

User Directed Interface Design at ZFIN



ZFIN Staff

ZFIN Design Process

New data type or user interface.

Requirement Analysis -- paper prototypes, mockups or focus groups

Initial design

In house review of initial design



Implementation of design
In house review



numerous
iterations



Pairs test

Analysis of Pairs test and design changes



possible
iterations



In house review
Small design changes



Outside review

Final in house review

Release feature

ZFIN Examples of User Directed Design

Homepage

Gene Page

Gene Expression

Mutant Phenotype

Publications/ Curation Interface

Homepage



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Nomenclature

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Zebrafish Resource Center

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Mutants / Transgenics

Search for mutations / transgenic lines by gene name, map location or phenotype.

Wild-Type Stocks

Zebrafish wild-type lines.

Genes / Markers / Clones

Search for genes, markers and clones by name, accession number, LG, vector type or sequence type.

Gene Expression

Search for gene expression patterns by gene name, developmental stage, anatomical structure, developmental or physiological process.

BLAST

Search for sequence alignment against ZFIN datasets and Zebrafish datasets.

Genetic Maps

Generate graphical views of genetic, radiation hybrid or consolidated maps.

Mapping Panels

Summary listing of zebrafish mapping panels.

Accession

Search ZFIN by data accession number.

Publications

Search for zebrafish research publications by author, title or citation.

Anatomy

Search the zebrafish anatomical ontology.

People

Search for zebrafish researchers by name or address.

Laboratories

Search for laboratories by name, address or research interests.

Companies

Search for companies supplying zebrafish reagents.

Login: Password:
(Login required only to update personal records)



Genes

Search **Genes/Markers/Clones**
Search **Gene Expression**
BLAST at ZFIN
Nomenclature Conventions
Obtain approval for gene names

Fish

Search **Mutants / Transgenics**
Wild-Type Lines
Lab Allele Designations
Submit a Fish Line

Anatomy

Search **Anatomy**
Atlases and Resources

Publications

Search **Publications**

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January 10 - ZFIN Hiring Scientific Curator
January 5 - Reissue of NIH PAR "Tools for Zebrafish Research"
December 21 - New VEGA Update from Sanger Institute
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Gene page



Site Search:

Research

General Information

ZIRC

Home Genes / Markers / Clones Expression BLAST Mutants / Tg Anatomy Maps Publications

Search for Genes / Markers / Clones

Your Input Welcome

Name / Symbol:

Accession Number:

Types:

(Choose one or more)

- All
- Gene
- Pseudogene
- Morpholino
- EST
- cDNA
- BAC
- PAC
- BAC_END
- PAC_END
- RAPD
- SSLP
- STS

LG:

Display results in groups of

SEARCH

BEST MATCH

RESET

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[login](#)

Gene page



Site Search:

Research

General Information

ZIRC

Search Results for: name contains 'dlx3b'

Your Input Welcome

- [1 Gene](#)
- [4 Morpholinos](#)

Modify your search.

Name / Symbol:

Accession Number:

Types:
(Choose one or more)

- All
- Gene
- Pseudogene
- Morpholino
- EST
- cDNA
- BAC
- PAC
- BAC_END
- PAC_END
- RAPD
- SSLP
- STS

LG:

Display results in groups of

Gene page

Gene Name: *distal-less homeobox gene 3b*

Your Input Welcome

Gene Symbol: *dlx3b*

Previous Names: zgc:91827, dlx3, dlx-3, wu:fb83f11, id:ibd3531(1)

[Nomenclature History](#)

Curator Notes: [Add Notes](#)

GENE EXPRESSION: [\(current status\)](#)

All expression data: [64 figure\(s\)](#) from 42 publications

Directly submitted expression data: [6 figure\(s\) \(36 images\)](#) from Thisse *et al.*, 2005 [eu221]

[5 figure\(s\) \(8 images\)](#) from Kudoh *et al.*, 2001 [ibd3531]

MUTANTS AND TARGETED KNOCKDOWNS:

Mutant line(s): [1 genotype \(1 allele\)](#)

Phenotype: [\(current status\)](#)

Data: [1 figure\(s\)](#) from Phenotype Annotation (1994-2006)

Observed in: [sensory system](#), [somite](#)

Knockdown reagents: [MO1-dlx3b](#), [MO2-dlx3b](#), [MO3-dlx3b](#), [MO4-dlx3b](#)

GENE PRODUCTS:

Gene Ontology

| Ontology | GO Term |
|-----------------------------------|--|
| Molecular Function | DNA binding (more) |
| Biological Process | cartilage development (more) |
| Cellular Component | nucleus |
| All GO Terms (11) | |

Protein Families, Domains and Sites:

- [InterPro:IPR000047 \(1\)](#)
- [InterPro:IPR001356 \(1\)](#)
- [InterPro:IPR009057 \(1\)](#)
- [InterPro:IPR012287 \(1\)](#)
- [PROSITE:PS00027 \(1\)](#)
- [PROSITE:PS50071 \(1\)](#)
- [Pfam:PF00046 \(1\)](#)

[Gene Product Description](#)

SEGMENT (CLONE AND PROBE) RELATIONSHIPS:

dlx3b Encodes [\[EST\] eu221 \(1\)](#), [fb83f11](#), [ibd3531 \(1\)](#) [\(order this\)](#)
[\[cDNA\] MGC:91827 \(1\)](#) [\(order this\)](#)

SEQUENCE INFORMATION:

| Type | Accession # | Length | Analysis |
|--------------------|---------------------------------------|---------|---------------------------------|
| cDNA: | RefSeq:NM_131322 (1) | 1593 bp | - Select Tool - |
| Genomic: | GenBank:X65060 | 1530 bp | - Select Tool - |
| Polypeptide: | SWISS-PROT:Q01702 (1) | 269 aa | - Select Tool - |
| Sequence Clusters: | UniGene:77568 (1) | | |

