



FlyBase

New and Classic Features in FlyBase

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Presented at the 17th Canadian Drosophila Research Conference, Canfly 2023

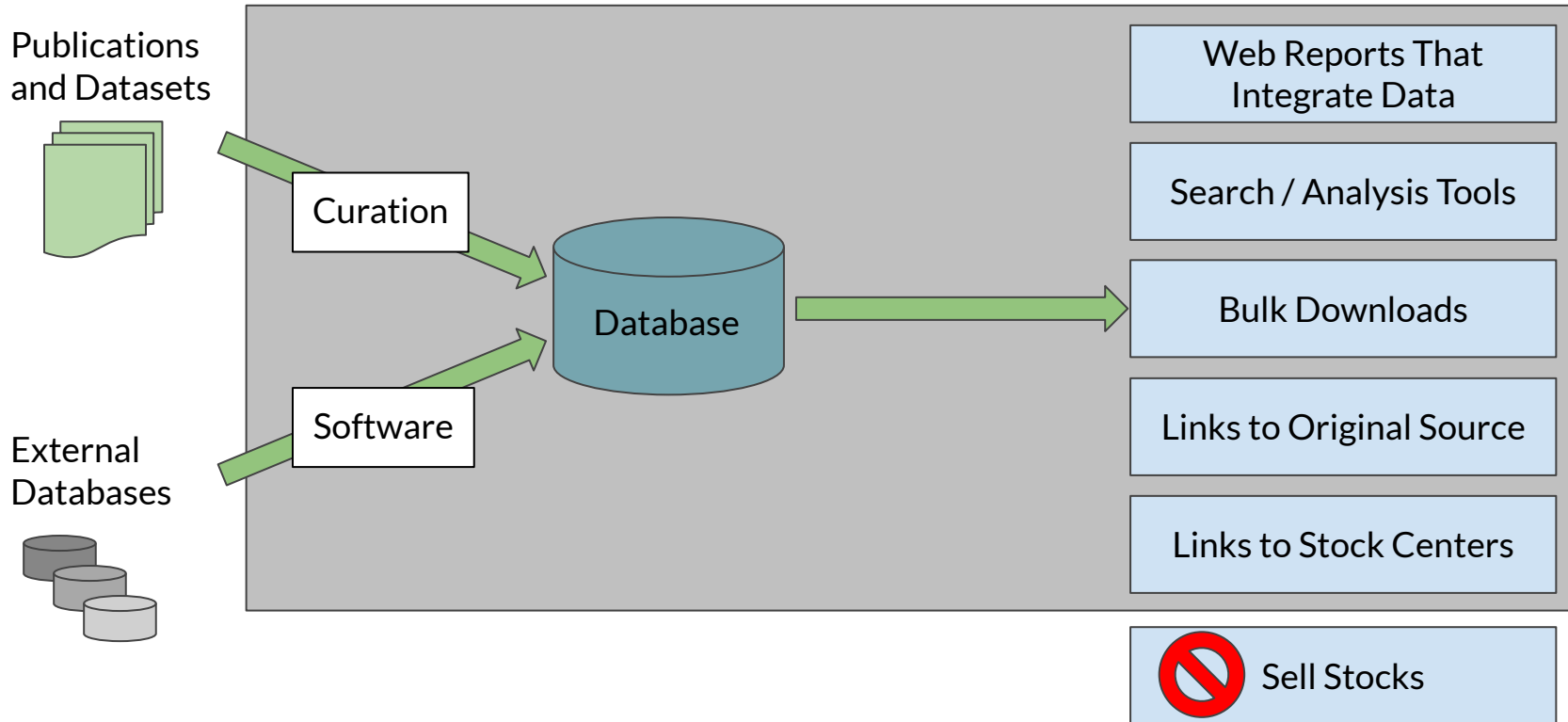


Overview

1. What does FlyBase do?
2. Finding your favourite gene.
3. FlyBase homepage overview.
4. Navigation bar.
5. Big buttons.
6. QuickSearch tabs.
7. External resources
8. Connecting with FlyBase.

What does FlyBase do?

FlyBase is the main data warehouse for 100+ years of *Drosophila* research.



