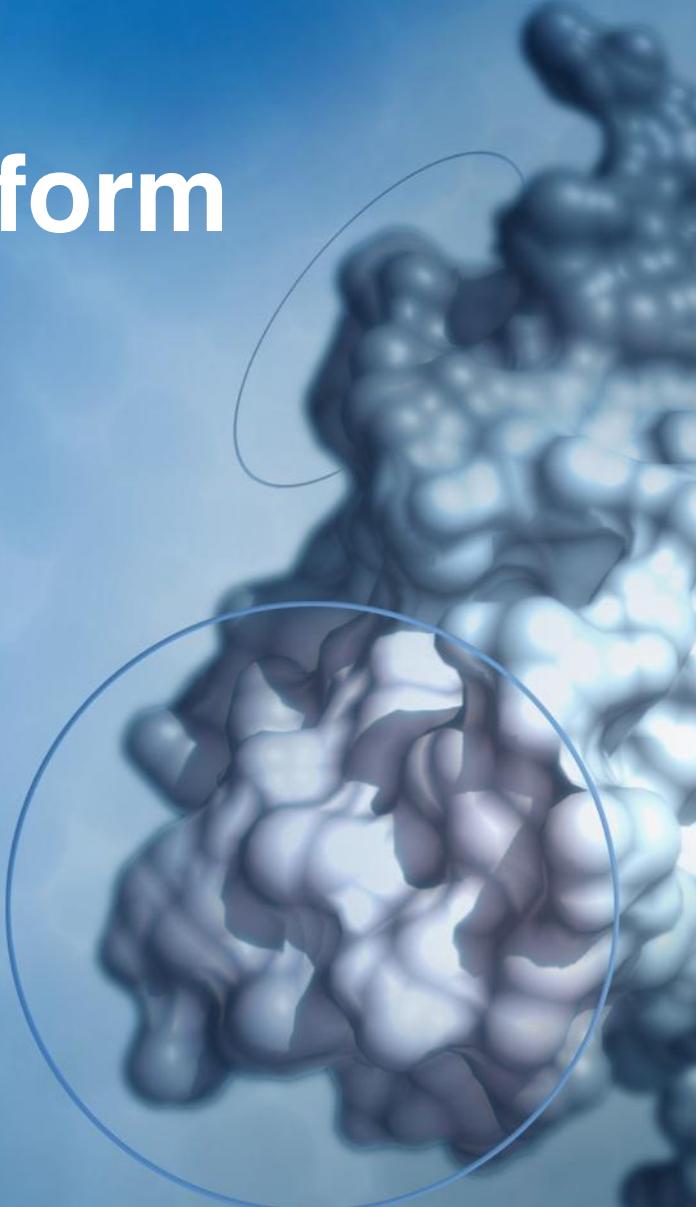


The Open Targets Platform

support@targetvalidation.org



Open Targets



Outline

- Open Targets Platform
- Search workflows
- Use case scenarios
- Help, documentation and videos

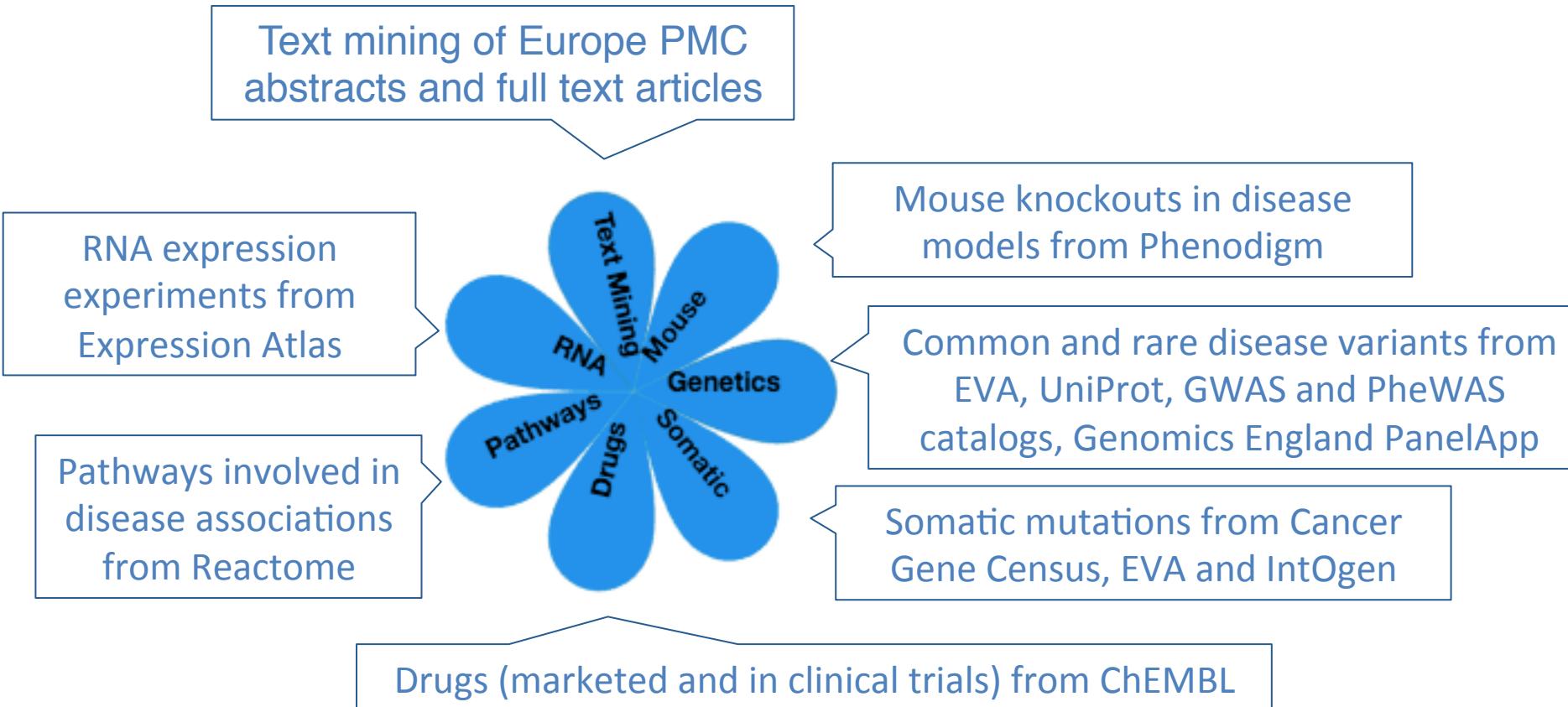
Goal

To help you identify and prioritise relationships between targets and diseases through the integration, scoring and ranking of evidence from 15 public data sources.



<https://www.targetvalidation.org/>

Where do we get the data from?

