



# ZFIN NEWS

The Zebrafish Information Network

<http://zfin.org>

Volume 6, Number 1  
Winter 2009

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## Antibodies in the Mainstream

We are pleased to announce that antibodies are now flowing in many parts of ZFIN. As new antibody data is curated from publications and submitted by researchers, we anticipate this new tributary will swell rapidly.

Finding an antibody is easy when you use the antibody search page. The search page can be accessed from the ZFIN home page or from any ZFIN page using the research tab of the green navigation bar.

The antibody search page (Fig. 1) allows you to search for antibodies by name, recognized gene product and labeled anatomy. Additional search options include host organism, monoclonal/polyclonal, and type of assay.

The screenshot shows the ZFIN website's antibody search interface. At the top, there is a navigation bar with tabs for 'Research', 'General Information', and 'ZIRC'. Below this, a green bar contains links for 'Home', 'Genes / Markers / Clones', 'Expression', 'Antibodies', 'BLAST', 'Mutants / Tg', 'Anatomy', 'Maps', and 'Publications'. The main search area is titled 'Search for Antibodies' and includes a 'Search Tips' link and a 'Your Input Welcome' button. The search criteria are as follows:

- Antibody Name:** A dropdown menu set to 'contains' followed by a text input field.
- Antigen Gene:** A dropdown menu set to 'contains' followed by a text input field.
- Labeled Anatomy:** A text input field with the placeholder 'Enter search terms' and a note 'Enter 3 or more letters'. There are checkboxes for 'Include substructures' (checked) and radio buttons for 'Every term entered' (selected) and 'Any term entered'.
- Host Organism:** A dropdown menu set to 'Any'.
- Assay:** A dropdown menu set to 'Any'.
- Between stages:** Two dropdown menus, the first set to 'Zygote:1-cell' and the second to 'Adult', followed by an ampersand '&'.
- Developmental Staging Series:** A link to a series of developmental stages.
- Monoclonal/Polyclonal:** Radio buttons for 'Monoclonal', 'Polyclonal', and 'Both Types' (selected).
- Show only ZIRC Antibodies:** Radio buttons for 'Show only ZIRC Antibodies' and 'Show All' (selected).
- Results per page:** A text input field set to '25' followed by the text 'results per page'.

At the bottom right, there are 'Search' and 'Reset' buttons.

Figure 1. The antibody search page

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## Antibodies in the Mainstream

(continued from pg. 1)

Antibody search leads to antibody detail pages that hold a summary of information available for each antibody. As shown in the Ab1-elavl detail page (Fig. 2), each antibody is given a unique name that begins with Ab#- followed, when possible, by an antigen gene or gene family abbreviation. The #-number reflects the order in which the antibody was added to ZFIN. For example, if a prox1 antibody is discussed in a publication and ZFIN already holds a different prox1 antibody called Ab1-prox1, the new antibody would be named Ab2-prox1. All alternative/previous antibody names are stored so that searches will lead to the correct antibody record.

Information on antigen genes, isotype, anatomical labeling, and source is displayed on the antibody detail page (Fig. 2). A summary of anatomical labeling in wild-type fish is shown, with detailed labeling information available by following the figure links in the “Data” column.

