
BGJ398 and FGFR1		✓		✓			2
DOVITINIB and FGFR1		✓		✓			2
ENMD-0276 and FLT3		✓		✓			2
MGCD265 and FLT1		✓		✓			2

The fifth view/tab on the Interaction Search Results page provides a summary of unambiguous interaction results in DGIdb, grouped by source. To illustrate, the search term “FLT3” was found to interact with Sunitinib by DrugBank, MyCancerGenome, and TALC, TEND, TTD.



3. Searching for potentially druggable genes

**DGIdb**
THE DRUG GENE INTERACTION DATABASE


Search Interactions

Search Categories

Browse Categories


Search Druggable Gene Categories Search for genes in druggable gene categories ?


[Show Tour](#)


Genes 


Replace Genes with Demo List

Clear All Genes

Source Databases  4 of 4 ▾

Source Trust Level  2 of 2 ▾

Gene Categories  39 of 39 ▾

 Find Gene Categories

- ‘Search Categories’ allows the user to input one or more genes and determine whether those genes belong to a “druggable gene category”.
- Genes can be typed/pasted into the ‘Genes’ box. A set of default genes can also be entered for illustrative purposes.
- Results can be limited to any or all of the druggable gene category source databases and/or filtered according to specific categories.
- Once the gene list has been entered or uploaded, select the ‘Find Gene Categories’ button to view results of the search.



Category search results

DGIdb
THE DRUG GENE INTERACTION DATABASE

Search Interactions Search Categories Browse Categories Help

Category Search Results

Druggable categories for your genes

Category Results Search Results Summary By Category By Source

Primary Results

Search terms matching exactly one gene that belongs to one or more druggable categories.

Download as TSV

10 records per page

Filter results:

Search Term	Gene	Druggable Gene Category	Sources
EGFR	EGFR - epidermal growth factor receptor	KINASE	HopkinsGroom GO
EGFR	EGFR - epidermal growth factor receptor	DRUGGABLE GENOME	HopkinsGroom RussLampel dGene
EGFR	EGFR - epidermal growth factor receptor	TYROSINE KINASE	dGene GO
EGFR	EGFR - epidermal growth factor receptor	SERINE THREONINE KINASE	GO
EGFR	EGFR - epidermal growth factor receptor	TUMOR SUPPRESSOR	GO
EGFR	EGFR - epidermal growth factor receptor	DNA REPAIR	GO
HER2, ERBB2	ERBB2 - v-erb-b2 erythroblastic leukemia viral oncogene...	KINASE	HopkinsGroom GO
HER2, ERBB2	ERBB2 - v-erb-b2 erythroblastic leukemia viral oncogene...	DRUGGABLE GENOME	HopkinsGroom dGene RussLampel
HER2, ERBB2	ERBB2 - v-erb-b2 erythroblastic leukemia viral oncogene...	TYROSINE KINASE	GO dGene
KCNMA1	KCNMA1 - potassium large conductance calcium-activated c...	TRANSPORTER	GO