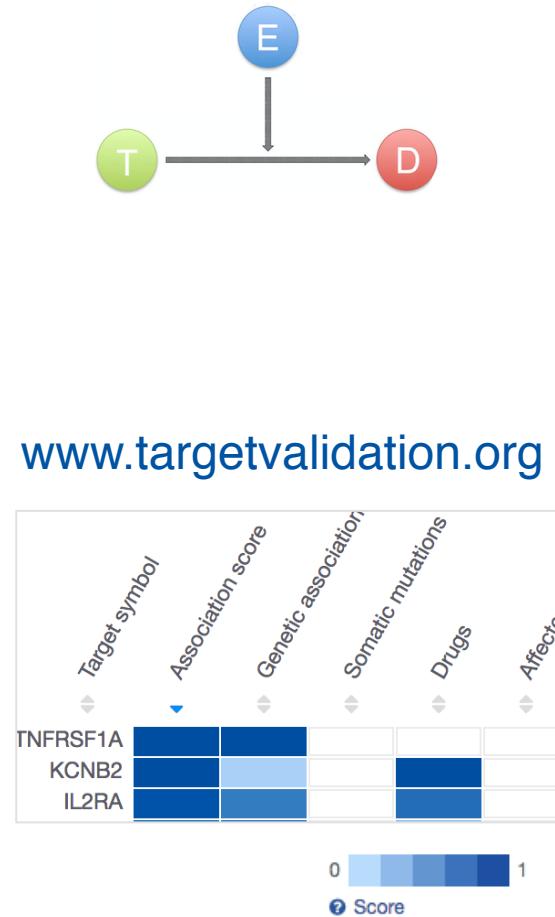
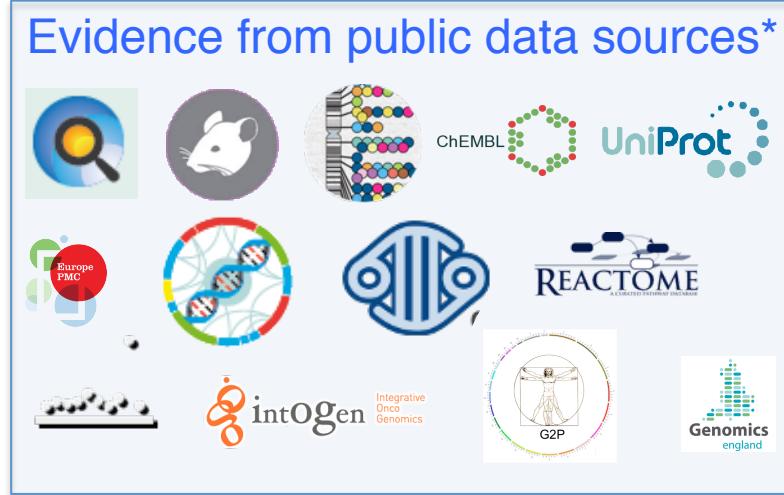


Evidence* for:

- > 26,000 targets
- > 9,000 diseases/phenotypes as EFO terms, which include mappings to MeSH, HPO, Orphanet, and OMIM.

* June 2017

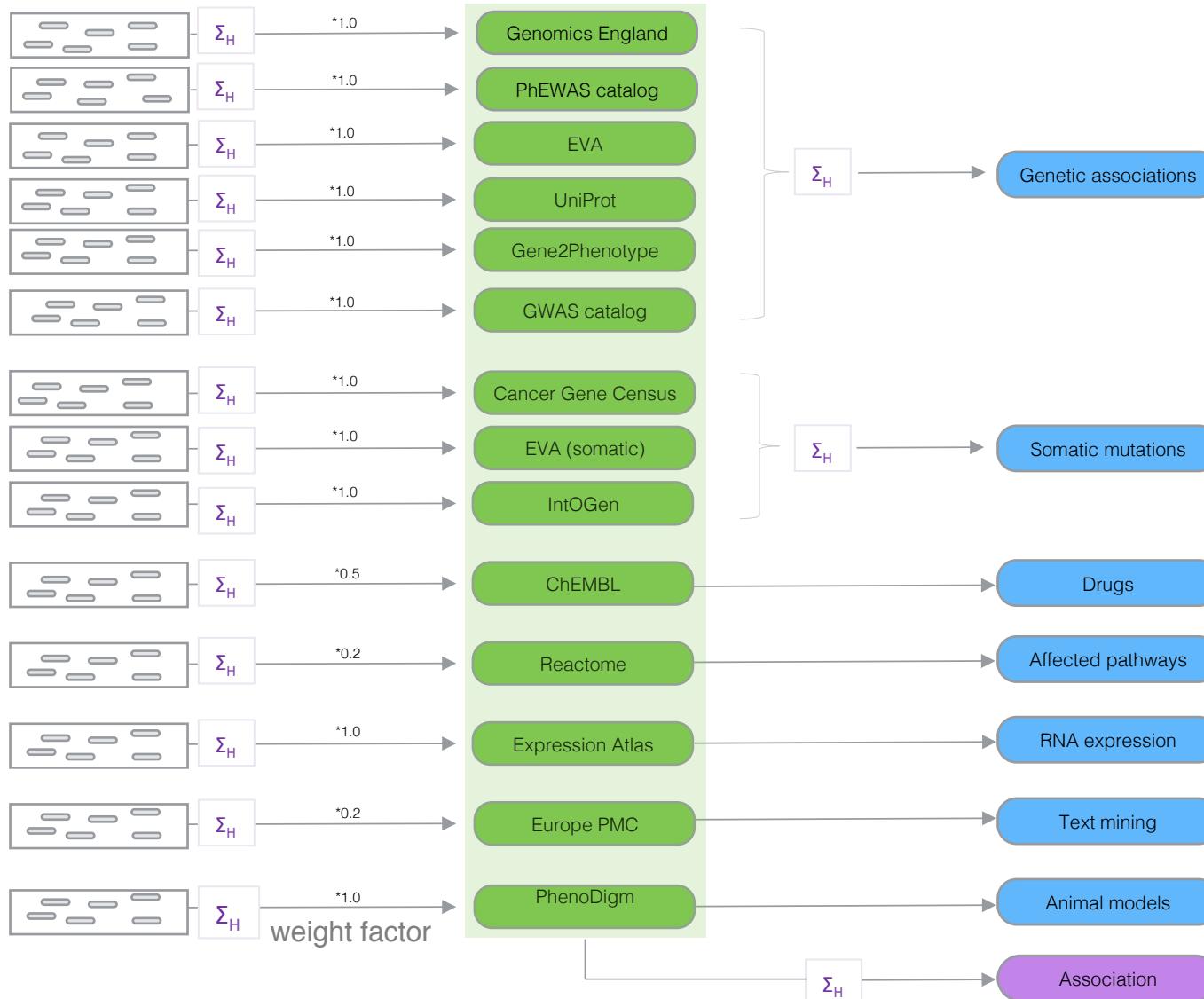
Our data model: evidence, target, disease



Data is used as evidence to associate targets with diseases

* https://www.targetvalidation.org/data_sources

How do we score the associations?



Score: 0 to 1 (max)

Calculated at 4 levels:

- Evidence
- Data source
- Data type
- Overall

Aggregation with (harmonic sum)



Note: Each data set has its own scoring and ranking scheme

$$\Sigma_H = S_1 + S_2/2^2 + S_3/3^2 + S_4/4^2 + \dots + S_i/i^2$$

“Is the Open Targets Platform for me?”

Q1: Are you working on biomedical research, studying associations of human genes with diseases?

Q2: Are you trying to identify a biological target for a new therapy?

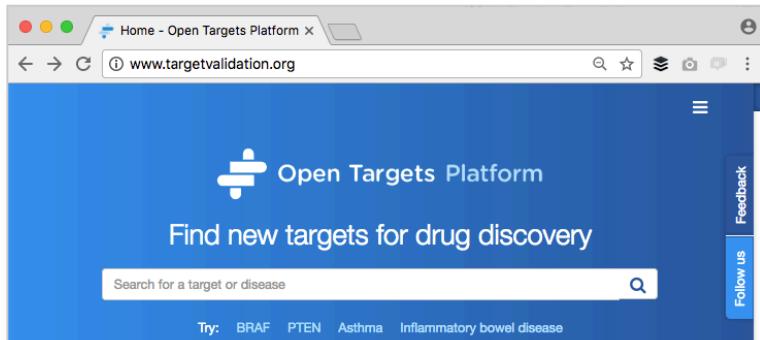
Q3: Would you like to access drug targets that have been validated by genome-scale experiments and cutting edge analysis?

Q4: Would you like to have open and free access to all of this?



If you answer **yes** to one or more questions above, keep exploring this slide pack to learn how to browse the Open Targets Platform.

