

# What's new in FlyBase (in its 25th year)

Steven Marygold

- JBrowse
- Gene Snapshots
- Gene Groups
- Orthologs
- Human Disease Models
- Gene2Function
- Community interactions
- New website



# A Database of *Drosophila* Genes & Genomes

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**BLAST**

**GBrowse**

Antibodies  
Databases  
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MORE

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## QuickSearch

Human Disease Expression GO Phenotype References

Simple Orthologs Protein Domains Gene Groups Data Class

Species:  include non-Dmel species

Enter text:

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

## Commentary [See all commentaries](#)

### New FlyBase Site - Beta



Mar 15, 2017.

### New FlyBase Site - Beta

FlyBase would like to announce an open beta test of our new web site. We invite you to take a look and tell us what you like and don't like at this early stage.

[beta.flybase.org](http://beta.flybase.org)... (More)

### Resources for:



PUBLIC, TEACHERS, STUDENTS



BIOMEDICAL RESEARCH

### Multi-species mining:



MARRVEL



Gene2Function

General Information			
Symbol	Dmel\Egfr	Species	<i>D. melanogaster</i>
Name	Epidermal growth factor receptor	Annotation symbol	CG10079
Feature type	<a href="#">protein_coding_gene</a>	FlyBase ID	FBgn0003731
Gene Model Status	Current	Stock availability	53 publicly available
Also Known As	DER, top, flb, Efp, dEGFR, Egf-r, c-erbB		
Gene Snapshot	Epidermal growth factor receptor (Egfr) is the transmembrane tyrosine kinase receptor for signaling ligands in the TGF $\alpha$ family ( <a href="#">grk</a> , <a href="#">spi</a> , <a href="#">vn</a> , and <a href="#">Krn</a> ), which utilises the intracellular MAP kinase pathway. Egfr roles include growth regulation, cell survival and developmental patterning. [Date last reviewed: 2016-10-06]		

Genomic Location			
Cytogenetic map	57E9-57F1	Sequence location	2R:21,522,420..21,559,977 [+]
Recombination map	2-95		

<p><b>Genomic Maps</b></p> <p><a href="#">GBrowse</a></p> <p><a href="#">JBrowse</a></p>		<p>Decorated FASTA</p> <p>Get genome region</p> <p>Gene region <input type="text"/></p> <p>Get FastA</p>
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**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)	RECEPTOR TYROSINE KINASES
---------------------------------	---------------------------

# JBrowse

**Available Tracks**

- filter tracks
- Reference sequence 2
- Reference Genome Annotations (iso-1) 4
  - Gene
  - RNA
  - Natural TE
  - Repeat region
- Aligned evidence 8
  - EST
  - cDNA
  - RNA-seq exon junctions
  - other aligned sequences
  - PeptideAtlas peptides
  - Protein domains (PFAM)
  - Transcription start sites (modENCODE), embryo
  - Transcription start sites (RAMPAGE), peak calls
- Mapped mutations 8
  - Transgenic insertion site
  - Point mutation
  - Sequence variant
  - Uncharacterized change in nucleotide sequence
  - Aberration junction
  - Complex Substitution
  - Indels
  - Rescue fragment
- Noncoding features 15
- Similarity 1
- RNAi Reagents and Data 6
  - DRSC RNAi amplicons
  - VDRC RNAi amplicons
  - TRIP RNAi amplicons
  - BKNA RNAi amplicons
  - HFA RNAi amplicons
  - NIG-Fly RNAi amplicons
- Aberrations 4

**JBrowse** File View Help

0 5,000,000 10,000,000 15,000,000 20,000,000 25,000,000

3R 3R:15257302..15264371 (7.07 Kb) Go

5,257,500 15,258,750 15,260,000 15,261,250 15,262,500

**Gene**

- Su(var)3-9-RA
- Su(var)3-9
- eIF2gamma-RB
- eIF2gamma-RC
- eIF2gamma-RD
- eIF2gamma
- Set-RA
- Set

**RNA-seq exon junctions**

**Protein domains (PFAM)**

- TIF2\_gsu\_C
- EFTU-like\_2
- SET\_dom
- Pre-SET\_dom
- Chromo\_domain

**TRIP RNAi amplicons**

- dsRNA-JF01404

**VDRC RNAi amplicons**

- dsRNA-GD15421

**NIG-Fly RNAi amplicons**

- dsRNA-6476R
- dsRNA-6476R

**Point mutation**

- Su(var)3-9[22]
- Su(var)3-9[318]
- Su(var)3-9[319]
- Su(var)3-9[25]
- Su(var)3-9[8]
- Su(var)3-9[10]