Showing 1 to 10 of 16 entries

Previous 1 2 Next

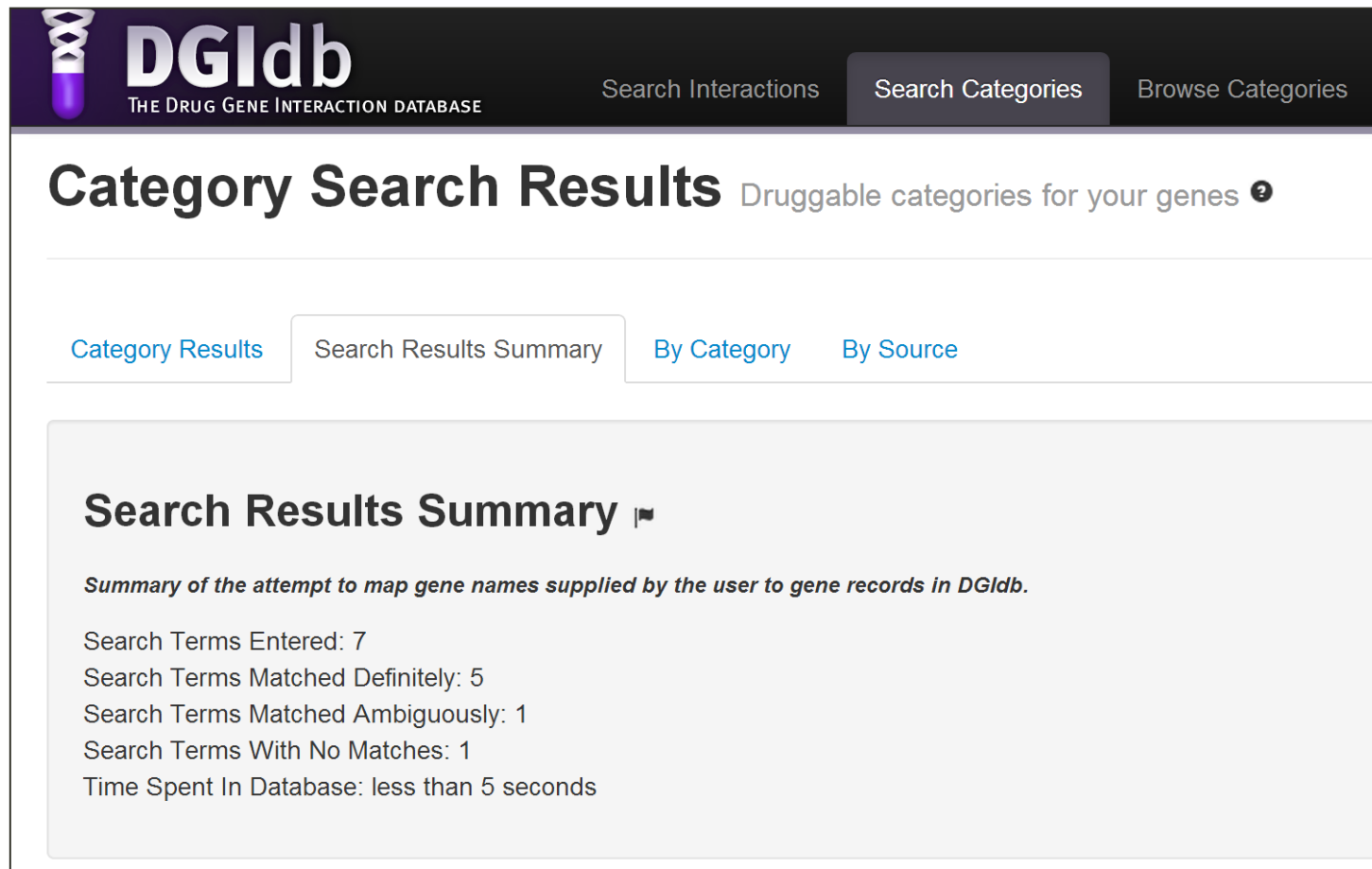
Results can be further filtered by any gene, category or source in the results

Results are organized according to four different views/tabs. The main view shown here gives a complete detailed result of all the druggable gene categories matching the search terms (genes) provided. For example, it was found that the search term “EGFR” belongs to a number of potentially druggable gene categories such as Tyrosine Kinase, DNA repair, etc.

Ambiguous search terms and search terms with no matches are also summarized here



Category search results summary



The screenshot shows the DGIdb (The Drug Gene Interaction Database) interface. The top navigation bar includes the DGIdb logo, a search bar, and links for 'Search Interactions', 'Search Categories' (which is highlighted), and 'Browse Categories'. The main heading is 'Category Search Results' with a subtitle 'Druggable categories for your genes'. Below this, there are four tabs: 'Category Results', 'Search Results Summary' (which is selected), 'By Category', and 'By Source'. The 'Search Results Summary' tab is active, displaying a summary of the search attempt. The summary text indicates that 7 search terms were entered, 5 were matched definitely, 1 was matched ambiguously, and 1 term had no matches. The search was completed in less than 5 seconds.

DGIdb
THE DRUG GENE INTERACTION DATABASE

Search Interactions **Search Categories** Browse Categories

Category Search Results

Druggable categories for your genes ?

[Category Results](#) **Search Results Summary** [By Category](#) [By Source](#)

Search Results Summary


Summary of the attempt to map gene names supplied by the user to gene records in DGIdb.

Search Terms Entered: 7
Search Terms Matched Definitely: 5
Search Terms Matched Ambiguously: 1
Search Terms With No Matches: 1
Time Spent In Database: less than 5 seconds

The second view/tab on the Category Search Results page provides basic statistics for the search term list such as: Number of search terms provided as input, number of terms with definite matches to genes in DGIdb, etc.



