



FlyBase

A Database of *Drosophila* Genes & Genomes

Home Tools Downloads Links Community Species About Help Archives

<p>D. melanogaster D. virilis A. mellifera</p> <p>BLAST</p>	<p>GBrowse</p>	<p>Resources</p>	<p>RNA-Seq</p>	<p>Vocabularies</p>	<p>ImageBrowse</p>	<p>Batch Download</p>
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**FAST-TRACK
YOUR PAPER**



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NEWS



COMMUNITY



MEETINGS



COURSES



**COMMUNITY
ADVOCACY**

QuickSearch

Human Disease	Expression	GO	Phenotype	References
Simple	Orthologs	Protein Domains	Gene Groups	Data Class

Enter gene symbol(s) or ID(s), separated by spaces

Input:
Species: Gene(s):

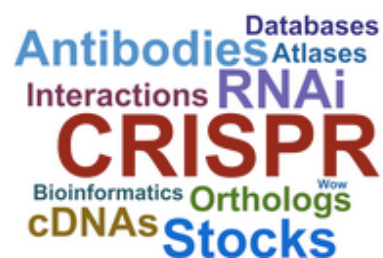
Output:
MODEL ORGANISMS (via [DIOPT](#)) [instead [search OrthoDB orthology groups](#)]

<input checked="" type="checkbox"/> <i>H. sapiens</i> (Human)	<input checked="" type="checkbox"/> <i>D. melanogaster</i> (Fruit fly)
<input checked="" type="checkbox"/> <i>R. norvegicus</i> (Norway rat)	<input checked="" type="checkbox"/> <i>C. elegans</i> (Nematode, roundworm)
<input checked="" type="checkbox"/> <i>M. musculus</i> (House mouse)	<input checked="" type="checkbox"/> <i>S. cerevisiae</i> (Brewer's yeast)
<input checked="" type="checkbox"/> <i>X. tropicalis</i> (Western clawed frog)	<input checked="" type="checkbox"/> <i>S. pombe</i> (Fission yeast)
<input checked="" type="checkbox"/> <i>D. rerio</i> (Zebrafish)	

un/check all:

Commentary [See all commentaries](#)

Improved External Resources page



Jan 14, 2016. The [External Resources page](#) has been updated and a prominent new button has been added to the FlyBase home page. This button replaces a link to the "Query Builder" field-specific search tool which can still be accessed via the navigation bar under Tools → Query Tools and Portals → QueryBuilder... ([More](#))

FlyBase team organization 9/1/2016 (35 members)

FlyBase-Harvard Biological Laboratories (Curation, Developers)

Norbert Perrimon (PI), Susan Russo Gelbart (Program Director), Kris Broll, Lynn Crosby, Gil dos Santos, David Emmert, L. Sian Gramates, Kathleen Falls, Beverley Matthews, Carol Sutherland, Christopher Tabone, Pinglei Zhou, Mark Zytkevich, curator TBD

FlyBase-Cambridge (Curation)

Nick Brown (co-PI), Giulia Antonazzo, Helen Attrill, Marta Costa, Silvie Fexova, Tamsin Jones, Aoife Larkin, Steven Marygold, Gillian Millburn, Alix Rey, Nicole Staudt, Pepe Urbano

FlyBase-Indiana (Developers - web site)

Thomas Kaufman (co-PI), Bryon Czoch, Josh Goodman, Gary Grumbling, Victor Strelets, Jim Thurmond

FlyBase-NewMexico (Curation & DAP program)

Richard Cripps (co-PI), Maggie Werner-Washburne (co-PI), Phillip Baker

Gene page

Data curated by FlyBase literature curators:

GO: Molecular Function; Biological Process; Cellular Component

Expression of mRNA and Protein

Mutant alleles and transgenic constructs

Mutant allele phenotypes

Alleles that model Human Diseases

Gene models

Antibodies

Protein-protein interactions

Genetic interactions

List of papers

Data pulled in from other sources

Expression from RNAseq experiments

Orthology and Protein domains

Links to human diseases

Drosophila stocks

links to many other information sources, e.g. interpro, BioGRID, etc

FlyBase Gene Dmellcsw

Home Tools Downloads Links Community Species About Help Archives Jump to Gene

FlyGene Wiki Help Open All Close All

General Information			
Symbol	Dmellcsw	Species	<i>D. melanogaster</i>
Name	corkscrew	Annotation symbol	CG3954
Feature type	protein_coding_gene	FlyBase ID	FBgn0000382
Gene Model Status	Current	Stock availability	19 publicly available
Also Known As	E(sev)1A, l(1)csw, l(1)2Db, SHP-2		
Gene Snapshot	In progress. Contributions welcome.		