[All Sequence Information \(12\)](#)

OTHER *dlx3b* GENE / MARKER PAGES:

- [Entrez Gene:30585 \(1\)](#)
- [Ensembl:ENS:DARG00000014626 \(1\)](#)

MAPPING INFORMATION:

LG: 12 [Details](#) View Map: [Merged](#) [Individual Panels](#)

ORTHOLOGY:

| Species | Symbol | Chromosome (Position) | Accession # | Evidence | |
|-----------|--------|-----------------------|--|-------------------|-------------------|
| | | | | AA | CL |
| Zebrafish | dlx3b | 12 | | ● | ● |
| Human | DLX3 | 17 (q21) | <ul style="list-style-type: none">OMIM:600525Entrez Gene:1747 | ● | ● |
| Mouse | Dlx3 | 11 (55.00 cM) | <ul style="list-style-type: none">MGI:94903Entrez Gene:13393 | ● | ● |

[Orthology Details](#)

[CITATIONS](#) (85)

Gene page

Gene Name: *distal-less homeobox gene 3b*
Gene Symbol: *dlx3b*
Previous Names: zgc:91827, dlx3, dlx-3, wu:fb83f11, id:ibd3531(1)
[Nomenclature History](#)

Your Input>Welcome

Curator Notes: [Add Notes](#)

GENE EXPRESSION: [\(current status\)](#)

All expression data: [64 figure\(s\)](#) from 42 publications
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MUTANTS AND TARGETED KNOCKDOWNS:

Mutant line(s): [1 genotype \(1 allele\)](#)

Phenotype: [\(current status\)](#)

Data: [1 figure\(s\)](#) from Phenotype Annotation (1994-2006)

Observed in: [sensory system, somite](#)

ZFIN ID: ZDB-GENE-980526-280

Sequence Information

Gene Name: *distal-less homeobox gene 3b*

Gene Symbol: [dlx3b](#)

Your Input>Welcome

| Type | Accession # | Length | Analysis |
|-------------------|---------------------------------------|---------|-------------------|
| cDNA | RefSeq:NM_131322 (1) | 1593 bp | - Select Tool - ▾ |
| Genomic | GenBank:X65060 | 1530 bp | - Select Tool - ▾ |
| Polypeptide | SWISS-PROT:Q01702 (1) | 269 aa | - Select Tool - ▾ |
| | SWISS-PROT:Q6DBS2 (1) | 269 aa | - Select Tool - ▾ |
| | RefSeq:NP_571397 (1) | 269 aa | - Select Tool - ▾ |
| | GenPept:CAA46193 (1) | 269 aa | - Select Tool - ▾ |
| Sequence Clusters | UniGene:77568 (1) | | |

[dlx3b](#) Encodes:

| Marker | Type | Accession # | Length | Analysis |
|--------------------------------------|-------------|--------------------------------------|---------|-------------------|
| [EST] fb83f11 | cDNA | GenBank:AI584812 | 534 bp | - Select Tool - ▾ |
| | | GenBank:AI584296 | 329 bp | - Select Tool - ▾ |
| [EST] ibd3531 (1) | cDNA | GenBank:BG985796 | 398 bp | - Select Tool - ▾ |
| [cDNA] MGC:91827 (1) | cDNA | GenBank:BC078386 (1) | 1593 bp | - Select Tool - ▾ |
| | Polypeptide | GenPept:AAH78386 (1) | 269 aa | - Select Tool - ▾ |

| | | | | | |
|-----------|-------|---------------|---|--|--|
| Zebrafish | dlx3b | 12 | | | |
| Human | DLX3 | 17 (q21) | <ul style="list-style-type: none"> OMIM:600525 Entrez Gene:1747 | | |
| Mouse | Dlx3 | 11 (55.00 cM) | <ul style="list-style-type: none"> MGI:94903 Entrez Gene:13393 | | |

[Orthology Details](#)

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Gene Expression

Site Search:

Genes

Search **Genes/Markers/Clones**Search **Gene Expression****BLAST** at ZFIN

Nomenclature Conventions

Obtain approval for gene names

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Gene Expression



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Site Search:

Search for Gene Expression Data

Your Input Welcome

Gene/EST name

Genetic background name

MO knockdown: Gene name

Author

[Anatomy](#)

Include substructures

Expression in:

Every term entered

Any term entered

Between stages:

&

[Developmental Staging Series](#)

Assay Type

Filters:

- Show only figures with images
- Show direct submission data
- Show published literature

Added in last days

results per page

Search

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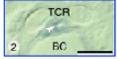
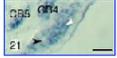
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ZFIN logo design by Kari Pape, University of Oregon

Gene Expression

Search matched on current symbol: **dlx3b**

WUOLU Search
Your Input Welcome

Expression Pattern Search Results for **dlx3b**
(64 figure(s) with expression from 41 publication(s))
[[Show only figures with images](#)]