Category search results by category

**DGIdb**
THE DRUG GENE INTERACTION DATABASE

Search InteractionsSearch CategoriesBrowse Categories

Help

Category Search Results

Druggable categories for your genes

Category ResultsSearch Results SummaryBy CategoryBy Source

Results Grouped by Categories

Number of search terms matching genes in each druggable gene category.

Download as TSV

10 records per page

Filter results:

Druggable Gene Category	Matching Gene Count	Matching Gene(s)	Non-Matching Gene(s)
DNA REPAIR	1	EGFR	ERBB2, PTGDR, RECK, KCNMA1
DRUGGABLE GENOME	5	ERBB2, PTGDR, EGFR, RECK, KCNMA1	
G PROTEIN COUPLED RECEPTOR	1	PTGDR	ERBB2, EGFR, RECK, KCNMA1
ION CHANNEL	1	KCNMA1	ERBB2, PTGDR, EGFR, RECK
KINASE	2	ERBB2, EGFR	PTGDR, RECK, KCNMA1
PROTEASE INHIBITOR	1	RECK	ERBB2, PTGDR, EGFR, KCNMA1
SERINE THREONINE KINASE	1	EGFR	ERBB2, PTGDR, RECK, KCNMA1
TRANSPORTER	1	KCNMA1	ERBB2, PTGDR, EGFR, RECK
TUMOR SUPPRESSOR	1	EGFR	ERBB2, PTGDR, RECK, KCNMA1
TYROSINE KINASE	2	ERBB2, EGFR	PTGDR, RECK, KCNMA1


Showing 1 to 10 of 10 entries

← Previous 1 Next →

The third view/tab on the Category Search Results page provides a summary of how search terms matched results in DGIdb, grouped by druggable gene category. For example, it was found that two genes (ERBB2 and EGFR) were found in the KINASE category.



Category search results by source

 **DGIdb**
THE DRUG GENE INTERACTION DATABASE

Search Interactions

Search Categories

Browse Categories

Help

Category Search Results

Druggable categories for your genes

[Category Results](#) [Search Results Summary](#) [By Category](#) [By Source](#)

Results Enumerated by Source

Number of search terms matching genes in each druggable gene category broken down by source.

[Download as TSV](#)

50 records per page

Filter results:

Druggable Gene Category	GO	HopkinsGroom	RussLampel	dGene	Count
DRUGGABLE GENOME	0	4	4	4	12
KINASE	2	2	0	0	4
TYROSINE KINASE	2	0	0	2	4
G PROTEIN COUPLED RECEPTOR	1	1	0	1	3
ION CHANNEL	1	1	0	0	2
PROTEASE INHIBITOR	1	0	0	1	2
DNA REPAIR	1	0	0	0	1
SERINE THREONINE KINASE	1	0	0	0	1
TRANSPORTER	1	0	0	0	1
TUMOR SUPPRESSOR	1	0	0	0	1

Showing 1 to 10 of 10 entries

← Previous 1 Next →

The fourth view/tab on the Category Search Results page provides a summary of how search terms matched results in DGIdb, grouped by interaction source. For example, KINASE category genes have interactions in both the GO and dGene databases.



4. Browsing potentially druggable gene categories

DGIdb Test Data: GENE INTERACTION DATABASE

Search Interactions Search Categories **Browse Categories** Help

Druggable Gene Categories

select gene categories


Limit categories to specific sources: ☒ GO ☒ HopkinsGroom ☒ RussLampel ☒ dGene

ABC TRANSPORTER (102)	B30_2 SPRY DOMAIN (89)	CELL SURFACE (472)	CYTOCHROME P450 (57)
DNA DIRECTED DNA POLYMERASE (4)	DNA DIRECTED RNA POLYMERASE (2)	DNA REPAIR (390)	DRUG METABOLISM (34)
DRUG RESISTANCE (351)	DRUGGABLE GENOME (3850)	EXCHANGER (14)	EXTERNAL SIDE OF PLASMA MEMBRANE (193)
FIBRINOGEN (32)	G PROTEIN COUPLED RECEPTOR (899)	GROWTH FACTOR (164)	HISTONE MODIFICATION (260)
HORMONE ACTIVITY (114)	ION CHANNEL (401)	KINASE (821)	LIPASE (10)
LIPID KINASE (6)	MYOTUBULARIN RELATED PROTEIN PHOSPHATASE (16)	NEUTRAL ZINC METALLOPEPTIDASE (181)	NUCLEAR HORMONE RECEPTOR (54)
PHOSPHATIDYLINOSITOL 3 KINASE (24)	PHOSPHOLIPASE (96)	PROTEASE (634)	PROTEASE INHIBITOR (181)
PROTEIN PHOSPHATASE (174)	PTEN FAMILY (7)	RNA DIRECTED DNA POLYMERASE (5)	SERINE THREONINE KINASE (464)
SHORT CHAIN DEHYDROGENASE REDUCTASE (53)	THIOREDOXIN (30)	TRANSCRIPTION FACTOR BINDING (405)	TRANSCRIPTION FACTOR COMPLEX (284)
TRANSPORTER (1195)	TUMOR SUPPRESSOR (727)	TYROSINE KINASE (148)	