Genomic Location

Cytogenetic map	Sequence location
2D1-2D2	X:2,094,234..2,115,701 [+]

Genomic Maps

GBrowse
JBrowse

Decorated FASTA
Get genome region
Gene region
Get FASTA

Other Genome Views

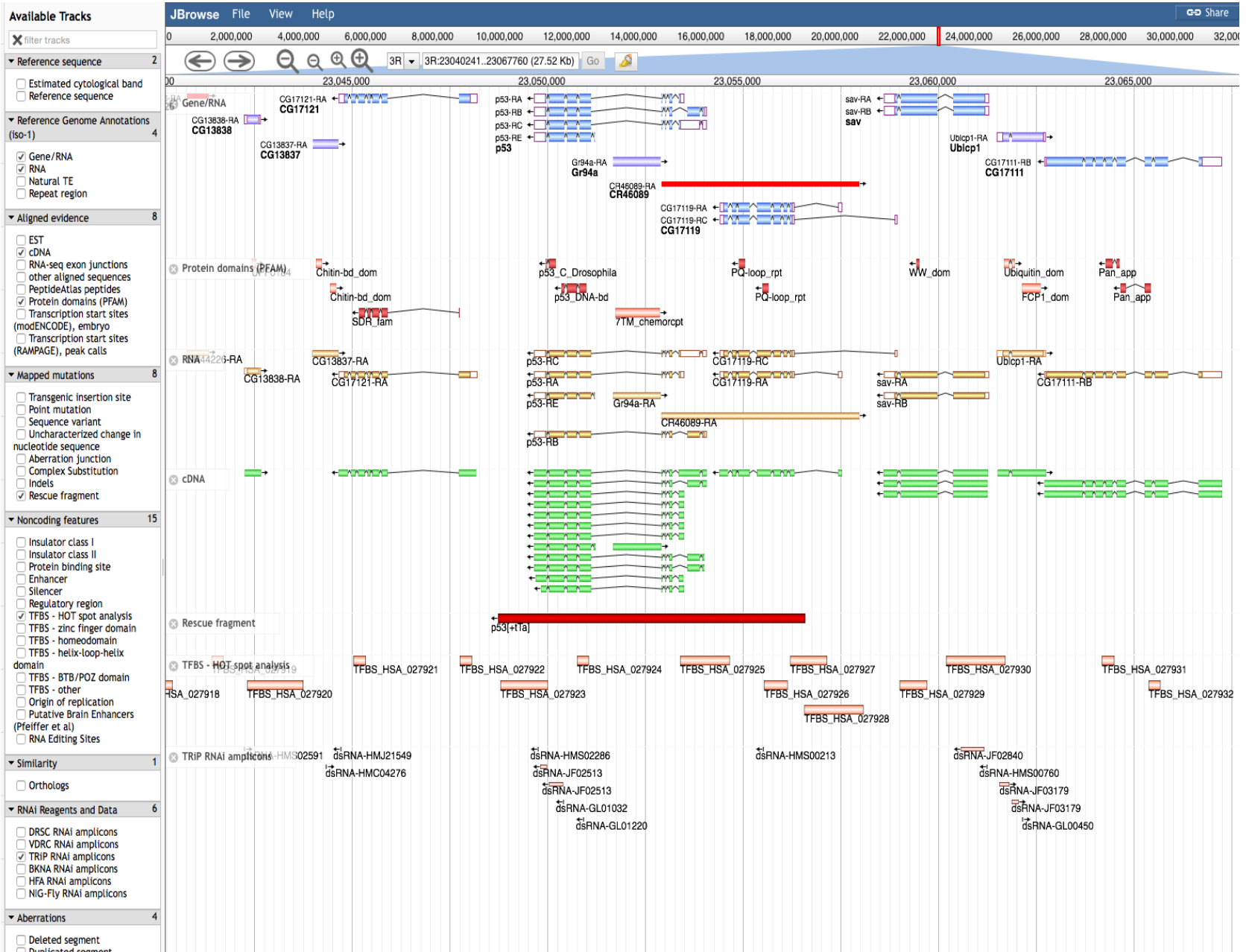
The following external sites may use different assemblies or annotations than FlyBase.

[NCBI Genome Data Viewer](#) [UCSC Genome Browser](#)

Families, Domains and Molecular Function

Gene Group Membership (FlyBase)	CYTOSOLIC PROTEIN TYROSINE PHOSPHATASES
Protein Family (UniProt, Sequence Similarities)	Belongs to the protein-tyrosine phosphatase family, Non-receptor class subfamily. (P29349)
Protein Domains/Motifs	UniProt (Sequence Similarities) Contains 2 SH2 domains. (P29349) ; Contains 1 tyrosine-protein phosphatase domain. (P29349) InterPro PTP type protein phosphatase; Tyrosine specific protein phosphatases domain; SH2 domain; Protein-tyrosine phosphatase, catalytic; Protein-tyrosine phosphatase, active site; Protein-tyrosine phosphatase-like