dsRNA-HMS00704  
dsRNA-HMS00279  
dsRNA-GL01471

dsRNA-GD15258  
dsRNA-GD15421  
dsRNA-KK108870

# Gene Snapshots

General Information			
Symbol	Dmel\Egfr	Species	<i>D. melanogaster</i>
Name	Epidermal growth factor receptor	Annotation symbol	CG10079
Feature type	<a href="#">protein_coding_gene</a>	FlyBase ID	FBgn0003731
Gene Model Status	<a href="#">Current</a>	Stock availability	<a href="#">53 publicly available</a>
Also Known As	DER, top, flb, Efp, dEGFR, Egf-r, c-erbB		
Gene Snapshot	Epidermal growth factor receptor (Egfr) is the transmembrane tyrosine kinase receptor for signaling ligands in the TGF $\alpha$ family ( <a href="#">grk</a> , <a href="#">spi</a> , <a href="#">vn</a> , and <a href="#">Krn</a> ), which utilises the intracellular MAP kinase pathway. Egfr roles include growth regulation, cell survival and developmental patterning. [Date last reviewed: 2016-10-06]		


Epidermal growth factor receptor (Egfr) is the transmembrane tyrosine kinase receptor for signaling ligands in the TGF $\alpha$  family ([grk](#), [spi](#), [vn](#), and [Krn](#)), which utilises the intracellular MAP kinase pathway. Egfr roles include growth regulation, cell survival and developmental patterning.

# Gene Groups

Families, Domains and Molecular Function	
Gene Group Membership (FlyBase)	RECEPTOR TYROSINE KINASES


‘Gene Groups’ encompass:

- gene products sharing molecular function (kinases, tRNAs...)
- gene families (actins, odorant receptors...)
- subunits of complexes (ribosome, spliceosome...)

QuickSearch 

Human Disease   Expression   GO   Phenotype   References



Simple   Orthologs   Protein Domains   **Gene Groups**   Data Class

 Search using a gene or Gene Group symbol, name, synonym or ID. Search

Enter text:

Alternatively, [browse](#) all Gene Groups

**Note:** [Wild cards](#) (\*) can be added to your search term

# Gene Group Reports

General Information			
Name	RECEPTOR TYROSINE KINASES	Species	<i>D. melanogaster</i>
Symbol	RTK	FlyBase ID	FBgg0000220
Date last reviewed	2015-08-26	Number of members	24

Description	
Description	Receptor tyrosine kinases (RTK) are single-pass transmembrane receptors expressed on the plasma membrane. Upon the binding of an extracellular signalling molecule (e.g. growth factors, hormones), RTKs dimerize leading to the activation of the intracellular tyrosine kinase domain and intermolecular phosphorylation. The phosphotyrosines function as specific sites for the assembly, phosphorylation and activation of downstream signaling molecules. (Adapted from PMID:20602996).
Notes on Group	<p><i>Wsc</i> is predicted to be a pseudokinase based on sequence analysis in <a href="#">FBrf0209106</a>.</p> <p><i>drl</i>, <i>Drl-2</i> and <i>dnt</i> are members of the Receptor related to tyrosine kinases (RYK) subfamily. Members of this family are catalytically inactive (pseudokinases) (<a href="#">FBrf0222811</a>, <a href="#">FBrf0132248</a>).</p> <p>In other metazoans, <i>otk</i> orthologous kinases are inactive. <i>otk</i> deviates in some consensus kinase motifs, indicating that it may be a pseudokinase. However, <a href="#">FBrf0055961</a> have shown a kinase activity associated with immunoprecipitated <i>otk</i>.</p>

Source Material	The RECEPTOR TYROSINE KINASES Gene Group has been compiled by FlyBase curators using the following publication(s): <a href="#">Sopko and Perrimon, 2013</a> , <a href="#">Sopko et al., 2014</a> , <a href="#">Manning et al., 2002</a> , <a href="#">Petrova et al., 2013</a> , <a href="#">Halford and Stacker, 2001</a> , and <a href="#">Vogel et al., 2013</a> .
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Key Gene Ontology (GO) terms	
Molecular Function	<a href="#">transmembrane receptor protein tyrosine kinase activity</a>
Biological Process	<a href="#">protein phosphorylation</a>
Cellular Component	<a href="#">integral component of plasma membrane</a>

Related Gene Groups	
Parent group(s)	<a href="#">TYROSINE KINASES</a>
Other related group(s)	<a href="#">STE KINASES</a>