| Publication (current status) | Data | Background(s) | Stage Range | Anatomy |
|--|---------------------------|--|--|--|
| Borday-Birraux et al., 2006 | Fig. 3 | WT | Long-pec to Day 4 | tooth 3V , tooth 4V , tooth 5V |
| | Fig. 4 | WT | Long-pec to Day 4 | tooth 3V , tooth 4V , tooth 5V |
| Kwak et al., 2006 | Fig. 3 |  AB | Prim-5 | otic vesicle |
| Leskow et al., 2006 | Fig. S8 | WT | Shield | whole organism |
| Link et al., 2006 | Fig. 7 | WT | 10-13 somites | neural keel |
| Nissen et al., 2006 | Fig. 5 |  dys^{h3812} , WT | Prim-5 | olfactory placode , otic vesicle , pharyngeal arch |
| Oishi et al., 2006 | Fig. 3 | WT | Bud | neural plate |
| Pendeville et al., 2006 | Fig. 4 | WT | Long-pec | pharyngeal arch |
| Verreijdt et al., 2006 | Fig. 2 |  TCR 2 BC | Protruding-mouth | parasphenoid |
| | Fig. 8 |  MC 8 | Protruding-mouth | epidermis |
| | Fig. 21 |  CB6 CB4 21 | Protruding-mouth | branchiostegal membrane , branchiostegal ray 3 , gill |
| | Fig. T1 | WT | Protruding-mouth to Days 14-20 | branchiostegal ray 1 , branchiostegal ray 2 , branchiostegal ray 3 , epibranchial 5 ... (all 12) ▶ |
| | Fig. T2A | WT | Protruding-mouth to Days 7-13 | anguloarticular , branchiostegal ray 1 , branchiostegal ray 2 , branchiostegal ray 3 ... (all 8) ▶ |
| | Fig. T2B | WT | Protruding-mouth to Day 5 | hyomandibula , retroarticular |
| | text only | WT | Prim-5 to Days 7-13 | autopterotoc , autosphenotic , basihyal , basioccipital ... (all 20) ▶ |
| Walker et al., 2006 | Fig. 6 | stu^{tg419} , suc^{tt216b} , WT | Prim-15 to Prim-25 | pharyngeal arch |
| Zhu et al., 2006 | Fig. 5 | WT | Bud | neural plate |
| Bardet et al., 2005 | Fig. 5 | WT | 5-9 somites | |
| Chong et al., 2005 | Fig. 2 |  AB | 90%-epiboly | |
| Dutta et al., 2005 | Fig. 2 |  WT | Bud | non neural ectoderm |
| | Fig. 8 |  WT | Bud | non neural ectoderm |
| Filippi et al., 2005 | Fig. 1 | WT | 1-4 somites | Rohon-Beard neuron |
| Formstone et al., 2005 | Fig. 4 | sib^{tr48} | Bud | |
| Gestri et al., 2005 | Fig. 6 |  WT | 90%-epiboly | presumptive epidermis |
| Lin et al., 2005 | Fig. 3 | WT | 1-4 somites | neural plate |

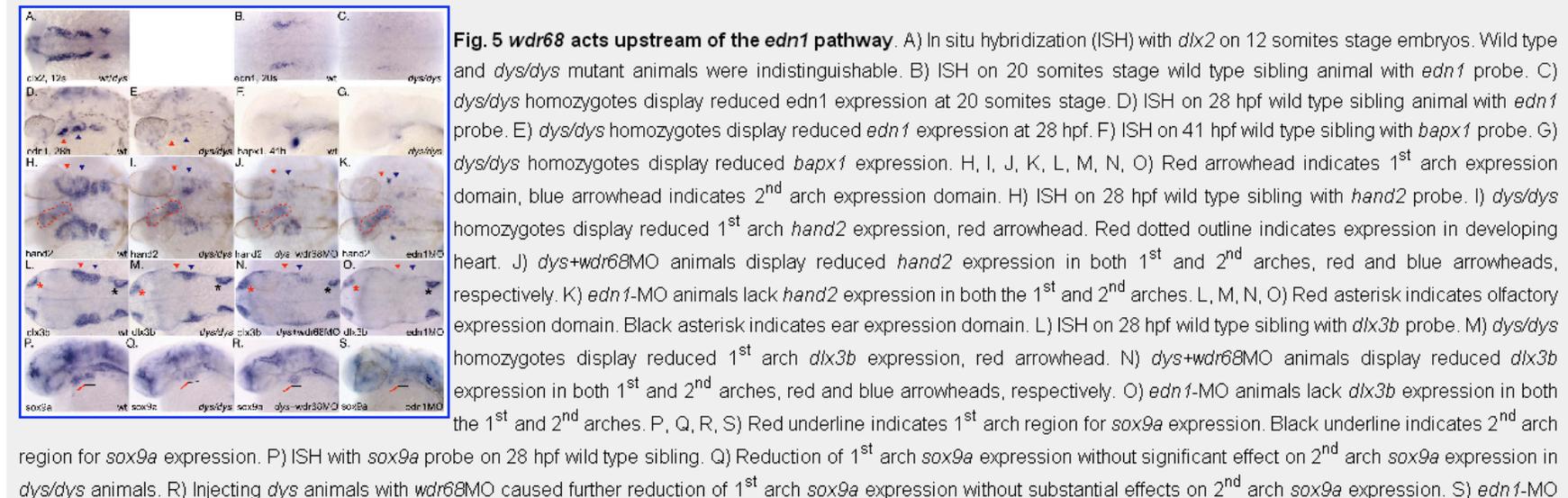
ADDITIONAL FIGURES

Genes : [bapx1](#) ▾, [dlx3b](#) ▾, [edn1](#) ▾, [hand2](#) ▾, [sox9a](#) ▾

Genetic Background : [dys^{hi3812}](#) , [WT](#)

Anatomical Terms : [heart](#), [olfactory placode](#), [otic vesicle](#), [pharyngeal arch](#)

Stage Range : [20-25 somites](#) to [Prim-25](#)