Search workflows



Website

- Target (T)
- Disease (D)
- Drugs (matched to T or D)
- Phenotypes (matched to T or D)
- Get the evidence for associations

A screenshot of the Open Targets Platform batch-search tool. The top navigation bar includes the "Open Targets Platform" logo and a search icon. Below this, a section titled "1. Upload your target list:" is shown. It contains instructions: "List format is one target per line. A maximum of 200 targets is currently allowed." and a link "Load sample list". There are two input methods: "Load your list from a file:" with a "Choose File" button and a message "No file chosen", and "Copy and paste your list:" with a text input field labeled "Give your list a name" and a scrollable text area labeled "Your target list". At the bottom are "Load" and "Clear" buttons.

Batch-search tool

- Several targets in one go
- Paste or upload your own list
- Get diseases, pathways, drugs for < 200 targets

Search workflows

```
{  
  from: 0,  
  took: 37,  
  data_version: "17.06.2",  
  query: {  
    highlight: true,  
    fields: null,  
    datastructure: "default",  
    format: "json",  
    size: 10  
  },  
  total: 34,  
  data: [  
    {  
      data: {  
        ortholog: {  
          fly: [  
            {  
              symbol: "Brca2",  
              name: "Breast cancer 2, early onset homolog",  
              id: [  
                "DROME|FlyBase=FBgn0050169|UniProtKB=Q9W157  
              ]  
            ]  
          ]  
        }  
      }  
    }  
  ]  
}
```

Open Targets REST API

- Targets (T)
- Disease (D)
- Drugs (matched to T or D)
- Phenotypes (matched to T or D)
- More complex queries

<https://api.targetvalidation.org/api/latest/public/search?q=brca2>

We facilitate your decision-making

A) Which targets are associated with a disease

B) Which genetic evidence supports this target-disease association?

C) Are there drugs for this association in clinical trials?

G) How can I search for several targets at once?

F) What else can I find out about my drug target?

D) For a given target, are there other diseases associated with it?

E) Can I find the association focusing on two (or more) different therapeutic areas?



Let's look at some use cases

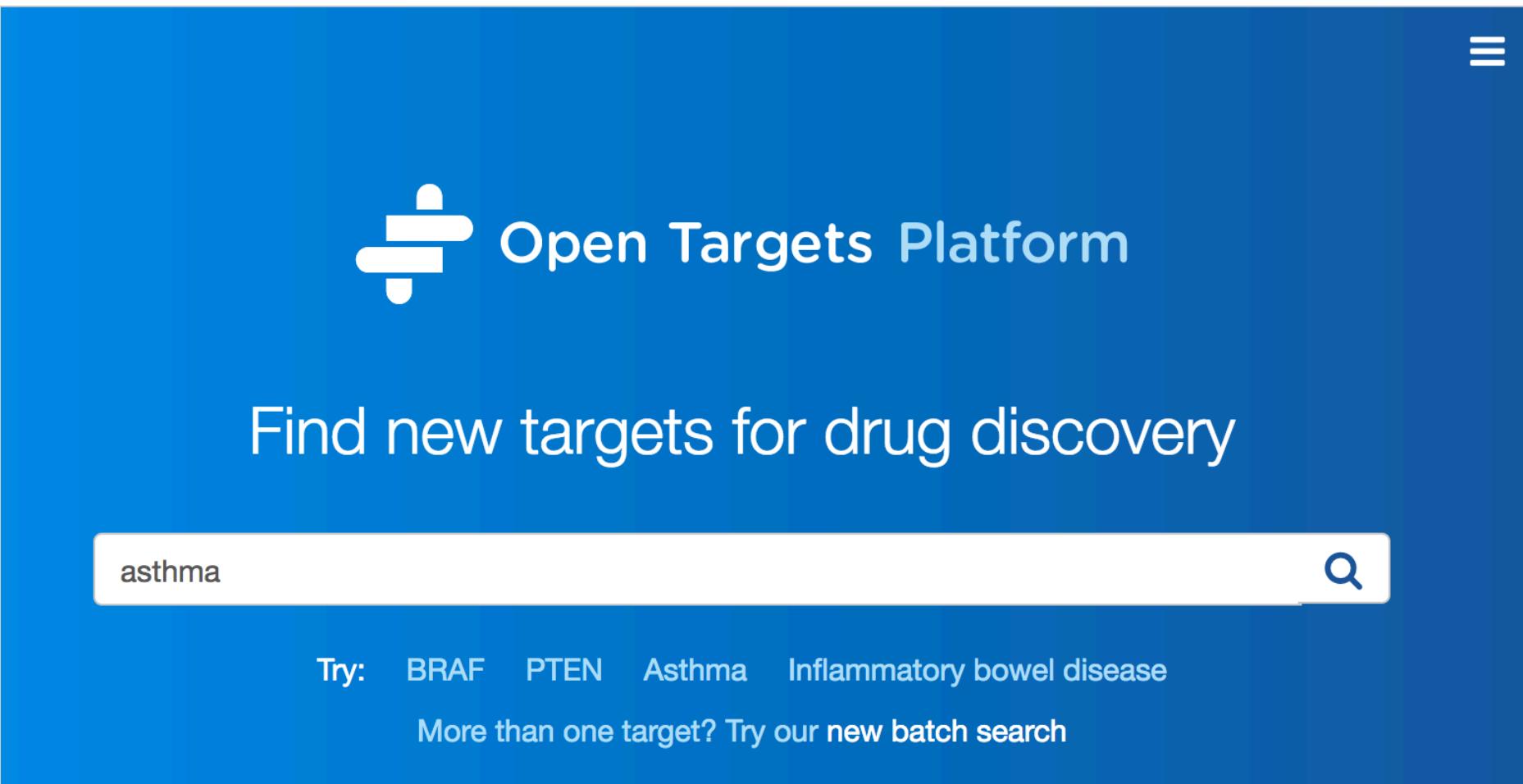


A) Which targets are associated with asthma?

B) Which genetic evidence supports the association of targets with asthma?

C) Are there drugs targeting a protein currently in clinical trials with asthma patients?

Searching for a disease: website workflow



The image shows the Open Targets Platform search interface. At the top right is a menu icon (three horizontal lines). Below the header, the text "Find new targets for drug discovery" is displayed. A search bar contains the word "asthma". To the right of the search bar is a magnifying glass icon. Below the search bar, a list of suggested terms includes "BRAF", "PTEN", "Asthma", and "Inflammatory bowel disease". A link "More than one target? Try our new batch search" is also present.

Open Targets Platform

Find new targets for drug discovery

asthma

Try: BRAF PTEN Asthma Inflammatory bowel disease

More than one target? Try our [new batch search](#)

Internet Explorer 11 (and above), Chrome, Firefox and Safari

A) Which targets are associated with asthma?

Open Targets Platform

Survey About Help API Downloads Blog Search for a target or disease

3090 targets associated with asthma

Filter by target symbol

Download the table

Order by the strength of the score in a data type

Asthma

Image Credit: NIH

Feedback

Filter by 'Data types' e.g. Drugs

Filter by 'Pathway types' e.g. Metabolism

Filter by 'Target class' e.g. Kinases

Filter by 'Your target list' of genes in asthma

Associations ranked by score (from 0 to 1, maximum value)

PDE4D is one of the targets associated with asthma. Let's explore it further...

Target Symbol Association score Genetic associations Somatic mutations Drugs Affected pathways RNA expression Tissue mining Aligned

Target Symbol	Association score	Genetic associations	Somatic mutations	Drugs	Affected pathways	RNA expression	Tissue mining	Aligned
IL13	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
ORMDL3	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
PDE4D	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
CH3L1	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
PTGDR	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
ADAM33	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
IL5	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
PTGS2	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
ADRB2	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
NPSR1	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
NR3C1	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
VDR	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
ALOX5	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
DPP10	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
CYSLTR1	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
PLA2G7	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
PTGS1	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
MUC7	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
IL5RA	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
IRAK3	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
HRH1	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
ADRB1	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
CHRM3	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
DENN16	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
ADR2A	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
DPR6	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
ADRA1B	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
PTGDR2	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
IGHE	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
ADRB3	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8

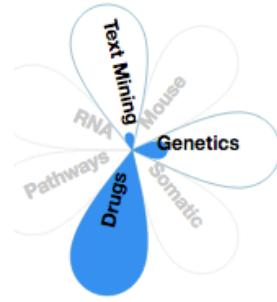
Show 50 entries Previous 1 2 3 4 5 ... 62 Next

No data Score

Feedback

B) Which genetic evidence supports the association?