Members (24)			
For all members:	<a href="#">View Orthologs</a>	<a href="#">Export to HitList</a>	<a href="#">Export to Batch Download</a>
Gene Symbol	Gene Name	Also Known As	Source Material for Membership
<a href="#">Alk</a>	Anaplastic lymphoma kinase	DAIk	( <a href="#">Sopko and Perrimon, 2013</a> , <a href="#">Manning et al., 2002</a> , <a href="#">Sopko et al., 2014</a> , <a href="#">Vogel et al., 2013</a> )
<a href="#">btl</a>	breathless		( <a href="#">Sopko and Perrimon, 2013</a> , <a href="#">Manning et al., 2002</a> , <a href="#">Sopko et al., 2014</a> )
<a href="#">btl</a>	breathless	dev, FGFR, DFR2, DFGF-R1, DmHD-311	( <a href="#">Sopko and Perrimon, 2013</a> , <a href="#">Manning et al., 2002</a> , <a href="#">Sopko et al., 2014</a> )
<a href="#">Cad96Ca</a>	Cadherin 96Ca	HD-14, DmHD-14, stit	( <a href="#">Sopko and Perrimon, 2013</a> , <a href="#">Manning et al., 2002</a> , <a href="#">Sopko et al., 2014</a> )
<a href="#">CG10702</a>			( <a href="#">Sopko and Perrimon, 2013</a> , <a href="#">Sopko et al., 2014</a> )
<a href="#">Ddr</a>	Discoidin domain receptor		( <a href="#">Sopko and Perrimon, 2013</a> , <a href="#">Manning et al., 2002</a> , <a href="#">Sopko et al., 2014</a> , <a href="#">Vogel et al., 2013</a> )
<a href="#">dnt</a>	doughnut on 2		( <a href="#">Sopko and Perrimon, 2013</a> , <a href="#">Manning et al., 2002</a> , <a href="#">Sopko et al., 2014</a> , <a href="#">Petrova et al., 2013</a> , <a href="#">Halford and Stacker, 2001</a> )

External Data	
Equivalent Group(s)	<a href="#">Human Receptor Tyrosine Kinases (HGNC)</a>
Other resource(s)	

🔍 Synonyms and Secondary IDs

🔍 References (7)

Manually written description of group, with notes

List of members, with export to:

1. Hit-list
2. Batch Download
3. Orthologs tool

Links to external resources

# Orthology search tool

## 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

Search

### 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> (Laboratory 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:



# Orthology search results

[Save results as tsv file](#) [Help](#)

Search Term: **Psn** Species: *Drosophila melanogaster* (Fruit fly) Gene: **Psn** Reports: [NCBI](#) [FlyBase](#)

Ortholog Gene	Ortholog Gene Reports	Via DIOPT (v6.0)					Transgene in Fly
		Score	Best Score	Best Rev Score	Source	Align	
<b><i>Homo sapiens</i> (Human)</b>							
PSEN2	<a href="#">NCBI HGNC OMIM</a>	10 of 11	Yes	Yes (+)	Compara, eggNOG, Homologene, Inparanoid, OMA, orthoMCL, Panther, Phylome, RoundUp, TreeFam	(+)	Yes
PSEN1	<a href="#">NCBI Ensembl HGNC OMIM</a>	9 of 11	No	Yes (+)	Compara, eggNOG, Inparanoid, Isobase, OMA, orthoMCL, Panther, Phylome, TreeFam	(+)	Yes
<b><i>Mus musculus</i> (Laboratory mouse)</b>							
Psen2	<a href="#">NCBI MGI</a>	10 of 11	Yes	Yes (+)	Compara, eggNOG, Homologene, Inparanoid, OMA, orthoMCL, Panther, Phylome, RoundUp, TreeFam	(+)	
Psen1	<a href="#">NCBI MGI</a>	9 of 11	No	Yes (+)	Compara, eggNOG, Inparanoid, Isobase, orthoMCL, Panther, Phylome, RoundUp, TreeFam	(+)	
<b><i>Rattus norvegicus</i> (Norway rat)</b>							
Psen1	<a href="#">NCBI RGD</a>	8 of 8	Yes	Yes (+)	Compara, eggNOG, Inparanoid, OMA, orthoMCL, Panther, Phylome, TreeFam	(+)	
Psen2	<a href="#">NCBI RGD</a>	7 of 8	No	Yes (+)	Compara, eggNOG, Homologene, Inparanoid, OMA, Panther, Phylome	(+)	
<b><i>Xenopus tropicalis</i> (Western clawed frog)</b>							
psen2	<a href="#">NCBI Xenbase</a>	8 of 7	Yes	Yes (+)	Compara, eggNOG, Homologene, Inparanoid, OMA, Phylome, RoundUp, TreeFam	(+)	
psen1	<a href="#">NCBI Xenbase</a>	5 of 7	No	Yes (+)	Compara, eggNOG, Phylome, RoundUp, TreeFam	(+)	
<b><i>Danio rerio</i> (Zebrafish)</b>							
psen2	<a href="#">NCBI ZFIN</a>	10 of 11	Yes	Yes (+)	Compara, eggNOG, Homologene, Inparanoid, OMA, orthoMCL, Panther, Phylome, RoundUp, TreeFam	(+)	
psen1	<a href="#">NCBI ZFIN</a>	9 of 11	No	Yes (+)	Compara, eggNOG, Inparanoid, OMA, orthoMCL, Panther, Phylome, RoundUp, TreeFam	(+)	
<b><i>Caenorhabditis elegans</i> (Nematode, roundworm)</b>							
sel-12	<a href="#">NCBI WormBase</a>	8 of 11	Yes	Yes (+)	Compara, Inparanoid, Isobase, orthoMCL, Panther, Phylome, RoundUp, TreeFam	(+)	
hop-1	<a href="#">NCBI WormBase</a>	4 of 11	No	Yes (+)	Compara, Isobase, Panther, TreeFam	(+)	
spe-4	<a href="#">NCBI WormBase</a>	3 of 11	No	Yes (+)	Compara, Isobase, Panther	(+)	
<b><i>Saccharomyces cerevisiae</i> (Brewer's yeast) - no orthologs found</b>							
<b><i>Schizosaccharomyces pombe</i> (Fission yeast) - no orthologs found</b>							