Gene expression details

| Gene | Fish | Stage | Qualifier | Anatomy | Assay | |
|--|--------------------------------------|-------------------------|-----------|-----------------------------------|-----------------------------------|-----|
| bapx1 | WT | Prim-25 | | pharyngeal arch | ISH | |
| | dys^{hi3812} | Prim-25 | | pharyngeal arch | ISH | |
| dlx3b | WT | Prim-5 | | olfactory placode | ISH | |
| | | Prim-5 | | otic vesicle | ISH | |
| | | Prim-5 | | pharyngeal arch | ISH | |
| | | Prim-5 | | olfactory placode | ISH | |
| | | Prim-5 | | otic vesicle | ISH | |
| | WT, MO:edn1 | Prim-5 | | <i>Not detected</i> | pharyngeal arch | ISH |
| | | Prim-5 | | | olfactory placode | ISH |
| | | Prim-5 | | | otic vesicle | ISH |
| | | Prim-5 | | | pharyngeal arch | ISH |
| | | Prim-5 | | | olfactory placode | ISH |
| dys^{hi3812} | | Prim-5 | | olfactory placode | ISH | |
| | | Prim-5 | | otic vesicle | ISH | |
| | | Prim-5 | | pharyngeal arch | ISH | |
| | | Prim-5 | | olfactory placode | ISH | |
| dys^{hi3812}, MO:wdr68 | | Prim-5 | | olfactory placode | ISH | |
| | | Prim-5 | | otic vesicle | ISH | |

GenesSearch [Genes/Markers/Clones](#)Search [Gene Expression](#)[BLAST](#) at ZFIN

Nomenclature Conventions

Obtain approval for gene names

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Mutant Phenotype

Search for mutant / transgenic lines Your Input Welcome

Gene/Allele name contains

LG:

Mutagen:

Mutation Type:

Affected Anatomy [Enter one anatomical term per line]

Include substructures Phenotype in:
 Every term entered
 Any term entered

Filters:

- Show only characterized mutations
- Show only transgenics
- Show all

results per page

Mutant Phenotype

[Modify Search](#)
Your Input Welcome

Mutant / Transgenic Lines Search Results (7 records found)

| Genotype(Background) | Phenotype | Allele | Parental Zygosity | Type | Affected Gene(s) | LG | Matching Text |
|---|-----------------------------|-------------|-------------------|----------------|----------------------|----------------------------|--|
| Df(LG10:oepe)b173 (AB) | 1 figure(s) | | | deficiency | oepe | 10 Details | Genetic feature name: Df(LG10: oepe)b173 |
| oepe^{unspecified} | | unspecified | | unknown | oepe | 10 Details | Genetic feature name: un_ oepe |
| oepe^{m134/m134} (AB) | 1 figure(s) | m134 | ♀+/- ♂+/- | point mutation | oepe | 10 Details | Gene symbol: oepe |
| oepe^{st2} | 1 figure(s) | st2 | | deficiency | oepe | 10 Details | Gene symbol: oepe |
| oepe^{tz257/tz257} | 1 figure(s) | tz257 | ♀+/- ♂+/- | unknown | oepe | 10 Details | Gene symbol: oepe |
| oepe^{z1} | 1 figure(s) | z1 | | deficiency | oepe | 10 Details | Gene symbol: oepe |
| stpe^{tl28d} | 1 figure(s) | tl28d | | unknown | stpe | | Gene name: stoepsel |

Modify your search Your Input Welcome

Gene/Allele name:

LG:

Mutagen:

Mutation Type:

Affected Anatomy [Enter one anatomical term per line]

Include substructures Phenotype in:
 Every term entered
 Any term entered

Filters:

- Show only characterized mutations
- Show only transgenics
- Show all

results per page

Mutant Phenotype

ZFIN ID: ZDB-GENO-980202-203

Genotype: *oep*^{m134/m134}

Your Input Welcome

BACKGROUND: [AB](#)

AFFECTED GENE(S): [one-eyed pinhead](#)

PARENTAL GENOTYPE:

m134 ♀+/- ♂+/-

PHENOTYPE: [\(current status\)](#)

Data: [1 figure\(s\)](#) from Phenotype Annotation (1994-2006)

Observed in: [eye](#), [floor plate](#), [hatching gland](#), [heart](#), [nervous system](#), [organ system](#), [sensory system](#), [whole organism](#) ◀

GENE EXPRESSION IN *oep*^{m134/m134} (AB) [\(current status\)](#)

[13 figure\(s\)](#) from 10 publications

CURRENT SOURCE(S):

Not specified

GENOTYPE DETAILS:

| Feature | Details |
|-------------|--|
| <i>m134</i> | Affected Gene(s): oep (Previous Names: cripto , tdgf1 , cb85 , zgc:109829 , one eyed pinhead) Zygoty: homozygous Parental Zygoty: ♀+/- ♂+/- Type: Point Mutation (1) Protocol: adult males treated with ENU Lab of Origin: Driever Lab Map: LG: 10 Details CITATIONS (45) |

[CITATIONS](#) (45)

Mutant Phenotype

[Modify Search](#)
Your Input Welcome

Mutant / Transgenic Lines Search Results (7 records found)

| Genotype(Background) | Phenotype | Allele | Parental Zygosity | Type | Affected Gene(s) | LG | Matching Text |
|---|-----------------------------|-------------|-------------------|----------------|----------------------|----------------------------|--|
| Df(LG10:oepe)b173 (AB) | 1 figure(s) | | | deficiency | oepe | 10 Details | Genetic feature name: Df(LG10: oepe)b173 |
| oepe_{unspecified} | | unspecified | | unknown | oepe | 10 Details | Genetic feature name: un_oepe |
| oepe^{m134/m134} (AB) | 1 figure(s) | m134 | ♀+/- ♂+/- | point mutation | oepe | 10 Details | Gene symbol: oepe |
| oepe^{st2} | 1 figure(s) | st2 | | deficiency | oepe | 10 Details | Gene symbol: oepe |
| oepe^{tz257/tz257} | 1 figure(s) | tz257 | ♀+/- ♂+/- | unknown | oepe | 10 Details | Gene symbol: oepe |
| oepe^{z1} | 1 figure(s) | z1 | | deficiency | oepe | 10 Details | Gene symbol: oepe |
| stp^{tl28d} | 1 figure(s) | tl28d | | unknown | stp | | Gene name: stoepsel |