Finding your favourite gene

The screenshot shows the FlyBase homepage with the following elements:

- Header: FlyBase logo, "A Database of Drosophila Genes & Genomes", and navigation menu (Home, Tools, Downloads, Links, Community, Species, About, Help, Archives).
- Search bar: "J2G" selected in the dropdown, "Jump to Gene" text, and a "Go" button.
- Tools: BLAST, JBrowse, New to Files?, GO PHENOTYPE ANATOMY DISEASE MORE, ID Validator, Batch Download, Fast-Track.
- Left sidebar: Tweets from @FlyBaseDotOrg, External Resources (News and Outreach, Drosophila Journals and Protocols, Tool/Reagent Resources, Meetings/Courses/Jobs, Drosophila in Disease Research, Inter-species, Fly Boards).
- Main content: A green banner for website access fees, a QuickSearch section with filters (Human Disease, Protein Domains, Gene Groups, Pathways, GO, Data Class) and a search input field, and a Commentary section for "CanFly 2023" with a registration announcement.
- Footer: Grants Supporting FlyBase, Copyright Statement, version FB2023_02, released April 18, 2023, Contact FlyBase, FAQ, Cite FlyBase, and social media icons.

A close-up of the search bar showing the dropdown menu with "J2G" selected, the text "wg" entered, and a "Go" button.

The screenshot shows the FlyBase Gene Detail page for the gene "wg". The page includes:

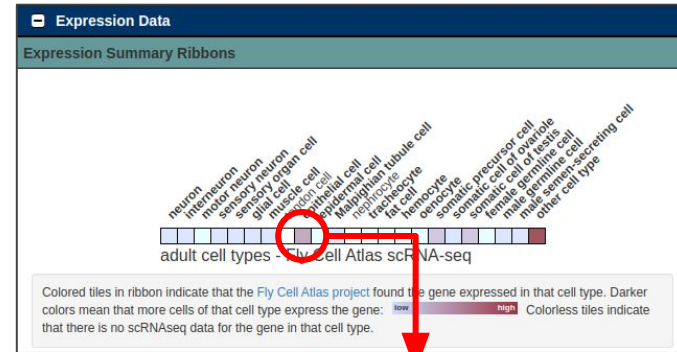
- Gene Name: wg
- Gene Location: 3R12.1-3R12.2
- Gene Structure: A diagram showing exons and introns.
- Gene Ontology (GO) Terms: A list of terms associated with the gene.
- Gene Expression: A table showing expression data across various tissues and developmental stages.
- Gene Interactions: A list of genes that interact with "wg".
- Gene Products: A list of proteins and other products encoded by the gene.
- Gene History: A table showing the history of the gene, including its discovery and classification.

New on gene reports: scRNA-seq

scRNA-seq expression data

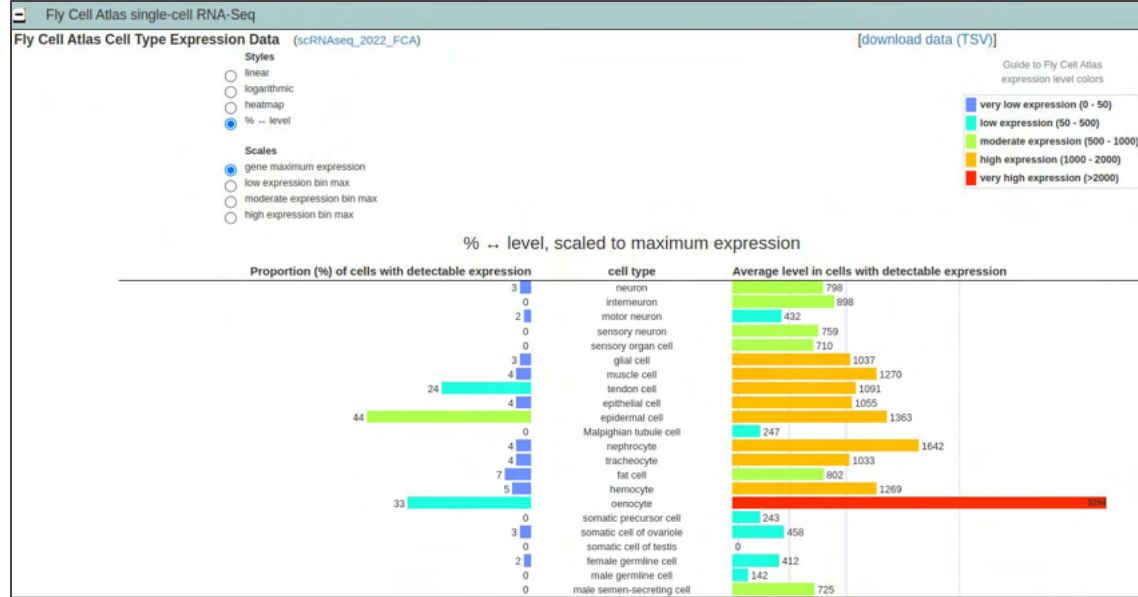
Explore expression in specific cell types.