# Human Disease Model data

Human Disease Model Data				
FlyBase Human Disease Model Reports				
	<a href="#">ataxia-telangiectasia</a>			
Alleles Reported to Model Human Disease (Disease Ontology)				
Download	<input type="button" value="Models Data"/> <input type="button" value="Interaction data"/>			
Models				
Allele	Disease	Evidence	References	
<a href="#">tefu<sup>atm-8</sup></a>	model of <a href="#">ataxia telangiectasia</a>	inferred from mutant phenotype	<i>(Petersen et al., 2012)</i>	
<a href="#">tefu<sup>dsRNA.Scer\UAS</sup></a>	model of <a href="#">ataxia telangiectasia</a>	inferred from mutant phenotype	<i>(Petersen et al., 2012)</i>	
Interactions				
Allele	Disease	Interaction	References	
<a href="#">tefu<sup>atm-8</sup></a>	model of <a href="#">neurodegenerative disease</a>	is ameliorated by <a href="#">Rel<sup>E20</sup></a>	<i>(Petersen et al., 2013)</i>	
	model of <a href="#">neurodegenerative disease</a>	is ameliorated by <a href="#">Rel<sup>E38</sup></a>	<i>(Petersen et al., 2013)</i>	
Comments				
Human Orthologs (via DIOPT v6) (1)				
Gene name	Score	OMIM ID	OMIM Phenotype	Transgene in Fly
<a href="#">ATM; ATM serine/threonine kinase</a>	9 of 11	<a href="#">607585</a>	<a href="#">BREAST CANCER</a> <a href="#">ATAXIA-TELANGIECTASIA; AT</a>	

# Human Disease Model Reports

General Information			
Name	ataxia-telangiectasia	FlyBase ID	FBhh0000167
Disease Ontology ID	DOID:12704	Parent Disease	autosomal recessive cerebellar ataxia
OMIM	ATAXIA-TELANGIECTASIA; AT	Parent Disease DOID	DOID:0050950

Overview	
	<p>This report describes ataxia-telangiectasia (AT), which is a subtype of autosomal recessive cerebellar ataxia. The human gene implicated in this disease is ATM, which encodes the PI3/PI4-kinase ataxia-telangiectasia mutated. There is one fly ortholog, <a href="#">tefu</a>, for which RNAi targeting constructs, alleles caused by insertional mutagenesis, and classical amorphic alleles have been generated. ATM is also associated with the diseases somatic B-cell non-Hodgkin lymphoma, somatic mantle cell lymphoma, somatic T-cell prolymphocytic leukemia, and a susceptibility to breast cancer (<a href="#">OMIM:114480</a>).</p> <p>ATM has not yet been introduced into flies.</p> <p>[updated February 2016 by FlyBase; <a href="#">FBF0222196</a>]</p>