Gene information



Search Tools (selected examples shown)

Main Query Tools

Jump to Gene

QuickSearch

QueryBuilder

Vocabularies (previously known as TermLink)

Genomic Search Tools and Browsers

BLAST

Gbrowse

JBrowse

CytoSearch

RNA-Seq Similarity

RNA-Seq By Region

Other Tools

Interactions Browser

ImageBrowse

Find a Person

Resources



FlyBase [Discussion](#)

[Read](#)

[View source](#)

[View hi](#)

FlyBase:CRISPR

Popular Resource Categories

All Resources	CRISPR	RNAi	Stocks	Model Organism Databases
Antibodies	Images	Neuroscience	Maps	Protocols ↗

Contents [\[hide\]](#)

- [1 Popular Resource Categories](#)
- [2 CRISPR gRNA Design Resources](#)
- [3 CRISPR Stocks](#)
- [4 CRISPR Vectors](#)
- [5 Additional Useful CRISPR Links](#)
- [6 Selected recent CRISPR method reviews](#)
- [7 Selected recent CRISPR method reports for tissue culture cells](#)
- [8 Selected recent CRISPR method reports for in vivo](#)

CRISPR gRNA Design Resources

Resource	Description
CRISPR Optimal Target Finder ↗	Identifies gRNA targets within a provided sequence and additionally searches genome-wide (release 6, current FlyBase release) for potential off-target sites. Includes several <i>Drosophila</i> species.

[FlyBase Home Page](#)
[Wiki Home Page](#)
[Gene Wiki](#)
[FlyBase Help and Documentation](#)
[Wiki help](#)
[Recent changes](#)
[Random page](#)

▼ **Toolbox**

[What links here](#)
[Related changes](#)
[Special pages](#)
[Printable version](#)
[Permanent link](#)
[Browse properties](#)

Tools for orthology search

Search Term: dpp Species: <i>Drosophila melanogaster</i> (Fruit fly) Gene: dpp Reports: NCBI FlyBase							
Ortholog Gene	Ortholog Gene Reports	Via DIOPT (v5.1.1)					Transgene in Fly
		Score	Best Score	Best Rev Score	Source	Align	
<i>Homo sapiens</i> (Human)							
BMP2	NCBI Ensembl HGNC OMIM	7	Yes	Yes (+)	Compara, Homologene, Inparanoid, Isobase, OrthoDB, Phylome, RoundUp	(+)	
BMP4	NCBI Ensembl HGNC OMIM	6	No	Yes (+)	Compara, Inparanoid, OrthoDB, orthoMCL, Phylome, RoundUp	(+)	Yes
GDF1	NCBI HGNC OMIM	1	No	Yes (+)	TreeFam	(+)	
GDF3	NCBI HGNC OMIM	1	No	Yes (+)	TreeFam	(+)	
<i>Mus musculus</i> (House mouse)							
Bmp2	NCBI MGI	7	Yes	Yes (+)	Compara, Homologene, Inparanoid, Isobase, OrthoDB, Phylome, RoundUp	(+)	
Bmp4	NCBI MGI	6	No	Yes (+)	Compara, Inparanoid, OrthoDB, orthoMCL, Phylome, RoundUp	(+)	
Gdf1	NCBI MGI	1	No	Yes (+)	TreeFam	(+)	
Gdf3	NCBI MGI	1	No	Yes (+)	TreeFam	(+)	
<i>Xenopus tropicalis</i> (Western clawed frog)							
bmp2	NCBI Xenbase	6	Yes	Yes (+)	Compara, Homologene, OMA, OrthoDB, Phylome, RoundUp	(+)	
bmp4	NCBI Xenbase	4	No	Yes (+)	Compara, OrthoDB, Phylome, RoundUp	(+)	
gdf1	NCBI Xenbase	1	No	Yes (+)	TreeFam	(+)	
gdf3	NCBI Xenbase	1	No	Yes (+)	TreeFam	(+)	
<i>Danio rerio</i> (Zebrafish)							
bmp2b	NCBI ZFIN	7	Yes	Yes (+)	Compara, Homologene, Inparanoid, OMA, OrthoDB, Phylome, RoundUp	(+)	
bmp2a	NCBI ZFIN	3	No	Yes (+)	Compara, Homologene, OrthoDB	(+)	
bmp4	NCBI ZFIN	3	No	Yes (+)	Compara, OrthoDB, orthoMCL	(+)	
bmp16	NCBI ZFIN	1	No	Yes (+)	Compara	(+)	
gdf3	NCBI ZFIN	1	No	Yes (+)	TreeFam	(+)	
<i>Caenorhabditis elegans</i> (Nematode, roundworm)							
dbl-1	NCBI WormBase	3	Yes	Yes (+)	Compara, Isobase, RoundUp	(+)	
tig-2	NCBI WormBase	1	No	No (+)	Inparanoid	(+)	
<i>Saccharomyces cerevisiae</i> (Brewer's yeast) - no orthologs found							
<i>Schizosaccharomyces pombe</i> (Fission yeast) - no orthologs found							