Modify your search Your Input Welcome

Gene/Allele name:

LG:

Mutagen:

Mutation Type:

Affected Anatomy [Enter one anatomical term per line]

Include substructures Phenotype in:
 Every term entered
 Any term entered

Filters:

- Show only characterized mutations
- Show only transgenics
- Show all

results per page

Mutant Phenotype

ZFIN ID: ZDB-FIG-070105-160

Your Input Welcome

[Phenotype Annotation \(1994-2006\)](#) - Mutant Data Curated from Older Literature.

PHENOTYPE:

Genotype(s): [oeo^{m134/m134}\(AB\)](#) ▼

Observed In: [eye](#), [floor plate](#), [hatching gland](#), [heart](#), [nervous system](#), [organ system](#), [sensory system](#), [whole organism](#)

Stage Range : Unknown



Fig. for (m134)

Original Submitter Comments: Phenotypic class: body axes, eye; Visible at: tailbud; Viability: embryonic lethal (swb-)

Phenotype details

| Fish | Stage | Observed in | Phenotype |
|---|---------|--------------------------------|-----------------------------------|
| oeo^{m134/m134}(AB) ▲ | Unknown | floor plate | abnormal |
| | Unknown | hatching gland | abnormal |
| | Unknown | eye | abnormal |
| | Unknown | heart | abnormal |
| | Unknown | sensory system | abnormal |
| | Unknown | nervous system | abnormal |
| | Unknown | whole organism | lethal (sensu genetics), abnormal |
| | Unknown | organ system | abnormal |

Mutant Phenotype

Search for mutant / transgenic lines

Your Input Welcome

Gene/Allele name

LG:
Mutagen:
Mutation Type:

Affected Anatomy [Enter one anatomical term per line]

vascula

- axial vasculature
- brain vasculature
- branchial vasculature
- caudal fin vasculature
- choroidal vascular plexus
- cranial vasculature
- fin vasculature
- head vasculature
- pectoral fin vasculature
- pharyngeal vasculature
- primordial vasculature
- tail vasculature
- trunk vasculature
- vascular cord
- vasculature

es Phenotype in:
 Every term entered
 Any term entered

Filters:
 Show only characterized mutations
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 results per page

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Mutant Phenotype

Anatomy Terms Searched...

[vasculature](#) has **(11)** mutant/transgenic line(s) (including substructures)

[Modify Search](#)

Your Input Welcome

Mutant / Transgenic Lines Search Results (11 records found)

| Genotype(Background) | Phenotype | Allele | Parental Zyosity | Type | Affected Gene(s) | LG |
|--|-----------------------------|--------|---------------------|----------------------|--------------------------|----------------------------|
| acvr1^{y6} | 1 figure(s) | y6 | | point mutation | acvr1 | 23 Details |
| kdr^{y17} | 1 figure(s) | y17 | | point mutation | kdr | 14 Details |
| miq^{m247} (AB) | 1 figure(s) | m247 | | unknown | miq | |
| plcq1^{m582} (AB) | 1 figure(s) | m582 | | point mutation | plcq1 | 23 Details |
| plcq1^{y10} | 1 figure(s) | y10 | | point mutation | plcq1 | 23 Details |
| plxnd1^{fov01b} | 1 figure(s) | fov01b | | point mutation | plxnd1 | 8 Details |
| plxnd1^{fs31l} | 1 figure(s) | fs31l | | deficiency | plxnd1 | 8 Details |
| plxnd1^{fv109k} | 1 figure(s) | fv109k | | unknown | plxnd1 | 8 Details |
| Tg(fli1:EGFP)y1 | 1 figure(s) | | | transgenic insertion | | |
| Tg(kdr:EGFP)s843 | 1 figure(s) | | | transgenic insertion | | |
| unm m521^{m521} (AB) | 1 figure(s) | m521 | | unknown | unm m521 | |

Modify your search

Your Input Welcome

Gene/Allele name

LG:

Mutagen:

Mutation Type:

Affected Anatomy [Enter one anatomical term per line]

vasculature

Include substructures

Phenotype in:

Every term entered

Any term entered

Filters:

Show only characterized mutations

Show only transgenics

Show all

results per page

SEARCH

RESET

Mutant Phenotype

Anatomy Terms Searched...

[vasculature](#) has **(11)** mutant/transgenic line(s) (including substructures)

Mutant / Transgenic Lines Search Results (2 records found)

[Modify Search](#)

Your Input Welcome

| Genotype(Background) | Phenotype | Allele | Parental Zygosity | Type | Affected Gene(s) | LG |
|----------------------------------|-----------------------------|--------|-------------------|----------------------|------------------|----|
| Tg(fli1:EGFP)y1 | 1 figure(s) | | | transgenic insertion | | |
| Tg(kdr:EGFP)s843 | 1 figure(s) | | | transgenic insertion | | |

Modify your search

Your Input Welcome

Gene/Allele name contains

LG:

Mutagen:

Mutation Type:

Affected Anatomy [Enter one anatomical term per line]

vasculature

Include substructures

Phenotype in:

Every term entered

Any term entered

Filters:

- Show only characterized mutations
- Show only transgenics
- Show all

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Nichane, M., Van Campenhout, C., Pendeville, H., Voz, M.L., and Bellefroid, E.J. (2006) The Na(+)/PO(4) cotransporter SLC20A1 gene labels distinct restricted subdomains of the developing pronephros in *Xenopus* and zebrafish embryos. *Gene Expr. Patterns* Epub ahead of print

➔ Pendeville, H., Peers, B., Kas, K., and Voz, M.L. (2006) Cloning and embryonic expression of zebrafish PLAG genes. *Gene Expr. Patterns* 6(3):267-276.