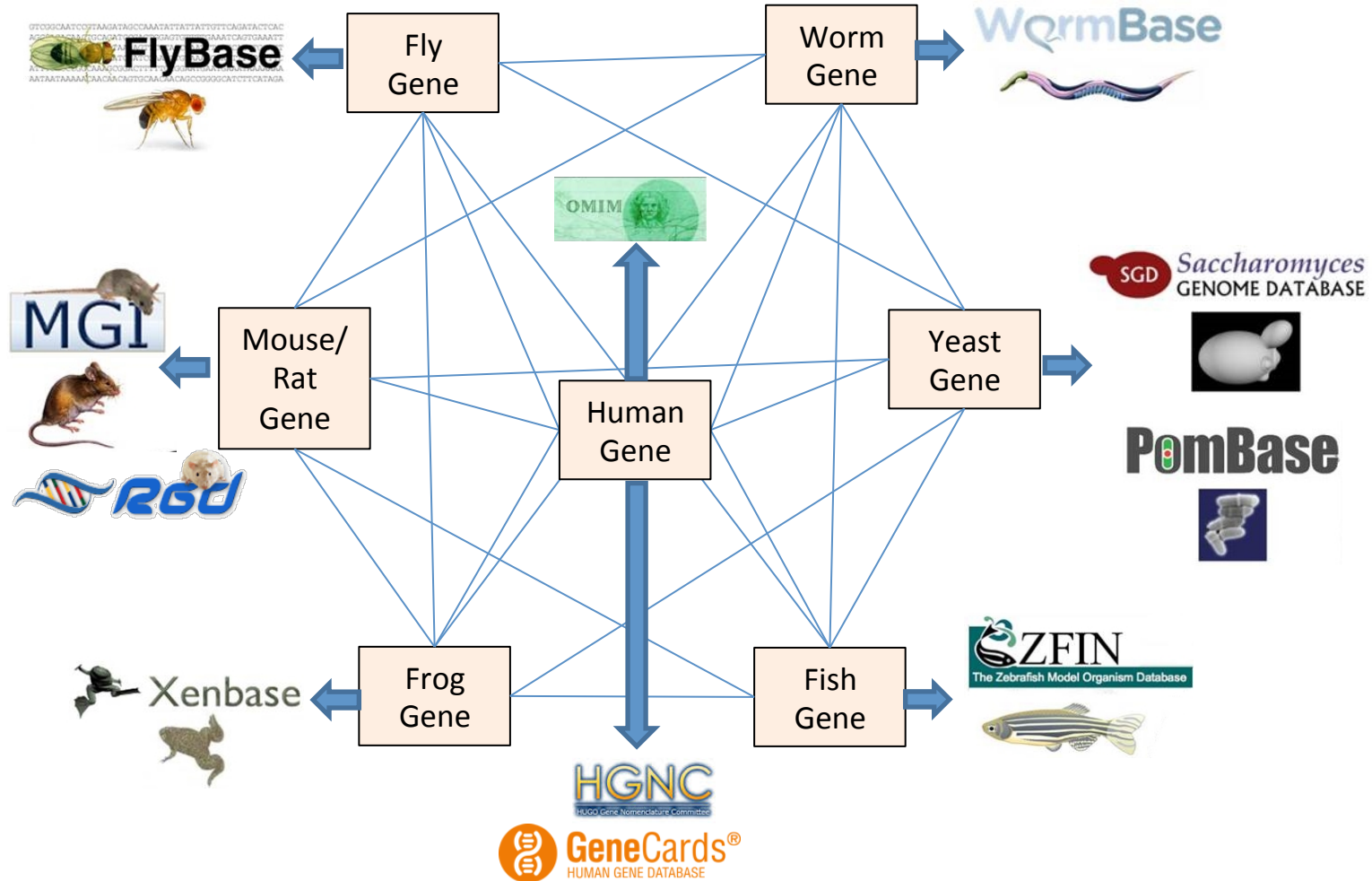
Disease Summary Information	
<input checked="" type="checkbox"/>	Related Diseases
<input checked="" type="checkbox"/>	Ortholog Information
<input checked="" type="checkbox"/>	D. melanogaster Gene Information (1)
<input checked="" type="checkbox"/>	Synthetic Gene(s) Used (0)
<input checked="" type="checkbox"/>	Experimental Findings
<input checked="" type="checkbox"/>	Summary of Physical Interactions (4 groups)
<input checked="" type="checkbox"/>	Alleles Reported to Model Human Disease (Disease Ontology) (2 alleles)
<input checked="" type="checkbox"/>	Genetic Tools, Stocks and Reagents
<input checked="" type="checkbox"/>	References (10)

Manually written summary of disease and model

Links to related diseases/fly models

List of fly stocks used in model

# Gene2Function



[www.gene2function.org](http://www.gene2function.org)

# Search by Gene

## Species

Human

## Gene

PARK2

Search By Gene

- Fission yeast
- Yeast
- Worm
- Fly
- Zebrafish
- Western clawed frog
- Human
- Mouse
- Rat