Evidence for PDE4D in asthma



Data type with no evidence is greyed-out in the flower

Click to get to the profile page of the target

Click to get to the profile page of the disease

PDE4D

phosphodiesterase 4D, cAMP-specific
Synonyms: DPDE3

Hydrolyzes the second messenger cAMP, which is a key regulator of many important physiological processes.

asthma

Synonyms: ASTHMA NOS W (AC) EXAC, Airway hyperreactivity, Asthma (disorder), Asthma NOS, Asthma NOS (disorder)...

A bronchial disease that is characterized by chronic inflammation and narrowing of the airways, which is caused by a combination of environmental and genetic factors resulting in recurring periods of ...

Coloured petals denote data type available to support the association

Genetic associations

Data types in bold have evidence supporting the association e.g. genetic association.

Somatic mutations

Drugs

Click on the data type (in bold) for more details.

Affected pathways

RNA expression

Text mining

Animal models

Details on the supporting (genetic) evidence

Click and expand the tab for details on the supporting evidence for the association

Genetic associations

Table

Browser

View the genetic data as a table or browser view

Common diseases

Source: GWAS catalog, PheWAS catalog

Showing 1 to 2 of 2 entries

Search:

Disease	Variant	Variant type	Evidence source	P-Value	Publications
asthma	rs1588265	intron variant	gwas catalog	3e-8	1 publication
asthma	rs10052657	downstream gene variant	phewascatalog	0.03 Cases: 1390 Odds ratio: 0.89	1 publication

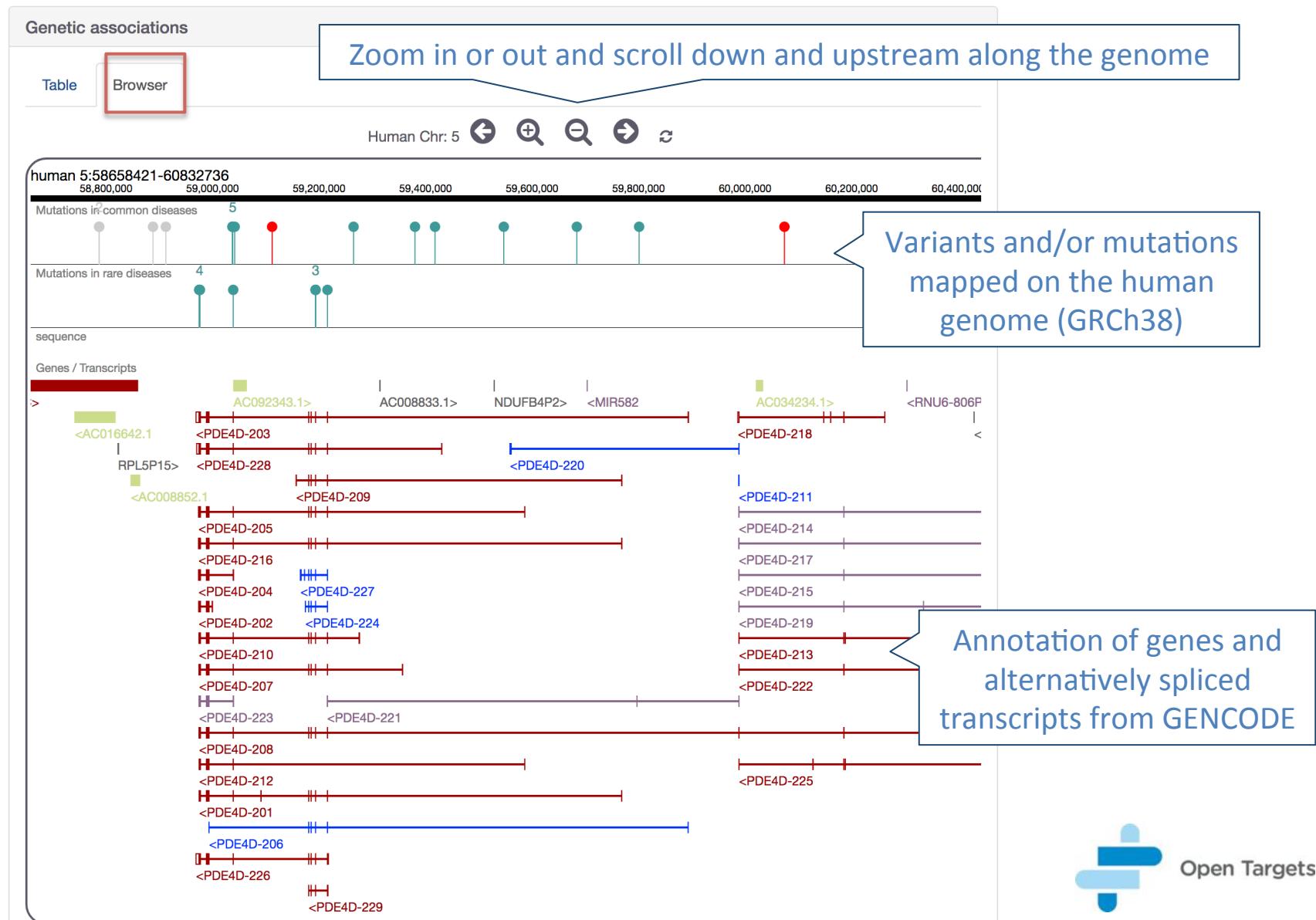
Show 10 entries

Retrieve the original publications supporting the evidence



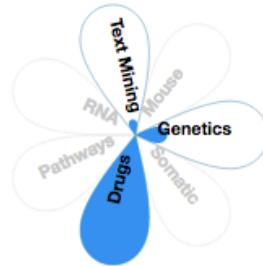
Previous 1 Next

Details on the supporting genetic evidence (cont.)



C) Are there drugs for this association in clinical trials?

Evidence for PDE4D in asthma



PDE4D

phosphodiesterase 4D, cAMP-specific
Synonyms: DPDE3

Hydrolyzes the second messenger cAMP, which is a key regulator of many important physiological processes.

asthma

Synonyms: ASTHMA NOS W (AC) EXAC, Airway hyperreactivity, Asthma (disorder), Asthma NOS, Asthma NOS (disorder)...

A bronchial disease that is characterized by chronic inflammation and narrowing of the airways, which is caused by a combination of environmental and genetic factors resulting in recurring periods of ...

Genetic associations

Somatic mutations

Drugs

Source: CHEMBL

Found 3 unique drugs: [DYPHYLLINE](#) [ROFLUMILAST](#) [THEOPHYLLINE](#)

Showing 1 to 3 of 3 entries

Search:



Clinical trials

Disease	Drug	Drug Inform		Type	Mechanism of action	Activity	Gene-Drug Evidence	
		Phase	Status				Target class	Evidence source
asthma	DYPHYLLINE	Phase IV	N/A	Small molecule	Phosphodiesterase 4 inhibitor 1 publication DailyMed	antagonist	Phosphodiesterase 4A	Curated from Drug2Clinic Information
asthma	ROFLUMILAST	Phase II	Completed	Small molecule	Phosphodiesterase 4 inhibitor 1 publication DailyMed	antagonist	Phosphodiesterase 4A	Curated from Clinical Trials Information
asthma	THEOPHYLLINE	Phase II	Completed	Small molecule	Phosphodiesterase 4 inhibitor DailyMed	antagonist	Phosphodiesterase 4A	Curated from Clinical Trials Information

More use cases



- D) For a given target, are there other diseases associated with it?
- E) Can I find the association focusing on two (or more) different therapeutic areas?
- F) What else can I find out about my target?