Summarizing Data Human Disease Reports

General Information			
Name	Coffin-Lowry syndrome	FlyBase ID	FBhh0000222
Disease Ontology ID	DOID:3783	Parent Disease	
OMIM	COFFIN-LOWRY SYNDROME; CLS	Parent Disease DOID	
Overview			
	<p>Coffin-Lowry syndrome is an X-linked disease in humans characterized by intellectual disability, growth retardation, facial features, and short stature. The gene implicated in this disease is RPS6KA3, which encodes a member of the ribosomal S6 kinase family of growth-factor-regulated serine/threonine protein kinases. This gene is associated with a nonsyndromic form of mental retardation, MRX19 (OMIM:300844). There is a 1:1 ortholog in flies, <i>S6kII</i>, for which classical hypomorphic alleles, RNAi-targeting constructs, and insertional mutagenesis have been generated. <i>Dmel\S6kII</i> is orthologous to several other ribosomal S6 kinases in human, RPS6KA2, RPS6KA1, and RPS6KA6.</p> <p>The human RPS6KA3 gene has not been introduced into flies.</p> <p>Loss-of-function mutations in <i>Dmel\S6kII</i> result in learning and memory defects; and physiological defects in motor neurons, neuromuscular junctions, photoreceptors, and other neural cells. Genetic interactions are described.</p> <p>[updated Apr. 2016 by FlyBase; FBrf0222196]</p>		
+ Disease Summary Information			
+ Related Diseases			
+ Ortholog Information			
- D. melanogaster Gene Information (1)			
Dmel\S6kII			
Molecular function (GO)	ribosomal protein S6 kinase activity , protein serine/threonine kinase activity , protein binding , magnesium ion binding		
Cellular component (GO)	neuromuscular junction , presynapse , perikaryon		
Comments on ortholog(s)	High-scoring ortholog of human RPS6KA3 and RPS6KA2; moderate-scoring ortholog of RPS6KA1 and RPS6KA6 (1 Drosophila to multiple human). <i>Dmel\S6kII</i> shares 55-57% identity and 69-71% similarity with these human genes.		
Orthologs and Alignments from DRSC			
	DIOPT - DRSC Integrative Ortholog Prediction Tool - Click the link below to search for orthologs in <i>H. sapiens</i> (Human)		
+ Synthetic Gene(s) Used (0)			

Communities

I am...?

a fly researcher?	a physician-scientist?	a student or trainee?	an educator?
interested to? find reagents? find protocols? connect with others? advocate for fly research? fast-track a paper?	interested to? learn how flies are relevant? find fly models of disease? find fly orthologs (by gene)? find fly orthologs (by disease)? connect with experts?	interested to? learn fly basics? find relevant courses? attend fly conferences? find fly blogs and twitter feeds? view fly news?	interested to? use flies in lab classes? learn fly history? view public fly images? answer, Why the fly?? offer fly course?

?

FlyBase TV

Subscribe

FlyBase - <http://flybase.org/> - is a genomic database for Drosophila species. Our YouTube channel FlyBase TV contains video tutorials tha...
 Show more

Uploads



Using the Orthology search tool
 42 views • 6 days ago

CC



Finding related genes/alleles in FlyBase: Vocabularies
 70 views • 1 week ago

CC



Finding related genes in FlyBase: Gene Groups
 154 views • 2 months ago

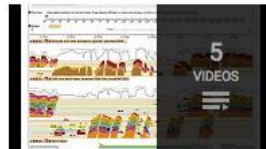
CC



RNA-Seq Part III: Searching for Similarly Expressed Genes
 89 views • 4 months ago

CC

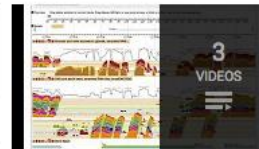
Created playlists



Tools series
 Updated 6 days ago



Basic navigation series



RNA-Seq series



FlyBase guidelines

FlyBase future:

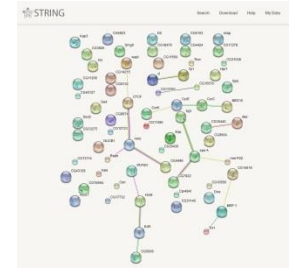
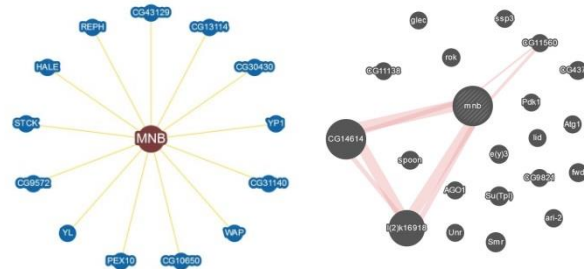
**Moving FlyBase from a Specialty Database
to a Knowledgeable Database/Value added
Resource**

Tools for molecular interactions (genetic, PPI, etc.)