# Search by Disease

## Disease

breast cancer

Search By Disease

## Orthologs Overview

Gene ID	Human Disease Terms	Species Name	Species specific gene ID	Species specific database	DIOPT Score	Best Score	Best Score reverse	Confidence	Publication Count	GO Component Counts	GO Function Counts	GO Process Counts	Protein Interaction Counts	Genetic Interaction Counts	Mine Phenotype Data	Mine Expression Data	Protein Alignment
5071	PARK2 13	Human (Homo sapiens)	8607	HGNC		-	-		642	17	25	69	407	3	0	376	[+] multiple seq. alignment of best orthologs
50873	Park2 NA	Mouse (Mus musculus)	1355296	MGI	13	Yes	Yes	high	211	5	2	31	23	0	0	0	[+] pairwise alignment
56816	Park2 NA	Rat (Rattus norvegicus)	61797	RGD	5	Yes	Yes	high	67	16	2	19	9	0	NA	NA	[+] pairwise alignment
550328	park2 NA	Zebrafish (Danio rerio)	ZDB-GENE-050417-105	ZFIN	10	Yes	Yes	high	8	1	0	5	0	0	0	9	[+] pairwise alignment
40336	park NA	Fly (Drosophila melanogaster)	FBgn0041100	FLYBASE	11	Yes	Yes	high	143	3	2	21	16	2	376	104	[+] pairwise alignment
176816	pdr-1 NA	Worm (Caenorhabditis elegans)	WBGene0003967	WormBase	9	Yes	Yes	high	12	4	3	8	11	0	Wormbase	Wormbase	[+] pairwise alignment

## Select Disease Terms

select applicable and click to continue

Search

Check/UnCheck All

- ?Breast cancer, type 3 (2) [OMIM]
- {?Breast cancer susceptibility}, 114480 (1) [OMIM]
- {Breast cancer, invasive ductal}, 114480 (3) [OMIM]
- {Breast cancer, lobular}, 114480 (3) [OMIM]
- {Breast cancer, male, susceptibility to}, 114480 (3) [OMIM]
- {Breast cancer, poor survival after chemotherapy for} (3) [OMIM]
- {Breast cancer, protection against}, 114480 (3) [OMIM]
- {Breast cancer, susceptibility to}, 114480 (3) [OMIM]
- {Breast cancer}, 114480 (1) [OMIM]
- Adverse response to chemotherapy in breast cancer (alopecia) [GWAS]

Publication Count	GO Component Counts	GO Function Counts	GO Process Counts	Protein Interaction Counts	Genetic Interaction Counts	Mine Phenotype Data	Mine Expression Data
642	17	25	69	407	3	0	376

## Disease Associated Genes

Gene Symbol	Gene ID Human	Count Disease Terms	Disease Terms	Orthologs Overview
TP53	7157	2	<ul style="list-style-type: none"> <li>{Breast cancer}, 114480 (1)</li> <li>{?Breast cancer susceptibility}, 114480 (1)</li> </ul>	<a href="#">TP53 Orthologs</a>
SLC22A18	5002	2	<ul style="list-style-type: none"> <li>{Breast cancer}, 114480 (1)</li> <li>{?Breast cancer susceptibility}, 114480 (1)</li> </ul>	<a href="#">SLC22A18 Orthologs</a>
ATM	472	2	<ul style="list-style-type: none"> <li>{?Breast cancer susceptibility}, 114480 (1)</li> <li>{Breast cancer}, 114480 (1)</li> </ul>	<a href="#">ATM Orthologs</a>
PPM1D	8493	2	<ul style="list-style-type: none"> <li>{Breast cancer}, 114480 (1)</li> <li>{?Breast cancer susceptibility}, 114480 (1)</li> </ul>	<a href="#">PPM1D Orthologs</a>
BARD1	590	2	<ul style="list-style-type: none"> <li>{Breast cancer}, 114480 (1)</li> <li>{?Breast cancer susceptibility}, 114480 (1)</li> </ul>	<a href="#">BARD1 Orthologs</a>

# New hit-lists

Cdk1  analysis tools here View As

1-50 of 485

← Previous **1** 2 3 ... 10 → Next

**Show results for**

- Aberration (12)
- Allele (135)
- Clone (81)
- Gene (49)
- Gene Group (3)
- Gene Ontology (4)
- Insertion (29)
- Large Dataset Metadata (2)
- Natural Transposon (2)
- Physical Interaction (15)
- Polypeptide (1)
- Reference (435)
- Sequence Feature (18)
- Stock (17)
- Transcript (1)
- Transgenic Construct (51)