Searching for a target: website workflow

From the Open Targets
Platform homepage

The screenshot shows the Open Targets Platform homepage with a blue header. On the left, there's a white box containing the text "From the Open Targets Platform homepage". In the center, the platform's logo (a stylized 'T' icon) and the text "Open Targets Platform" are displayed. Below this, the tagline "Find new targets for drug discovery" is shown. A search bar contains the text "PDE4D". To the right of the search bar is a magnifying glass icon. Below the search bar, a row of suggested terms is listed: "Try: BRAF PTEN Asthma Inflammatory bowel disease". A link below them says "More than one target? Try our new batch search".

OR

From any page in the Open Targets Platform

 Open Targets Platform

About ▾ Help ▾ API ▾ Downloads Blog

4785 targets associated with inflammatory bowel disease

 View disease profile

Filter by

Show 1 to 50 of 4.785 targets

PDE4D



Search box



PDE4D

phosphodiesterase 4D
195 diseases associated

 Target

Hydrolyzes the second messenger cAMP, which is a key regulator of many important physiological

D) Which diseases are associated with my target?

195 diseases associated with PDE4D

 View PDE4D profile

Bubbles

Table

Tree

View diseases as:

- Bubbles
- Table
- Tree

Filter by

Data types

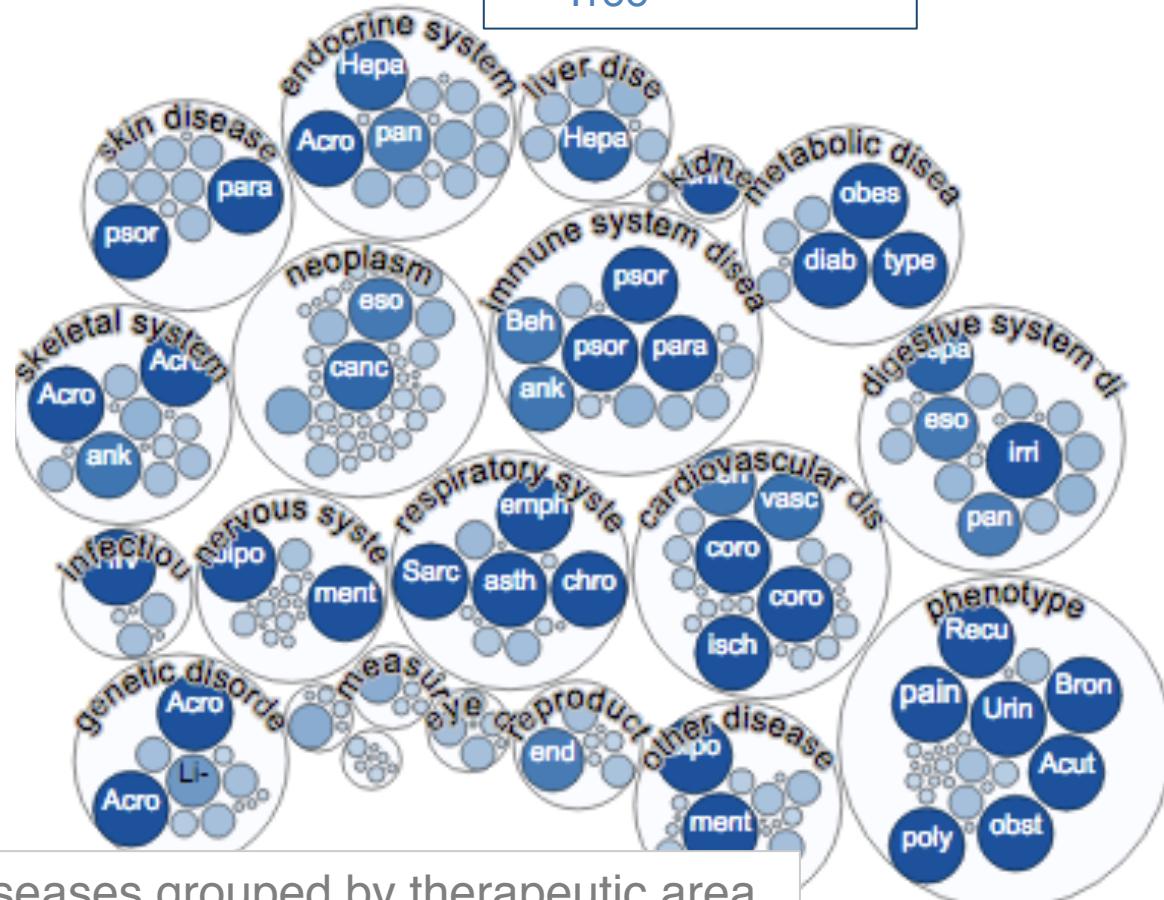
Clear all  Select all 

Genetic associations (14)
 Somatic mutations (0)
 Drugs (67)
 Affected pathways (0)
 RNA expression (39)
 Text mining (67)
 Animal models (0)

Therapeutic area

Clear all  Select all 

Neoplasm (36)
 Phenotype (23)
 Cardiovascular disease (21)
 Digestive system disease (15)
 Immune system disease (14)
 Nervous system disease (14)
 Endocrine system disease (13)
 Skeletal system disease (13)
 Respiratory system disease (12)
 Genetic disorder (10)
 Skin disease (7)
 Reproductive system disease (6)
 Hematological system disease (6)
 Eye disease (5)
 Infectious disease (5)
 Metabolic disease (3)
 Measurement (3)
 Muscular disease (1)
 Other (1)



E) For this target, can I find the associations focusing on two (or more) different therapeutic areas?

28 diseases associated with PDE4D

 View PDE4D profile

For more details on the target e.g. RNA expression, Protein structure, etc.

bubbles Table Tree

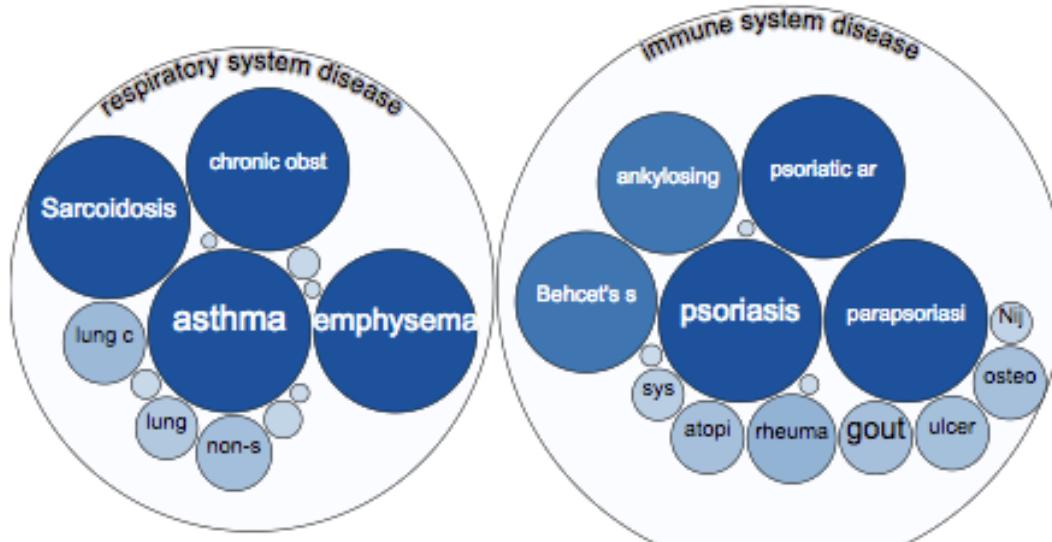
Download the image 

- Drugs (16)
- Affected pathways (0)
- RNA expression (11)
- Text mining (5)
- Animal models (0)

Therapeutic area

[Clear all](#) [Select all](#)

- Neoplasm (36)
- Phenotype (24)
- Cardiovascular disease (21)
- Digestive system disease (15)
- Immune system disease (14)
- Nervous system disease (14)
- Endocrine system disease (13)
- Respiratory system disease (12)
- Genetic disorder (11)
- Skin disease (11)
- Skeletal system disease (11)
- Reproductive system disease (6)
- Hematological system disease (6)
- Eye disease (5)
- Infectious disease (5)
- Metabolic disease (3)
- Measurement (3)
- Muscular disease (1)
- Other (1)



Feedback



Open Targets

F) What else can I find out about my target?