MIST

Molecular Interaction Search Tool
@ Harvard Medical School



- Human
- Drosophila (*D. melanogaster*)
- Mouse
- C. elegans*
- S. cerevisiae*
- S. pombe*
- Zebrafish (*D. rerio*)
- X. laevis*
- X. tropicalis*

Search: Protein List Protein Pairs

Find Interactors

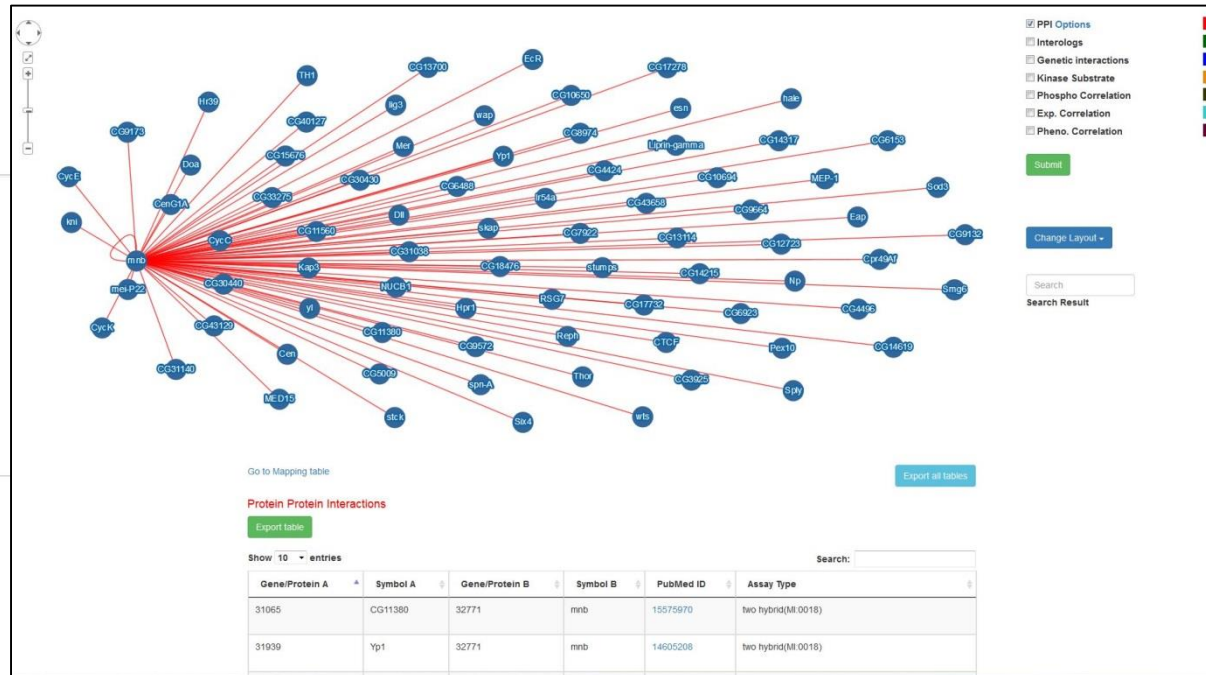
Copy/Paste: Example

mnb

Drop down menu
 Find Interactions
 Find Interactions within input

Choose Network Type: Help

- Protein-protein interactions. Click to see all options
 - Interologs: protein-protein interactions from other species
 - Genetic interactions
- Interologs: genetic interactions from other species

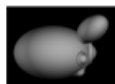


Fly mnb PPI network by MIST

Gene2Function (G2F)

An integrated hub to connect MOD-specific resources to facilitate human disease studies

Gene2Function



Advanced Ortholog Search

By Gene

Species

Human (H. sapiens)

Gene

Gene symbols, one per line

Or

By Disease

Species

Human (H. sapiens)

Disease

Disease names or OMIM IDs

Search

MARRVEL (Model organism Aggregated Resources for Rare Variant ExpLoration)

allows users to search multiple public variant databases simultaneously and provides a unified interface to facilitate the search process

MARRVELBeta

Search

About

FAQ

<http://marrvel.org/>

MARRVEL^B

Human Variant
(hg19):

E.g. 6:99365567 T>C

Human Gene
Symbol:

EGFR

Example: 6:99365567 T>C / FBXL4 or 6:99365567 T>C or FBXL4

Select database(s):