View expression levels and proportion of cells with expression.



EPITHELIAL CELL:
 cell types + gene expression spread (%) within related cluster :

- 28% : adult proventriculus epithelial cell
- 10% : enterocyte of posterior adult midgut epithelium
- 4% : adult hindgut epithelial cell
- 3% : adult copper cell
- 3% : adult enteroendocrine cell
- 3% : midgut large flat cell
- 2% : enterocyte of anterior adult midgut epithelium
- 1% : adult enterocyte
- 1% : adult midgut enterocyte
- 1% : adult pyloric epithelial cell
- 1% : epithelial cell of crop
- <1% : 11 cell type(s) not shown



FlyBase homepage overview

navigation bar

big buttons

Twitter feed

external resources

connecting with FlyBase

The screenshot shows the FlyBase homepage with the following components highlighted:

- Navigation bar:** Includes the FlyBase logo, the tagline "A Database of Drosophila Genes & Genomes", and a release version "FB2023_02, released April 18, 2023". The main navigation menu contains: Home, Tools, Downloads, Links, Community, Species, About, Help, Archives, and a search bar with "J2G" and "Jump to Gene" buttons.
- Big buttons:** A row of seven large buttons: BLAST, JBrowse, New to Files?, GO PHENOTYPE ANATOMY DISEASE MORE, ID Validator, Batch Download, and Fast-Track.
- Twitter feed:** A section titled "Tweets from @FlyBaseDotOrg" showing a tweet from Brian Oliver (@BrianOliverL...) dated Jun 1.
- External resources:** A sidebar menu with categories: News and Outreach, Drosophila Journals and Protocols, Tool/Reagent Resources (wiki), Meetings/Courses/Jobs, Drosophila in Disease Research, Inter-species, and Fly Boards.
- QuickSearch tabs:** A search interface with tabs for Human Disease, Protein Domains, Gene Groups, Pathways, GO, and Data Class. It includes a search bar with "Everything" selected and a "Search" button.
- Commentary:** A section titled "Commentary" featuring a "CanFly 2023" banner for the 17th Canadian Drosophila Research Conference, held from April 6, 2023.