PDE4D
phosphodiesterase 4D | View associated diseases

Hydrolyzes the second messenger cAMP, which is a key regulator of many important physiological processes.

Synonyms: DPDE3 PDE43 3.1.4.53 phosphodiesterase E3 dunce homolog (Drosophila) cAMP-specific 3',5'-cyclic phosphodiesterase 4D

Protein Information (from Uniprot)

Variants, isoforms and genomic context

Protein baseline expression

RNA baseline expression

Gene Ontology

Protein Structure

Pathways

Drugs

Gene tree

Bibliography

What is the 3D protein structure of PDE4D?

Are there orthologues PDE4D?

Where is PDE4D expressed according to the GTEx project?

Normalised expression (RPKM)

Pathways

DARPP-32 events G alpha (s) signalling events Diagram for DARPP-32 events pathway

G-protein activation DARPP-32 events G-protein mediated events

RPKM

tal

ial

old

ler

ste

ng

ge

se

m)

on

sts

ris

ary

na

ary

vix

ch

Searching for > 1 target: batch search



G) How can I search for several targets at once?

Find new targets for drug discovery

Search for a target or disease



Try:

BRAF PTEN Asthma Inflammatory bowel disease



More than one target? Try our [new batch search](#)

Search for several targets in one go

How to run the batch search tool

Step 1

1. Upload your target list:

List format is one target per line. A maximum of 200 targets is currently allowed.

Load sample list

Load your list from a file:

Choose File

No file chosen

Copy and paste your list:

Give your list a name

Your target list

Use a previously loaded list:

sampleList (56 targets)

Your lists are stored in the browser cache for easier access. You can remove them at any time by clicking the icon next to them

Load Clear

Step 2

2. Revise the mappings:

Edit your list

List: sampleList

2 unrecognised targets: AC026248.1 NKX2-3

53 exact matches

- PTGS2 → PTGS2
- PTGS1 → PTGS1
- AC026248.1 → AC026248.1
- TSPAN14 → TSPAN14
- SPRED2 → SPRED2

2 suggested matches

- IL27 → IL27RA
- HLA-DQB1 → HLA-DQB1

Add more targets to your list

Search for more tar

Step 3

3. Analyse your list:

These are the targets to be analysed.

54 targets currently selected for analysis

Analyze targets

Download list



Open Targets

Batch search results: diseases



Open Targets Platform

≡ Q

Summary page for 54 targets

Diseases associated

Therapeutic areas

Data types

Show the results by therapeutic areas or data types

Therapeutic areas: (sorted by relevance to your list)

Immune system disease

Digestive system disease

Skeletal system disease

Phenotype

More ▾

Showing 1 to 10 of 3,220

Search:

The lower this value, the higher the probability the targets are specific to the disease

Disease

Relevancy (pvalue)

Number of associated targets

Click on a target to view the supporting evidence

Highest associated targets (max 10)

inflammatory bowel disease

1e-40

54

NOD2 IL23R ATG16L1 TYK2 ITGA4 PTGS2 CSF2RB ALOX5 TNFSF15 CLCN2 ...

Click to get the targets in your list associated with a disease

46

NOD2 ITGA4 PTGS2 CSF2RB ALOX5 IL23R TNFSF15 VDR PTGS1 CARD9 ...

Batch search results: pathways

Pathway

The lower this value, the higher the probability the targets are specific to the pathway

Showing 1 to 10 of

Search:

Pathway Relevance (pvalue) Number of associated targets Targets in pathway

Signalizing by Interleukins 0.000011 14 ICAM1, SPRED2, ALOX5, MAP3K8, IL27RA, IL23R, RORC, KRAS, IFNG, TYK2, NOD2, PDGFB, CSF2RB, PTGS2

Click to get to the diagram of the pathway

[Open Targets Platform](#)

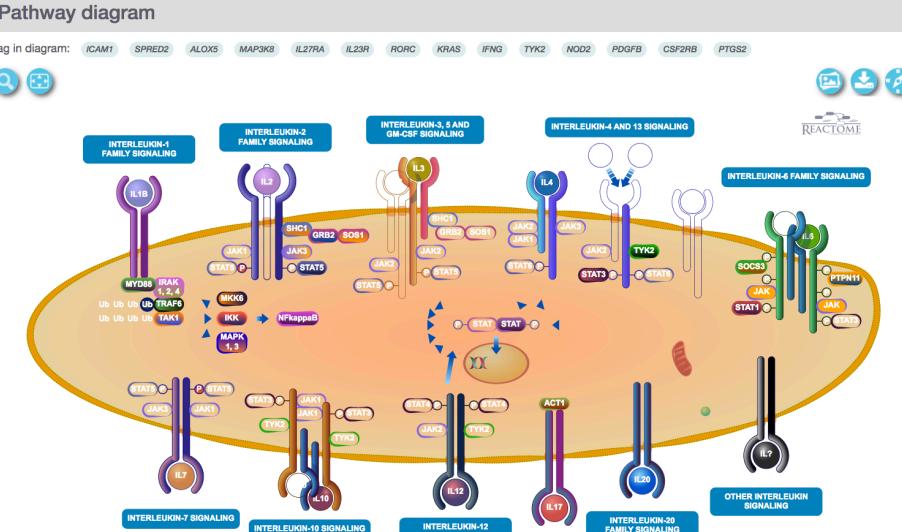
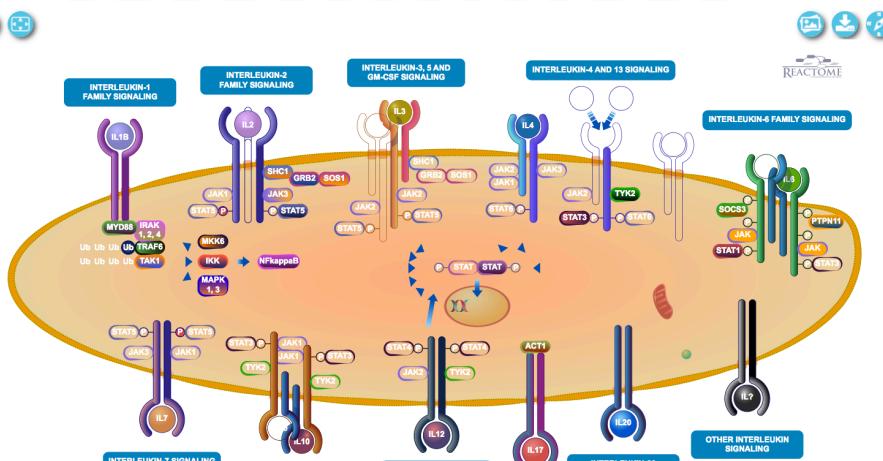
About Help API Downloads Blog Search for a target or disease

Summary page for pathway Signalizing by Interleukins

Interleukins are low molecular weight proteins that bind to cell surface receptors and act in an autocrine and/or paracrine fashion. They were first identified as factors produced by leukocytes but are now known to be produced by many other cells throughout the body. They have pleiotropic effects on cells which bind them, impacting processes such as tissue growth and repair, hematopoietic homeostasis, and multiple levels of the host defense against pathogens where they are an essential part of t ... [show more]

Pathway diagram

Flag in diagram: ICAM1 SPRED2 ALOX5 MAP3K8 IL27RA IL23R RORC KRAS IFNG TYK2 NOD2 PDGFB CSF2RB PTGS2



Batch search results: drugs

Drugs

Showing 1 to 10 of 98 entries

Search:



Drug

Target

Max phase

Molecule type

ESZOPICLONE

GABRG3

Phase IV

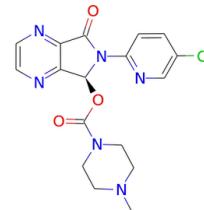
Small molecule

Click to get more information on the drug

Summary page for drug ESZOPICLONE

General properties

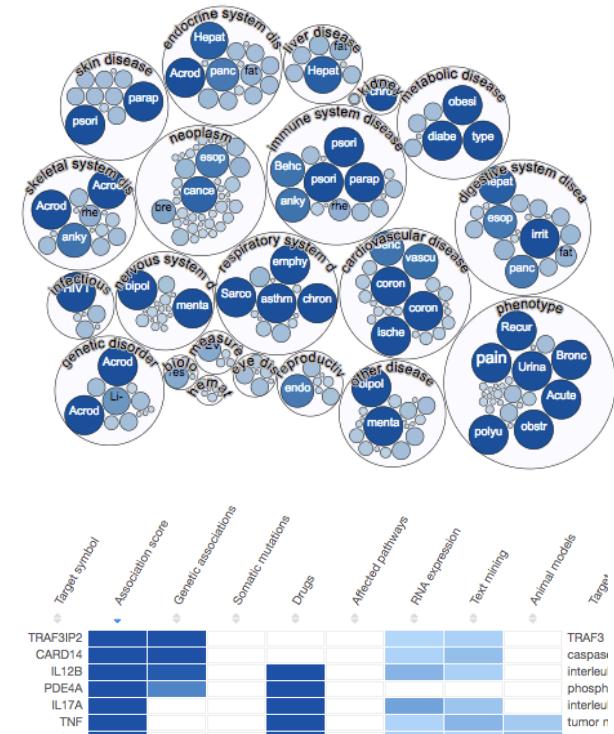
- **Name:** ESZOPICLONE
- **Molecule type:** Small molecule
- **Mechanism of action:** hypnotics/tranquilizers (zopiclone type)
- **First approval:** 2004
- **Max phase:** 4
- **Molecular formula:** C17H17ClN6O3



Mechanisms of action

Mechanism of action	Target	Target synonyms	References
GABA-A receptor; anion channel positive allosteric modulator	GABA-A receptor; anion channel	GABRQ, GABRB3, GABRA1, GABRA4, GABRD, GABRA5, GABRG3, GABRE, GABRG1, GABRA3, GABRP, GABRB2, GABRG2, GABRB1, GABRA6, GABRA2	FDA PubMed Wikipedia

What do users say about our Platform?



Comprehensive
Intuitive

Drug Discovery Head

Nick is a business decision maker. He is concerned about the attrition rate prior to Phase III & believes correct target selection could be a key factor in addressing this. He would like to have more concrete target-disease evidence to include in his 3-year business plan; more evidence means less risk and increased confidence in target-disease associations.

Nick



This is a great tool and I will be using it very much in the future.

Drug Discovery Manager

Laura is interested in finding the best target for a specific disease area. She is concerned about the high failure rate in identifying targets for her team's disease area. Her team aims to investigate gaps & risks in knowledge about a particular target. Laura needs up-to-date information on several targets. She currently uses PubMed, some public databases and other in-house analysis pipelines and tools for investigating targets.

Laura



The website is very good, user-friendly, great graphics/visualization. I love how the data are put in a nice view.

Investigator

Derek explores target space to find out what is already known about a target's role in his disease area of interest. Derek works in a matrix (multidisciplinary) team with scientists from genetics, computational biology, disease experts and clinical. He likes to work on a case-by-case examples of specific targets. It is not a large-scale approach, but rather detailed and focussed. Typically he accesses information by PubMed and uses Excel spreadsheets to analyse the data he collects. Derek occasionally uses bioinformatics database websites such as OMIM, UniProt, ChEMBL and Orphanet.

Derek



Lots of data in one place so saves time going to different websites. It's easy to go into more depth if needed as the data is all there!



Open Targets

Open Targets REST API workflow

The Open Targets Platform REST API

The Open Targets Platform API

public : Publicly supported stable API.

[Open/Hide](#) | [List operations](#) | [Expand operations](#)

private : Unstable API methods. Subject to change without prior notice. Use at your own risk. [Open/Hide](#) | [List operations](#) | [Expand operations](#)

auth : Authentication methods.

[Open/Hide](#) | [List operations](#) | [Expand operations](#)

utils : Utility methods.

[Open/Hide](#) | [List operations](#) | [Expand operations](#)

Click to get the list of
API calls available
e.g. /public/search

public : Publicly supported stable API.

GET /public/evidence

GET /public/association/filter

POST /public/association/filter

GET /public/search

Click again to build your
own query (see next slide)

<https://www.targetvalidation.org/documentation/api>



Open Targets

Interactive API documentation

GET

/public/association

Implementation notes

After integrating all evidence connecting a target to a specific disease, we compute an association score by mean of an harmonic sum. This **association score** provides an indication of how strong the evidence behind each connection is and can be used to rank genes in order of likelihood as drug targets. The association id is constructed by using the ensembl id of the gene and the EFO id for the disease (eg. ENSG00000073756-EFO_0003767). The method returns an association object, which contain data and summary on each evidence type included in the calculation of the score, as well as the score itself.

Parameters

Parameter	Value	Description	Parameter type	Data type
id	ENSG00000073756-EFO_0003767	an association ID usually in the form of TARGET_ID-DISEASE_ID	query	string

Response messages

HTTP status code	Reason	Model
200	Successful response	

Try it out!

[Hide response](#)

Request URL

http://targetvalidation.org/api/latest/public/association?id=ENSG00000073756-EFO_0003767

Response body

```
{  
  "from": 0,  
  "took": 32,  
  "data_version": "17.04",  
  "query": {},  
  "total": 1,  
  "data": [  
    {  
      "target": {  
        "gene_info": {  
          "symbol": "PTGS2",  
          "name": "Prostaglandin-endoperoxide synthase 2",  
          "ensembl_id": "ENSG00000073756",  
          "uniprot_id": "P05000",  
          "ensembl_gene_id": "ENSG00000073756",  
          "chromosome": "19",  
          "start": 133000000, "end": 133000000, "strand": 1  
        }  
      }  
    }  
  ]  
}
```



REST API calls: some examples*

GET

/public/search

* http://targetvalidation.org/api/latest/public/search?q=EFO_0003767

* <http://targetvalidation.org/api/latest/public/search?q=asthma>

GET

/public/association/filter

[http://www.targetvalidation.org/api/latest/public/association/filter?
target=ENSG00000110324&direct=false&fields=is_direct&fields=disease.efo_info.lab
el&size=100](http://www.targetvalidation.org/api/latest/public/association/filter?target=ENSG00000110324&direct=false&fields=is_direct&fields=disease.efo_info.label&size=100)