**Cdk1** Cyclin-dependent kinase 1 (CG5363, FBgn0004106)   Gene

**Feature type:** protein\_coding\_gene  
**Sequence Location:** 2L:10,384,739..10,386,262 [-]

**Gene model status:** Current  
**Cytogenetic Map:** 31D11-31D11

44 Alleles 24 Stocks 1 Transcript 1 Polypeptide 360 References

**Gene Snapshot** ▼ Cyclin-dependent kinase (Cdk1) is a catalytic protein kinase subunit that can only become active after association with either @CycA@, @CycB@ or @CycB3@. The protein kinase activities of these complexes (@CycA@-Cdk1, @CycB@-Cdk1, @CycB3@-Cdk1) control important aspects of progression through the cell cycle. Functionally, the different Cdk1 complexes are partially redundant. They phosphorylate hundreds of target proteins and are most important for progression into and through mitotic and meiotic M phases.

**Cdk1-RA** (, FBtr0080051) Transcript

**Type:** mRNA **Length (nt):** 1082 **Associated CDS (aa):** 81 Supporting clones

**Stumpff et al. (2004)** (FBF0183813) Reference

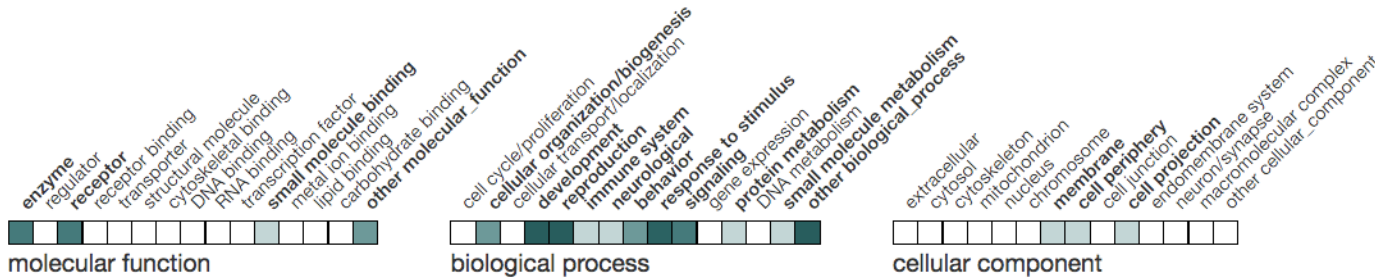
**Title:** Drosophila Wee1 kinase regulates Cdk1 and mitotic entry during embryogenesis.  
**Citation:** Curr. Biol.. 2004;14:2143--2148 **Publication type:** paper

**Abstract** ▼ Cyclin-dependent kinases (Cdks) are the central regulators of the cell division cycle. Inhibitors of Cdks ensure proper coordination of cell cycle events and help regulate cell proliferation in the context of tissues and organs. Wee1 homologs phosphorylate a conserved tyrosine to inhibit the mitotic cyclin-dependent kinase Cdk1. Loss of Wee1 function in fission or budding yeast causes premature entry into mitosis. The importance of metazoan Wee1 homologs for timing mitosis, however, has been demonstrated only in Xenopus egg extracts and via ectopic Cdk1 activation . Here, we report that Drosophila Wee1 (dWee1) regulates Cdk1 via phosphorylation of tyrosine 15 and times mitotic entry during the cortical nuclear cycles of syncytial blastoderm embryos, which lack gap phases. Loss of maternal dwee1 leads to premature entry into mitosis, mitotic spindle defects, chromosome condensation problems, and a Chk2-dependent block of subsequent development, and then embryonic lethality. These findings modify previous models about cell cycle regulation in syncytial embryos and demonstrate that Wee1 kinases can regulate mitotic entry in vivo during metazoan development even in cycles that lack a G2 phase.

1 Aberration 13 Genes 1 Transgenic Construct 6 Alleles 1 Insertion

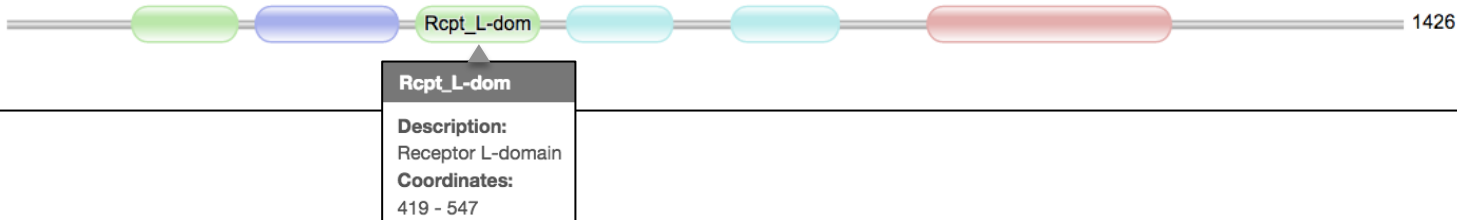
# Revised Gene Reports

## GO Summary Ribbons



## Gene Model and Products

### Protein Domains



## References (1537)

### Publication Types

Representative publications **10**

All publications **1537**

Research paper **820**

Supplementary material **22**



Filter

2015, Smith, cell, etc.