release version

Jump To Gene

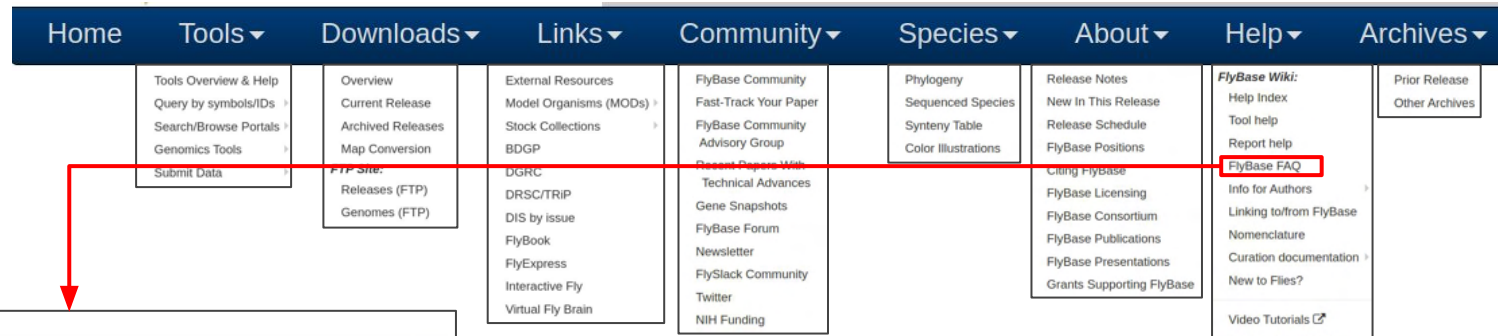
fees

QuickSearch tabs

Commentary

Navigation bar

Access all of FlyBase tools and resources through organized menus



FlyBase:FAQ

FlyBase FAQ

1. Bulk data retrieval [\[Expand\]](#)
2. *D. melanogaster* as a model organism [\[Expand\]](#)
3. Fast-Track Your Paper [\[Expand\]](#)
4. FlyBase Community Advisory Group [\[Expand\]](#)
5. FlyBase fee [\[Expand\]](#)
6. FlyBase people database [\[Expand\]](#)
7. Genome browser (JBrowse and GBrowse) [\[Collapse\]](#)
 - 7.1. Is GBrowse being discontinued?

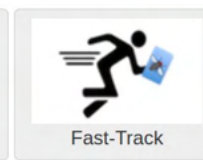
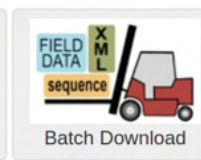
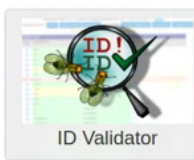
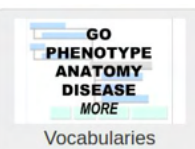
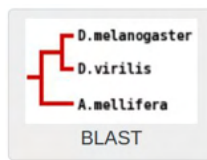
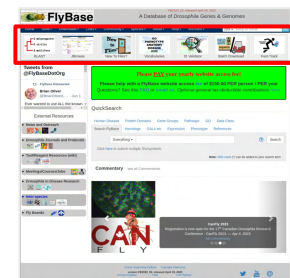
Yes, GBrowse is no longer being maintained, and GBrowse access will be discontinued in FlyBase release FB2202_06. All GBrowse tracks and features are now also available in JBrowse. Please use [JBrowse@](#) for your queries.
 - 7.2. How can I download FASTA sequence from JBrowse?

Please find instructions in [this FlyBase tweetorial@](#).

It is currently not possible to download decorated FASTA from JBrowse; however you can download decorated FASTA from the Gene Report of your gene of interest using the "Get Decorated FASTA" button in the "Genomic Location" section (see Question 8.2 for more information).

Big buttons: New to Flies

Quick access to key FlyBase tools: e.g., resources for newbies.



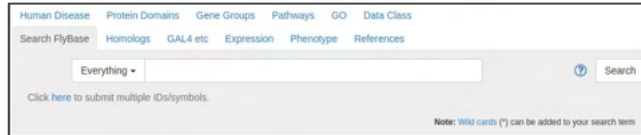
A screenshot of the FlyBase Wiki page titled 'New to Flies'. The page includes a fly icon, a navigation menu, and a main content area. The main content area has a 'Contents' section with links to 'Learning how to use Drosophila', 'Learning Drosophila genetics', 'External Resources on the FlyBase Wiki', 'How to use FlyBase', and 'Social media and online groups'. Below this is a section titled 'Learning how to use Drosophila' with a list of resources and a book cover for 'Drosophila Workers Unite!'. A red arrow points from the 'New to Flies?' button to the 'Contents' section.

The Manchester Fly Facility has a large compendium of Drosophila-related links for the public, educators, and

QuickSearch tabs

Various ways to search or browse FlyBase data.

Google-esque search of everything.