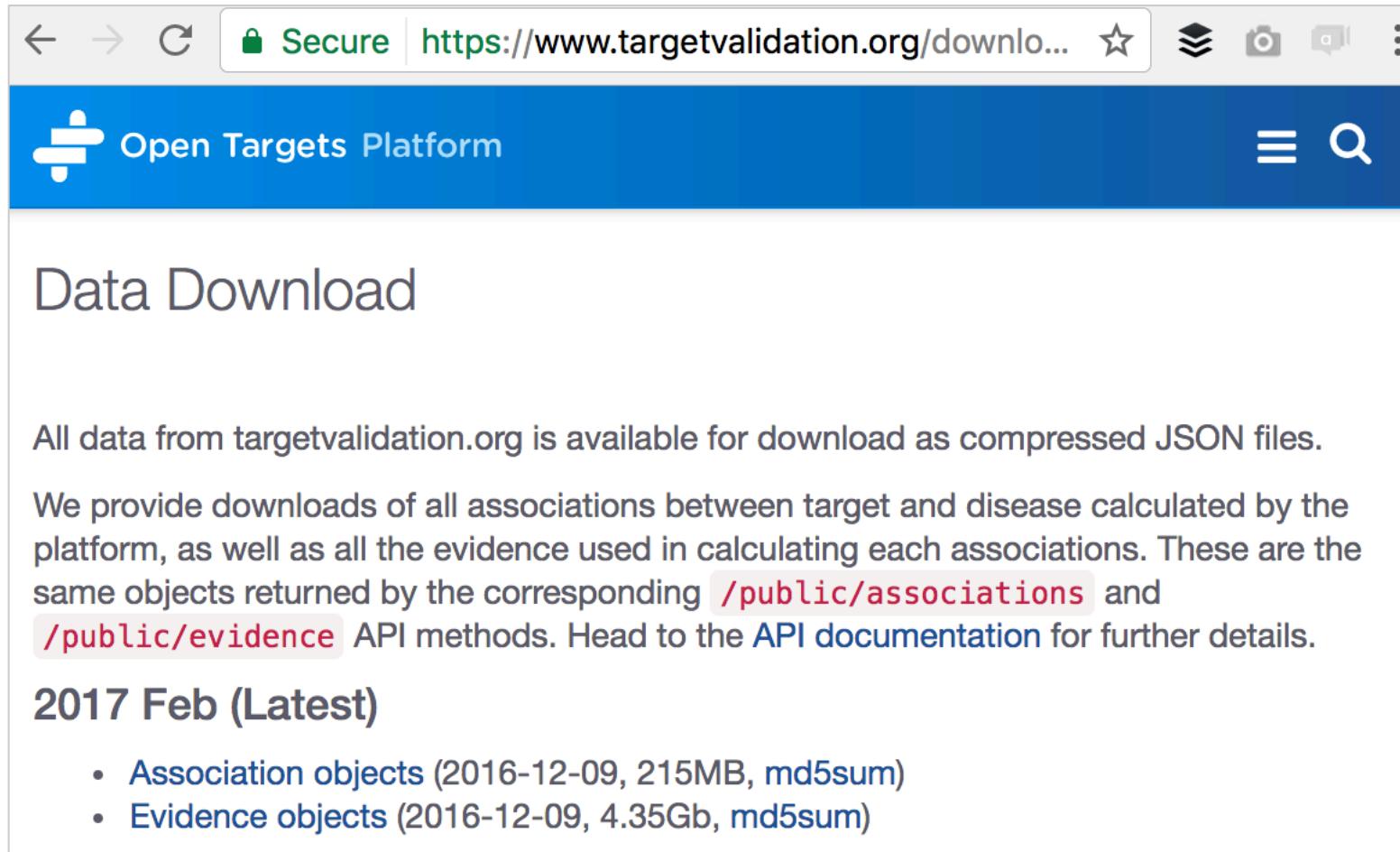
GET

/public/evidence/filter

[https://targetvalidation.org/api/latest/public/evidence/filter?
target=ENSG00000141867&disease=EFO_0000565&datatype=expression_atl
as&size=100&format=json](https://targetvalidation.org/api/latest/public/evidence/filter?target=ENSG00000141867&disease=EFO_0000565&datatype=expression_atlas&size=100&format=json)

* blog.opentargets.org/tag/api/

Looking for the entire datasets?



The screenshot shows a web browser window with the URL <https://www.targetvalidation.org/download> in the address bar. The page has a blue header with the Open Targets Platform logo and navigation icons. The main content area is titled "Data Download" and contains text explaining that all data from targetvalidation.org is available for download as compressed JSON files. It describes the availability of associations and evidence objects via API methods, with links to "/public/associations" and "/public/evidence". Below this, a section titled "2017 Feb (Latest)" lists two download links: "Association objects (2016-12-09, 215MB, md5sum)" and "Evidence objects (2016-12-09, 4.35Gb, md5sum)".

All data from targetvalidation.org is available for download as compressed JSON files.

We provide downloads of all associations between target and disease calculated by the platform, as well as all the evidence used in calculating each associations. These are the same objects returned by the corresponding [/public/associations](#) and [/public/evidence](#) API methods. Head to the API documentation for further details.

2017 Feb (Latest)

- Association objects (2016-12-09, 215MB, md5sum)
- Evidence objects (2016-12-09, 4.35Gb, md5sum)

How to cite us

Published online 8 December 2016

Nucleic Acids Research, 2017, Vol. 45, Database issue D985–D994
doi: 10.1093/nar/gkw1055

Open Targets: a platform for therapeutic target identification and validation

Gautier Koscielny^{1,2,*}, Peter An^{1,3}, Denise Carvalho-Silva^{1,4}, Jennifer A. Cham^{1,4}, Luca Fumis^{1,4}, Rippa Gasparyan^{1,3}, Samiul Hasan^{1,2}, Nikiforos Karamanis^{1,4}, Michael Maguire^{1,4}, Eliseo Papa^{1,3}, Andrea Pierleoni^{1,4}, Miguel Pignatelli^{1,4}, Theo Platt^{1,3}, Francis Rowland^{1,4}, Priyanka Wankar^{1,3}, A. Patrícia Bento^{1,4}, Tony Burdett^{1,4}, Antonio Fabregat^{1,4}, Simon Forbes^{1,5}, Anna Gaulton^{1,4}, Cristina Yenyxe Gonzalez^{1,4}, Henning Hermjakob^{1,4,6}, Anne Hersey^{1,4}, Steven Jupe^{1,4}, Şenay Kafkas^{1,4}, Maria Keays^{1,4}, Catherine Leroy^{1,4}, Francisco-Javier Lopez^{1,4}, Maria Paula Magarinos^{1,4}, James Malone^{1,4}, Johanna McEntyre^{1,4}, Alfonso Munoz-Pomer Fuentes^{1,4}, Claire O'Donovan^{1,4}, Irene Papatheodorou^{1,4}, Helen Parkinson^{1,4}, Barbara Palka^{1,4}, Justin Paschall^{1,4}, Robert Petryszak^{1,4}, Naruemon Pratanwanich^{1,4}, Sirarat Sarntivijal^{1,4}, Gary Saunders^{1,4}, Konstantinos Sidiropoulos^{1,4}, Thomas Smith^{1,4}, Zbyslaw Sondka^{1,5}, Oliver Stegle^{1,4}, Y. Amy Tang^{1,4}, Edward Turner^{1,4}, Brendan Vaughan^{1,4}, Olga Vrousgou^{1,4}, Xavier Watkins^{1,4}, Maria-Jesus Martin^{1,4}, Philippe Sanseau^{1,2}, Jessica Vamathevan⁴, Ewan Birney^{1,4}, Jeffrey Barrett^{1,4,5} and Ian Dunham^{1,4,*}

¹Open Targets, Wellcome Genome Campus, Hinxton, Cambridge, CB10 1SD, UK, ²GSK, Medicines Research Center, Gunnels Wood Road, Stevenage, SG1 2NY, UK, ³Biogen, Cambridge, MA 02142, USA, ⁴European Bioinformatics Institute (EMBL-EBI), Wellcome Genome Campus, Hinxton, Cambridge, CB10 1SD, UK, ⁵Wellcome Trust Sanger Institute, Wellcome Genome Campus, Hinxton, Cambridge, CB10 1SA, UK and ⁶National Center for Protein Research, No. 38, Life Science Park Road, Changping District, 102206 Beijing, China

Help, documentation and videos



support@targetvalidation.org



<http://tinyurl.com/opentargets-in>



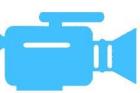
[@targetvalidate](https://twitter.com/targetvalidate)



blog.opentargets.org/



www.facebook.com/OpenTargets/



<http://imgur.com/a/JIDCP>
<http://imgur.com/a/LKDhp>



Open Targets