Sort by

Year (descending)

Ugrankar et al., 2015, Nat. Commun. 6: 7102  
Drosophila glucone screening identifies Ck1alpha as a regulator of mammalian glucose metabolism. [FBrf0228532]

Shen et al., 2013, PLoS ONE 8(4): e60180  
Modulation of Morphogenesis by Egfr during Dorsal Closure in Drosophila. [FBrf0221256]

## Report Sections

General Information

Genomic Location

GO Summary Ribbons

Families, Domains and Molecular Function

Summaries

Gene Model and Products

Recent Updates

Other Information

Synonyms and Secondary IDs

References

# Community Interactions

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As of 16th January 2017 the FlyBase Community Advisory Group comprised 542 fly researchers from 41 different countries.



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February 17, 2017

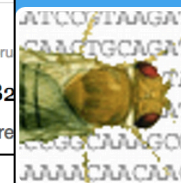
25th European Drosophila Research Conference

We are pleased to announce that registration for the "25th European \*Drosophila\* Research Conference \*on \*22nd-25th September 2017\* at Imperial College London is now OPEN.

Febru

FB2

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FlyBase @FlyBaseDotOrg · Feb 15

The first FlyBase update of 2017, FB2017\_01, has gone live.

Retweets

4

Replies

12



# Further information

FB2017\_01, released Feb 14, 2017



A Database of *Drosophila* Genes & Genomes

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### FlyBase 2017 Release Schedule

The following are the tentative dates of FlyBase releases in 2017. There will be 6 releases this year.

- FB2017\_01 - February 14<sup>th</sup>
- FB2017\_02 - April 18<sup>th</sup>
- FB2017\_03 - June 20<sup>th</sup>
- FB2017\_04 - August 22<sup>nd</sup>
- FB2017\_05 - October 24<sup>th</sup>
- FB2017\_06 - December 19<sup>th</sup>

### Citing FlyBase

We suggest FlyBase be referenced in publications in the following manner:

Gramates LS, Marygold SJ, dos Santos G, Urbano J-M, Antonazzo G, Matthews BB, Rey AJ, Tabone CJ, Crosby MA, Emmert DB, Falls K, Goodman JL, Hu Y, Ponting L, Schroeder AJ, Strelets VB, Thurmond J, Zhou P and the FlyBase Consortium. (2017)  
**FlyBase at 25: looking to the future.**  
*Nucleic Acids Res.* 45(D1):D663-D671

### FlyBase Publications

2016

Marygold SJ, Antonazzo G, Attrill H, Costa M, Crosby MA, Dos Santos G, Goodman JL, Gramates LS, Matthews BB, Rey AJ, Thurmond J; FlyBase Consortium. (2016)  
**Exploring FlyBase Data Using QuickSearch.**  
*Curr. Protoc. Bioinformatics* 56:1.31.1-1.31.23 (FBr0234167)

Marygold SJ, Crosby MA, Goodman JL and The FlyBase Consortium. (2016)  
**Using FlyBase, a Database of *Drosophila* Genes and Genomes.**  
*Drosophila: Methods and Protocols*, Second edition, vol. 1478 (C. Dahmann, ed.) pp. 1-31.  
Springer, New York (FBr0233766) (PMC5107610)

### About

- Release Notes
- New in Release
- Release Schedule
- FlyBase Positions
- Citing FlyBase
- FlyBase Consortium
- FlyBase Publications
- FlyBase Support

### FlyBase:FlyBase Guides: Pamphlets, Powerpoints, and Posters

(Redirected from FlyBase:FlyBase Guides: Pamphlets and Powerpoints)

#### Pamphlets and Handouts

- What's New, 2016 File:Whats New TAGC2016.pdf (pdf pamphlet, 2 pages)  
*Prepared for: The Allied Genetics Conference/Annual Drosophila Research Conference, 2016*
- General Information, 2016 File:General Information TAGC2016.pdf (pdf pamphlet, 2 pages)  
*Prepared for: The Allied Genetics Conference/Annual Drosophila Research Conference, 2016*
- What's New, 2015 File:WhatsnewADRC2015.pdf (pdf pamphlet, 2 pages)  
*Prepared for: Annual Drosophila Research Conference, 2015*

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# Acknowledgements & funding

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