Human Disease Protein Domains Gene Groups Pathways GO Data Class

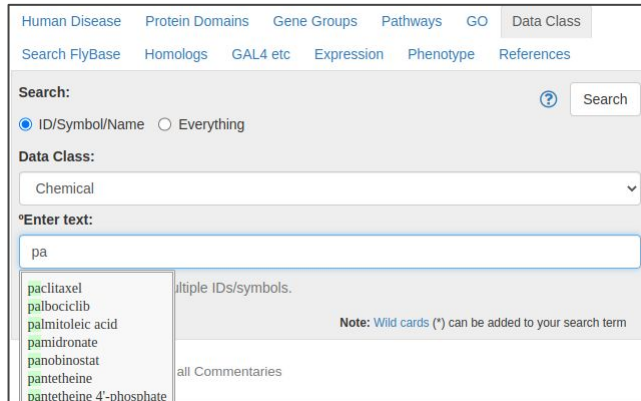
Search FlyBase Homologs GAL4 etc Expression Phenotype References

Everything Search

Click here to submit multiple IDs/symbols.

Note: Wild cards (*) can be added to your search term

Data class-specific search is **faster**:
chemicals are new!



Human Disease Protein Domains Gene Groups Pathways GO Data Class

Search FlyBase Homologs GAL4 etc Expression Phenotype References

Search: Search

ID/Symbol/Name Everything

Data Class:

Enter text:

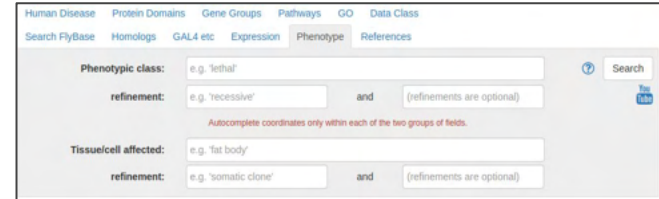
- paclitaxel
- palbociclib
- palmitoleic acid
- pamidronate
- panobinostat
- pantheine
- pantheine 4'-phosphate

multiple IDs/symbols.

Note: Wild cards (*) can be added to your search term

all Commentaries

Search by phenotype.



Human Disease Protein Domains Gene Groups Pathways GO Data Class

Search FlyBase Homologs GAL4 etc Expression Phenotype References

Phenotypic class: Search

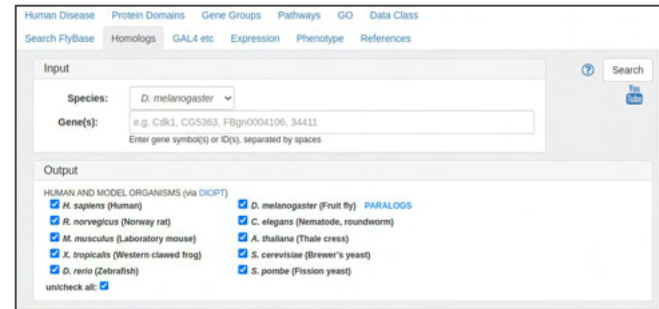
refinement: and

Autocomplete coordinates only within each of the two groups of fields.

Tissue/cell affected:

refinement: and

Search for homologs.



Human Disease Protein Domains Gene Groups Pathways GO Data Class

Search FlyBase Homologs GAL4 etc Expression Phenotype References

Input Search

Species:

Gene(s):

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

Output

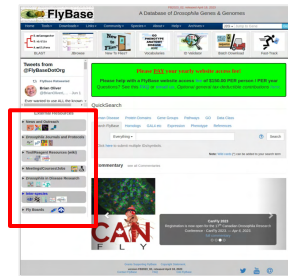
HUMAN AND MODEL ORGANISMS (via DIOPT)

<input checked="" type="checkbox"/> <i>H. sapiens</i> (Human)	<input checked="" type="checkbox"/> <i>D. melanogaster</i> (Fruit fly) PARALOGS
<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> (Laboratory mouse)	<input checked="" type="checkbox"/> <i>A. thaliana</i> (Thale cress)
<input checked="" type="checkbox"/> <i>X. tropicalis</i> (Western clawed frog)	<input checked="" type="checkbox"/> <i>S. cerevisiae</i> (Brewer's yeast)
<input checked="" type="checkbox"/> <i>D. rerio</i> (Zebrafish)	<input checked="" type="checkbox"/> <i>S. pombe</i> (Fission yeast)





uncheck all:

External resources





Featured external resources






▼ News and Outreach

-  FlyBase News
-  Community News
-  FlySlack
-  Public, Teachers, Students



▼ *Drosophila* Journals and Protocols

-  Fly journal
-  microPublication
-  FlyBook
-  Experiments with *Drosophila*




▼ Tool/Reagent Resources (wiki)

-  scRNA-Seq
-  Technical Advances
-  External Resources





▼ Meetings/Courses/Jobs


-  Meetings Courses
-  Positions Available

▼ *Drosophila* in Disease Research



-  Biomedical Research
-  MARRVEL
-  Model Matcher

▼ Inter-species

-  Gene2Function
-  MIST
-  iProteinDB
-  BioLitMine

 Alliance of Genome Resources

▼ Fly Boards

-  Fly Board
-  European Drosophila Society

The Alliance of Genome Resources

FlyBase is a founding member (alliancegenome.org) ; data is shared both ways.

Data imports into FlyBase.

Gene reports

General Information			
Symbol	DmelCG17807	Species	D. melanogaster
Name		Annotation Symbol	CG17807
Feature Type	protein_coding_gene	FlyBase ID	FBgn0034748
Gene Model Status	Current	Stock	2 publicly available
Enzyme Name (EC)	EC1.1.1.18 (methyltransferase)		
Gene Summary	Predicted to enable tRNA (carboxymethyluridine(34)-5-O)-methyltransferase activity; tRNA (uracil) methyltransferase activity; and tRNA binding activity. Predicted to be involved in tRNA methylation and tRNA wobble uridine modification. Predicted to be active in cytoplasm and nucleus. Human ortholog(s) of this gene implicated in autosomal recessive intellectual developmental disorder 71. Orthologous to human ALKBH8 (alkB homolog 8, tRNA methyltransferase). (Alliance, FBgn0034748)		
Key Links	Alliance Auto summary Gene Group		

Key Links: [Alliance of Genome Resources](#), [NCBI](#), [Ensembl](#), [UniProt](#), [MARRVEL](#)

Allele reports

Report of the Allele			
Type	Location	Additional Notes	References
Allele	3L:1,247,891..1,249,852 (-)	CG17807 is an insertion, resulting from the imprecise excision of P[GD]50435 elements from the 3'UTR coding sequence.	[Lee et al., 2012]
Variant Molecular Consequences			
Affected Genes	Related Alleles	Affected Transcripts	
DmelCG17807	CG17807	DmelCG17807	

Cross-species data alignment.



Cross-model organism forum.

Help us improve Alliance resources by taking a very brief SURVEY.

Alliance User Community

Model Organism: Files

Connecting with FlyBase

Ask a question, provide a suggestion, get news and helpful hints.

The image shows a screenshot of the FlyBase website with several elements highlighted by red boxes and arrows:

- Top Navigation Bar:** Home, Tools, Downloads, Links, Community, Species, About, Help, Archives.
- Community Menu:** FlyBase Community, Fast-Track Your Paper, FlyBase Community Advisory Group, Recent Papers With Technical Advances, Gene Snapshots, FlyBase Forum, Newsletter, FlySlack Community, Twitter, NIH Funding.
- Help Menu:** Release Notes, New In This Release, Release Schedule, FlyBase Positions, Citing FlyBase, FlyBase Licensing, FlyBase Consortium, FlyBase Publications, FlyBase Presentations, Grants Supporting FlyBase, FlyBase Wiki: Help Index, Tool help, Report help, FlyBase FAQ, Info for Authors, Linking to/from FlyBase, Nomenclature, Curation documentation, New to Files?, Video Tutorials, FlyBase For Developers, Contact FlyBase.
- Footer:** Grants Supporting FlyBase, Copyright Statement, version FB2023_02, released April 18, 2023, Cite FlyBase, Contact FlyBase, FAQ, Twitter, YouTube, @.

Red arrows indicate the following connections:

- From the top-left FlyBase logo to the Home link in the navigation bar.
- From the bottom-left social media icons to the footer's social media icons.
- From the 'FlyBase Presentations' link in the Help menu to the email address `helpfb@morgan.harvard.edu`.
- From the 'Contact FlyBase' link in the footer to the email address `helpfb@morgan.harvard.edu`.

Acknowledgements

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