- ‘Browse Categories’ allows the user to explore the druggable gene categories defined in DGIdb.
- Each category displayed links to a complete list of genes found in the category and the source that placed them there, the user can also filter the data by source using the filter menu at the top.
- The number in brackets is the total number of unique genes (from all sources) placed in the category
- It is these lists that are used in the ‘Search Categories’ tool.




5. Finding help


**DGIdb**
THE DRUG GENE INTERACTION DATABASE


Search InteractionsSearch CategoriesBrowse Categories


Genes 





[Replace Genes with Demo List](#) [Clear All Genes](#)

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Source Trust Level  2 of 2

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Anti-Neoplastic Drugs Only 

[Find Drug Interactions](#)

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- Various resources are available to help navigate DGIdb under the ‘Help’ menu
 - Getting Started - tutorials, screencasts and walkthroughs (including this document)
 - API Documentation - Provides additional information on using DGIdb in other applications
 - News - Updates and information about the database and new features.
 - FAQ - frequently asked questions and their answers
 - Sources - A summary of all sources of data currently imported to DGIdb
 - Downloads - dumps of intermediate data files and links to source code
 - Contact - contact details for DGIDB developers
 - View Disclaimer - Shows the documented disclaimer for use of the information in DGIdb.


[Search Interactions](#) Find drug gene-[Search Categories](#) Find genes in druggable gene categories[Druggable Genes](#) Browse druggable gene categories[Walkthrough \(pdf\)](#) Illustrated user guide[Search](#) Query individual drugs, genes, and interactions

[dgidb.genome.wustl.edu/#](#)

FEEDBACK



API Documentation: Using DGldb in your own Applications

 **DGldb**
THE DRUG GENE INTERACTION DATABASE

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API Documentation

Using DGldb in your own applications

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Python

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Shell

Introduction

The DGldb API can be used to query for drug-gene interactions in your own applications through a simple JSON based interface.

All endpoints can be reached at: `http://dgldb.genome.wustl.edu`

Endpoints

available API method calls

Search Interactions

The interactions endpoint can be used to return interactions for a given set of gene names or symbols. It also allows you to filter returned interactions.

GET

```
/api/v1/interactions.json
```

Note: While the preferred method for accessing this endpoint is a **GET** request, it will also accept **POST** requests to accomodate large gene lists if needed.

Accepted Parameters:

Parameter	Description	Example
genes (required)	A comma delimited list of gene names or symbols	<code>genes=FLT1,STK1,FAKE1</code>
interaction_sources (optional)	A comma delimited list of source names to include in the result set. If this field is omitted, all sources will be included.	<code>interaction_sources=TTD,DrugBank</code>
interaction_types (optional)	A comma delimited list of interaction types to include in the result set. If this field is omitted, all interaction types will be included.	<code>interaction_types=inhibitor,activator</code>
drug_types (optional)	A comma delimited list of drug types to include in the result set. If this field is omitted, all drug types will be included.	<code>drug_types=antineoplastic</code>
gene_categories (optional)	A comma delimited list of gene categories to include in the result set. If this field is omitted, all gene categories will be included.	<code>gene_categories=kinase,tumor%20suppressor</code>
source_trust_levels (optional)	A comma delimited list of source trust levels to include in the result set. If this field is omitted, all trust levels will be included.	<code>source_trust_levels=Expert%20curated</code>

- The API Documentation can be accessed by clicking on the Help menu in the top right corner of the home screen (Shown on the previous slide).
- This page provides in-depth instructions to running your own drug-gene interaction queries without the web interface.
- There is sample code provided for a Perl script, while samples of Python, Ruby and Shell are currently in the works.