Deselect All

OMIM

ExAC

Geno2MP

DGV

DECIPHER (Control)

Submit

Collaboration with Hugo Bellen Lab

ABOUT

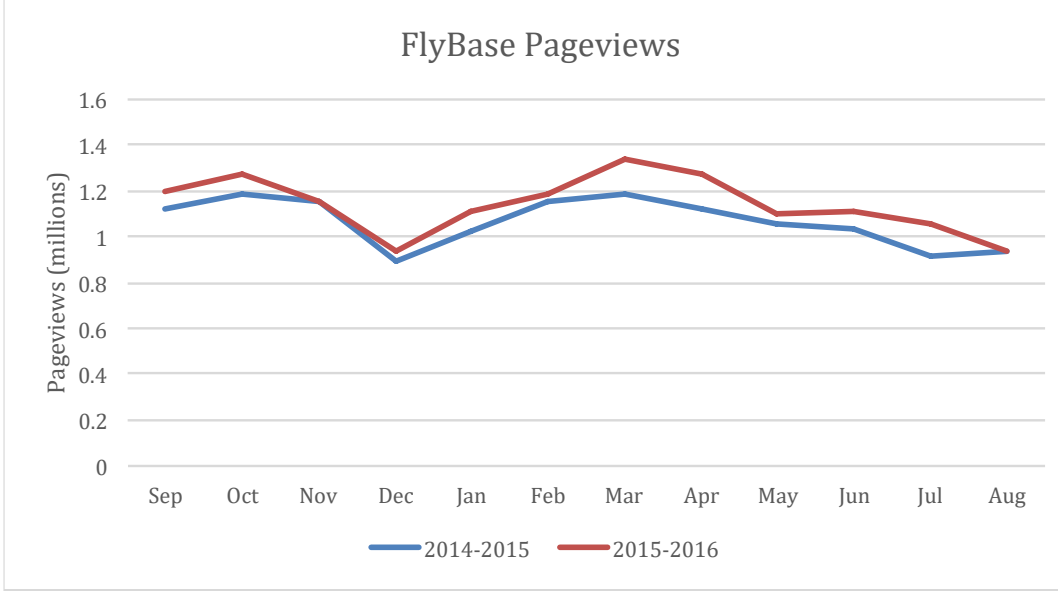
MORE ABOUT MARRVEL >

Multiple public variant databases exist where each database is studying a different cohort and providing different types of output. **MARRVEL (Model organism Aggregated Resources for Rare Variant ExpLoration)** allows users to search multiple public variant databases simultaneously and provides a unified interface to facilitate the search process.

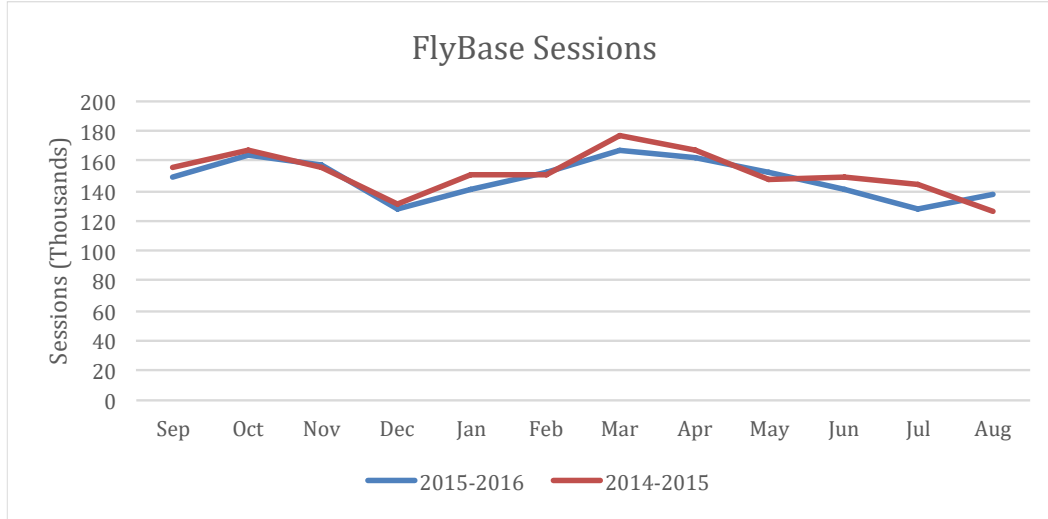
FlyBase Metrics and Funding

FlyBase Usage Metrics

FlyBase web usage: The average number of pageviews during the most recent period was 1.1 million, with a high of 1.2 million and a low of 888k.