Van Campenhout, C., Nichane, M., Antoniou, A., Pendeville, H., Bronchain, O.J., Marine, J.C., Mazabraud, A., Voz, M.L., and Bellefroid, E.J. (2006) Evi1 is specifically expressed in the distal tubule and duct of the *Xenopus* pronephros and plays a role in its formation. *Dev. Biol.* 294(1):203-219.

Modify your search

Your Input Welcome

Author contains

Year: equals

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Type:

Abstract contains

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ZFIN ID: ZDB-PUB-060105-15

Cloning and embryonic expression of zebrafish PLAG genes

Pendeville, H., Peers, B., Kas, K., and Voz, M.L.

DATE: 2006 **SOURCE:** Gene Expr. Patterns 6(3):267-276 (Journal)

REGISTERED AUTHORS: [Peers, Bernard](#), [Pendeville-Samain, H el ene](#), [Voz, Marianne](#).

[Generate reference](#)

KEYWORDS: PLAG, Zebrafish, Proliferation, Oncogene, Orthologue, Expression pattern

PubMed: [16378757](#)

FIGURES ([current status](#))

ABSTRACT:

PLAG transcription factors play important roles in oncogenesis. To date three members of this subfamily of zinc finger proteins have been identified in humans and mice: PLAG1, PLAGL1 and PLAGL2. In this study, we identified zebrafish orthologs of PLAG1 and PLAGL2 and a novel member of this family, PLAGX. We examined the temporal expression of these three genes by quantitative real time RT-PCR and found that all three genes are maternally provided, expressed at low level during early somitogenesis and, during late somitogenesis and beyond, PLAG expression increases to reach a plateau level around 5 dpf. Whole mount in situ experiments revealed that PLAG1, PLAGL2 and PLAGX display a similar pattern of expression characterized by a low ubiquitous expression overcome by high expression in some restricted compartments such as the ventricular zone of the brain, the pectoral fin buds, the developing pharyngeal arches and the axial vasculature. We show that this pattern resembles the one observed for the proliferative marker PCNA, suggesting that the PLAG genes are expressed more strongly in zones of active proliferation. This hypothesis was proven for the ventricular zone shown to be a highly proliferative zone using the anti-phosphohistone H3 antibody that detects cells in mitosis.

ADDITIONAL INFORMATION:

- [Genes / Markers](#) (5)
- [Gene Expression Data](#)
- [Orthology](#)

Publications/ Curation Interface

ZFIN ID: ZDB-PUB-060105-15

[Track Curation](#)

Status: Closed 2006-03-06

Cloning and embryonic expression of zebrafish PLAG genes

Pendeville, H., Peers, B., Kas, K., and Voz, M.L.

DATE: 2006

SOURCE: Gene Expr. Patterns 6(3):267-276 (Journal)

REGISTERED AUTHORS: [Peers, Bernard](#), [Pendeville-Samain, H  l  ne](#), [Voz, Marianne](#),

[Generate reference](#)

KEYWORDS: PLAG, Zebrafish, Proliferation, Oncogene, Orthologue, Expression pattern

PubMed: [16378757](#)

FILE: [PDF](#)

[FIGURES](#) ([current status](#))

ABSTRACT:

PLAG transcription factors play important roles in oncogenesis. To date three members of this subfamily of zinc finger proteins have been identified in humans and mice: PLAG1, PLAGL1 and PLAGL2. In this study, we identified zebrafish orthologs of PLAG1 and PLAGL2 and a novel member of this family, PLAGX. We examined the temporal expression of these three genes by quantitative real time RT-PCR and found that all three genes are maternally provided, expressed at low level during early somitogenesis and, during late somitogenesis and beyond, PLAG expression increases to reach a plateau level around 5 dpf. Whole mount in situ experiments revealed that PLAG1, PLAGL2 and PLAGX display a similar pattern of expression characterized by a low ubiquitous expression overcome by high expression in some restricted compartments such as the ventricular zone of the brain, the pectoral fin buds, the developing pharyngeal arches and the axial vasculature. We show that this pattern resembles the one observed for the proliferative marker PCNA, suggesting that the PLAG genes are expressed more strongly in zones of active proliferation. This hypothesis was proven for the ventricular zone shown to be a highly proliferative zone using the anti-phosphohistone H3 antibody that detects cells in mitosis.

ADDITIONAL INFORMATION:

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- [Gene Expression Data](#)
- [Orthology](#)

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Feature Genotype Figure Environment **FX** PATO

ZFIN ID: ZDB-PUB-060105-15

Updated: Mar 6, 2006

Pendeville, H., Peers, B., Kas, K., and Voz, M.L. (2006) Cloning and embryonic expression of zebrafish PLAG genes Gene Expr. Patterns