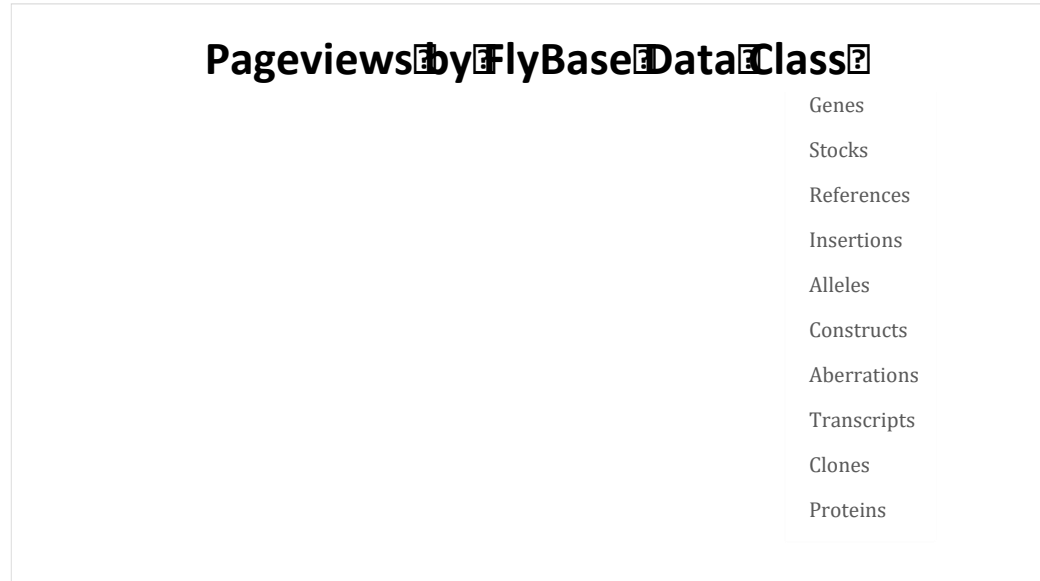


FlyBase sessions (visits). A session is defined as a period of activity by a unique web user. If no activity is recorded for 30 minutes, any subsequent activity is counted as a new session. The average number of sessions during the most recent period was 148k, with a high of 168k and a low of 127k.

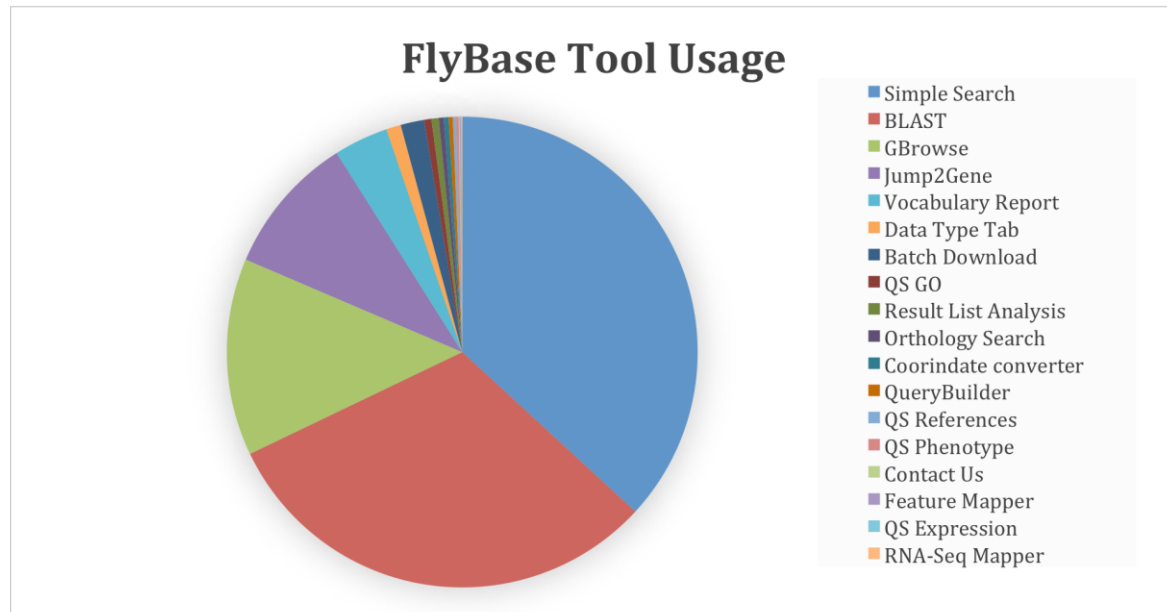


Data Usage

Data Class Usage, shows the top pageviews for FlyBase data class reports.



“FlyBase Tool Usage”, shows that our top 5 tools are Simple Search, BLAST, GBrowse, Jump to Gene, and Vocabulary reports.



Flybase funding – 3 years projection

1. NHGRI (Flybase been funded since August 1, 1992 by NHGRI_

Expected:

2017 budget: (April 1, 2017 to March 31, 2018)

\$ 3,062,802.00 DC

\$ 4,342,750.00 Total

2018 budget: (April 1, 2018 to March 31, 2019)

\$2,57,000.00 DC

- 15%

\$ 3,691,337.00 Total

2019 budget: (April 1, 2019 to March 31, 2020)

\$ 2,390,000.00 DC

- 20%

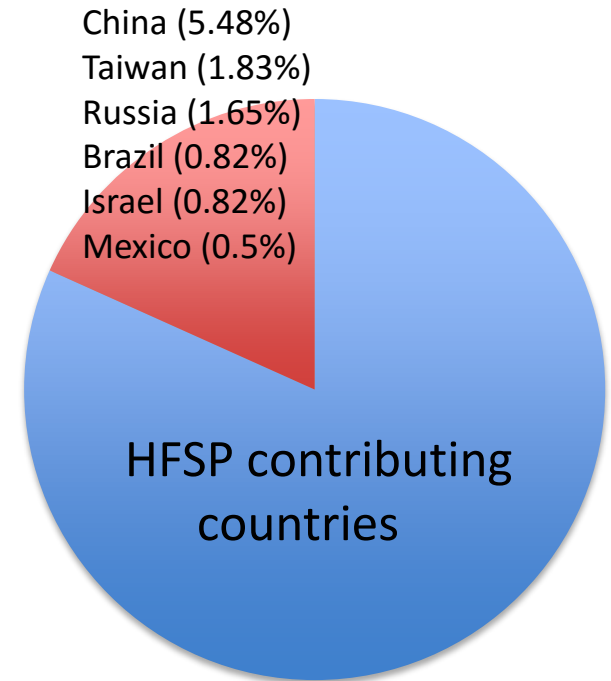
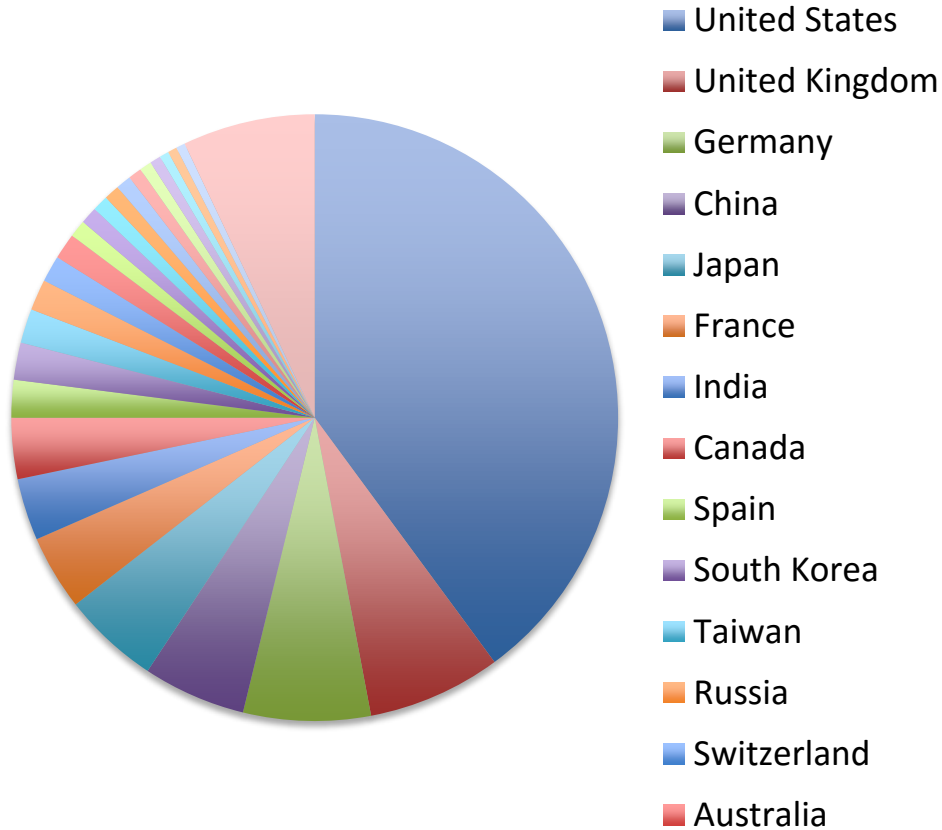
\$3,474,000.00 Total

2. Medical Research Council 04/01/2017-03/31/2022

\$200,000 DC per year

Making connections with GO: an integrative approach to highlighting medically relevant *Drosophila* data

Flybase usage by country



Funding models

- 1. Current model with decrease funding**
- 2. Subscription based model**
- 3. New Business Model: Contributions from other countries**

Contacted 14 countries for FlyBase support in July 2016:

- 3 were positive**
- 9 agreed in principle**
- 2 no answers**