Attribute Mrkr: Submit Attribute Feature: Submit Remove Data: Submit

Experiments: [hide](#)

| Select | Gene | Fish | Env. | Assay | GenBank | Delete |
|-----------------------|--------|------|-----------|----------------------------|-------------------|----------------------------------|
| <input type="radio"/> | dlx3b | WT | _Standard | mRNA in situ hybridization | | <input type="button" value="X"/> |
| <input type="radio"/> | pcna | WT | _Standard | mRNA in situ hybridization | | <input type="button" value="X"/> |
| <input type="radio"/> | plag1 | WT | _Standard | mRNA in situ hybridization | AY864859 (plag1) | <input type="button" value="X"/> |
| <input type="radio"/> | plag1 | WT | _Standard | Reverse transcription PCR | | <input type="button" value="X"/> |
| <input type="radio"/> | plagl2 | WT | _Standard | mRNA in situ hybridization | AF186476 (plagl2) | <input type="button" value="X"/> |
| <input type="radio"/> | plagl2 | WT | _Standard | Reverse transcription PCR | | <input type="button" value="X"/> |
| <input type="radio"/> | plagx | WT | _Standard | mRNA in situ hybridization | AY864858 (plagx) | <input type="button" value="X"/> |
| <input type="radio"/> | plagx | WT | _Standard | Reverse transcription PCR | | <input type="button" value="X"/> |

Add

Show: Only Fig: Only GENE: Only FISH: auto on:

Expression: [hide](#)

| Select | Figure | Experiment | Stage Range | Expressed in | Delete |
|-------------------------------------|--------|---------------------------------|-------------------------------|--|----------------------------------|
| <input type="checkbox"/> | Fig. 5 | plag1 WT _Standard ISH AY864859 | 20-25 somites (19.00h-22.00h) | whole organism | <input type="button" value="X"/> |
| <input type="checkbox"/> | Fig. 5 | plag1 WT _Standard ISH AY864859 | Prim-5 (24.00h-30.00h) | brain , eye , head mesenchyme , otic vesicle , pharyngeal arch , ventricular zone | <input type="button" value="X"/> |
| <input type="checkbox"/> | Fig. 5 | plag1 WT _Standard ISH AY864859 | Prim-15 (30.00h-36.00h) | brain , eye , head mesenchyme , otic vesicle , pectoral fin , pharyngeal arch , ventricular zone | <input type="button" value="X"/> |
| <input type="checkbox"/> | Fig. 5 | plag1 WT _Standard ISH AY864859 | Prim-25 (36.00h-42.00h) | axial vasculature , brain , eye , head mesenchyme , lens , otic vesicle , pectoral fin , pharyngeal arch , ventricular zone | <input type="button" value="X"/> |
| <input checked="" type="checkbox"/> | Fig. 5 | plag1 WT _Standard ISH AY864859 | Long-pec (48.00h-60.00h) | axial vasculature , brain , eye , head mesenchyme , lens , neurocranium , otic vesicle , pectoral fin , pharyngeal arch , ventricular zone | <input type="button" value="X"/> |

Fig. 5 plag1 WT _Standard ISH AY864859 Long-pec (48.00h-60.00h) axial vasculature , brain , eye , head mesenchyme , lens , neurocranium , otic vesicle , pectoral fin , pharyngeal arch , ventricular zone

Fig. 5 plag1 WT _Standard ISH AY864859 Start: Long-pec (48.00h-60.00h) End: Long-pec (48.00h-60.00h)

Structure: [hide](#)

Fig. 5 plag1 WT _Standard ISH AY864859 Long-pec

| <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> | Modifier | Structure | Remove |
|----------------------------------|----------------------------------|-----------------------|----------|--|----------------------------------|
| <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> | | axial vasculature (26+ somites - Adult) | <input type="button" value="x"/> |
| <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> | | brain (10-13 somites - Adult) | <input type="button" value="x"/> |
| <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> | | eye (5-9 somites - Adult) | <input type="button" value="x"/> |
| <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | | gut (10-13 somites - Adult) | <input type="button" value="x"/> |
| <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | | head (Bud - Adult) | <input type="button" value="x"/> |
| <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> | | head mesenchyme (1-4 somites - Pec-fin) | <input type="button" value="x"/> |
| <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | | lateral plate mesoderm (1-4 somites - Prim-5) | <input type="button" value="x"/> |
| <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> | | lens (20-25 somites - Adult) | <input type="button" value="x"/> |
| <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> | | neurocranium (High-pec - Adult) | <input type="button" value="x"/> |
| <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> | | otic vesicle (14-19 somites - Day 4) | <input type="button" value="x"/> |
| <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> | | pectoral fin (Prim-15 - Adult) | <input type="button" value="x"/> |
| <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> | | pharyngeal arch (10-13 somites - unk) | <input type="button" value="x"/> |
| <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | | retinal ganglion cell layer (Prim-15 - Adult) | <input type="button" value="x"/> |
| <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | | spinal cord (Prim-5 - Adult) | <input type="button" value="x"/> |
| <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | | trunk (Bud - Adult) | <input type="button" value="x"/> |
| <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> | | unspecified (1-cell - Adult) | <input type="button" value="x"/> |
| <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | | ventricular system (10-13 somites - Adult) | <input type="button" value="x"/> |
| <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> | | ventricular zone (Prim-5 - Days 45-89) | <input type="button" value="x"/> |
| <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | | whole organism (1-cell - Adult) | <input type="button" value="x"/> |

 Detected not

[Open AO to stage](#) Long-pec (48.00h-60.00h) Add Term:

Curation Interface

Attribute Mrkr: Attribute Feature: Remove Data:

Mutants:

[no scrollbars](#)

| Select | Fig | Genotype | Environment | Stage | Phenotype | Delete |
|--------------------------|--------|----------|-------------|----------|-------------------------|----------------------------------|
| <input type="checkbox"/> | Fig. 3 | WT | _Standard | Long-pec | brain - size [abnormal] | <input type="button" value="X"/> |

start:
 end:

Phenotype:

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| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | Entity | Quality | Tags | Remove |
|-----------------------|-----------------------|-----------------------|-------------|---------|----------|----------------------------------|
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | brain | size | abnormal | <input type="button" value="X"/> |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | unspecified | quality | abnormal | <input type="button" value="X"/> |

Entity A:

part of

Entity B:

Quality:

Tag:

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Genotype: *Tg(fli1:EGFP)y1*

Your Input Welcome

BACKGROUND: unspecified

PHENOTYPE: [\(current status\)](#)Data: [1 figure\(s\)](#) from Phenotype Annotation (1994-2006)Observed in: [vasculature](#)GENE EXPRESSION IN *Tg(fli1:EGFP)y1* [\(current status\)](#)[10 figure\(s\)](#) from 5 publications

CURRENT SOURCE(S):

Lines carrying the following genetic features are available from:

Tg(fli1:EGFP)y1[Zebrafish International Resource Center \(ZIRC\)](#) ([order this](#))

GENOTYPE DETAILS:

| Feature | Details |
|------------------------|---|
| <i>Tg(fli1:EGFP)y1</i> | <p>Previous Name(s): <i>Tg(fli1:EGFP)</i> Nomenclature History</p> <p>Zygoty: unknown</p> <p>Type: Transgenic Insertion</p> <p>Protocol: treated with DNA</p> <p>Construct: Tg(fli1:EGFP)</p> <p>Lab of Origin: Weinstein Lab</p> <p>Map: None submitted</p> <p>CITATIONS (35)</p> |

[CITATIONS](#) (35)

GO DetailsGene Name: *distal-less homeobox gene 3b*Gene Symbol: [dlx3b](#)

| Ontology | GO Term | Evidence | Inferred From | Reference(s) |
|--|---|------------------------------------|--|-------------------|
| Molecular Function | DNA binding | IEA | InterPro:IPR012287 | 1 |
| | DNA binding | IEA | SP_KW:KW-0371 | 1 |
| | DNA binding | IEA | SP_KW:KW-0238 | 1 |
| | sequence-specific DNA binding | IEA | InterPro:IPR001356 | 1 |
| | transcription factor activity | IEA | InterPro:IPR001356 | 1 |
| | transcription factor activity | IEA | InterPro:IPR000047 | 1 |
| Biological Process | cartilage development | IGI | MO1-dlx5a MO1-dlx3b | 1 |
| | endocrine system development | IGI | MO1-dlx3b MO1-dlx4b | 1 |
| | eye development (sensu the Actinopterygii research community) | IGI | MO1-dlx4b MO1-dlx3b | 1 |
| | otic placode formation | IGI | dlx4b | 1 |
| | otic placode formation | IGI | dlx4b sox9a | 1 |
| | otic placode formation | IGI | nos^{em1} | 1 |
| | otic placode formation | IGI | nos^{em1} dlx4b | 1 |
| | otic placode formation | IMP | | 1 |
| | otic placode formation | IMP | MO2-dlx3b | 1 |
| | otic placode formation | IMP | | 1 |
| | otic vesicle formation | IGI | dlx4b | 1 |
| | otic vesicle formation | IGI | nos^{em1} dlx4b | 1 |
| | otic vesicle formation | IGI | nos^{em1} | 1 |
| | otic vesicle formation | IMP | | 1 |
| | regulation of transcription | IEA | InterPro:IPR012287 | 1 |
| | regulation of transcription, DNA-dependent | IEA | InterPro:IPR000047 | 1 |
| regulation of transcription, DNA-dependent | IEA | InterPro:IPR001356 | 1 | |
| Cellular Component | nucleus | IEA | InterPro:IPR001356 | 1 |
| | nucleus | IEA | InterPro:IPR000047 | 1 |

Gene Name: *distal-less homeobox gene 3b*

Your Input Welcome

Gene Symbol: *dlx3b*

Previous Names: zgc:91827, dlx3, dlx-3, wu:fb83f11, id:ibd3531(1)

[Nomenclature History](#)Curator Notes: [Add Notes](#)**GENE EXPRESSION:**([current status](#))All expression data: [64 figure\(s\)](#) from 42 publicationsDirectly submitted expression data: [6 figure\(s\) \(36 images\)](#) from Thisse *et al.*, 2005 [eu221][5 figure\(s\) \(8 images\)](#) from Kudoh *et al.*, 2001 [ibd3531]**MUTANTS AND TARGETED KNOCKDOWNS:**Mutant line(s): [1 genotype \(1 allele\)](#)Phenotype: ([current status](#))Data: [1 figure\(s\)](#) from Phenotype Annotation (1994-2006)Observed in: [sensory system, somite](#)Knockdown reagents: [MO1-dlx3b](#), [MO2-dlx3b](#), [MO3-dlx3b](#), [MO4-dlx3b](#)**GENE PRODUCTS:****Gene Ontology**

| Ontology | GO Term |
|-----------------------------------|--|
| Molecular Function | DNA binding (more) |
| Biological Process | cartilage development (more) |
| Cellular Component | nucleus |
| All GO Terms (11) | |

Protein Families, Domains and Sites:

- [InterPro:IPR000047 \(1\)](#)
- [InterPro:IPR001356 \(1\)](#)
- [InterPro:IPR009057 \(1\)](#)
- [InterPro:IPR012287 \(1\)](#)
- [PROSITE:PS00027 \(1\)](#)
- [PROSITE:PS50071 \(1\)](#)
- [Pfam:PF00046 \(1\)](#)

[Gene Product Description](#)**SEGMENT (CLONE AND PROBE) RELATIONSHIPS:**

dlx3b Encodes [\[EST\] eu221 \(1\)](#), [fb83f11](#), [ibd3531 \(1\)](#) ([order this](#))
[\[cDNA\] MGC:91827 \(1\)](#) ([order this](#))

SEQUENCE INFORMATION:

| Type | Accession # | Length | Analysis |
|------|-------------|--------|-----------------------------------|
| ... | ... | ... | [- Select Tool -] |