<b>Antibody Name:</b>	<b>Ab1-elavl</b>			
<b>Alias:</b>	Ab1-elavl3/4 (1) , Anti-Hu (16A11) (1) , Anti-HuC/HuD (1)			
<b>Host Organism:</b>	Mouse			
<b>Immunogen Organism:</b>	Human			
<b>Isotype:</b>	IgG2b			
<b>Type:</b>	monoclonal			
<b>Assays:</b>	Immunohistochemistry			
<b>Antigen Genes:</b>	<a href="#">elavl3</a> (1) , <a href="#">elavl4</a> (1)			
<b>NOTES:</b>	None Submitted			
<b>ANATOMICAL LABELING</b>				
<b>Anatomy</b>	<b>Stage</b>	<b>Assay</b>	<b>Gene</b>	<b>Data</b>
<a href="#">central nervous system</a>	<a href="#">Protruding-mouth</a>	IHC		<a href="#">text only</a> from Henion <i>et al.</i> , 1996
<a href="#">dorsal root ganglion</a>	<a href="#">Protruding-mouth</a>	IHC		<a href="#">3 figures</a> from Henion <i>et al.</i> , 1996
<a href="#">enteric nervous system</a>	<a href="#">Long-pec</a>	IHC		<a href="#">1 figure</a> from Olsson <i>et al.</i> , 2008
	<a href="#">Protruding-mouth</a> to <a href="#">Day 5</a>	IHC		<a href="#">1 figure</a> from Olsson <i>et al.</i> , 2008
	<a href="#">Day 4</a>	IHC		<a href="#">2 figures</a> from Heanue <i>et al.</i> , 2008
<a href="#">Show all 24 labeled structures</a>				
<b>SOURCE:</b>				
<a href="#">Abcam Inc.</a>				
<a href="#">Molecular Probes, Inc.</a>				
<b>CITATIONS</b> (10)				

Figure 2. Antibody Detail Page

Figure pages now include antibody labeling information. Antibodies are shown in the expression/labeling section, the gene expression details (if the antigen gene is known) and the antibody labeling details. Take a moment to scroll down the page the next time you view a figure page.

Gene pages now have an antibody section. The antibody section of a gene page shows all antibodies that recognize products of the gene. To help you find good labels for anatomy, antibodies have been added to anatomical structure pages. Antibody links on these pages lead to antibody detail pages for easy access to detailed antibody information.

There are currently over 140 antibodies listed in the database with more being added daily. Time constraints do not allow for systematic back-curation of all antibody labeling data from older papers. However, you are invited to request the addition of your favorite antibodies or provide antibody data by contacting us at [zfinadmn@zfin.org](mailto:zfinadmn@zfin.org).

## Figure Gallery – A Sneak Peek at Expression Images

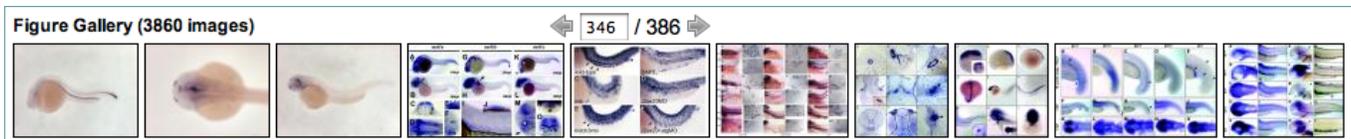
Impatient with gene expression searches? Tired of wading through figure pages just to find a good-looking figure? Now there is a better way - **Figure Gallery** lets you rapidly browse expression figures before diving into annotated figure pages.

It's easy. Start a gene expression search the same way as usual, [here](#).

Let's look for gene expression in the pronephros:

The screenshot shows a search interface with several filter sections. On the left, there are input fields for 'Gene/EST name', 'Genotype or Background', 'MO knockdown: Gene name', and 'Author', each with a 'contains' dropdown. Below these is an 'Anatomy Terms' section with a search box containing 'pronephros' and a 'Search' button. On the right, there is a 'Between stages' section with dropdowns for 'Zygote:1-cell' and 'Adult', and a 'Developmental Staging Series' link. Below that is an 'Assay' dropdown set to 'ANY'. There are also several checkboxes: 'Show only WT expression' (with a 'NEW' tag), 'Show only figures with images', 'Show only direct submission data', 'Show only published literature', and 'Show all' (which is selected). At the bottom right, there is a 'Search' button and a 'Reset' button.

At the top of the usual gene expression search results, there is something new - a strip of small thumbnail images. This is the **Figure Gallery**:



Each thumbnail represents a figure image from your expression search results. There are ten thumbnails in each strip.

*(continued on pg. 4)*

### Linking your website to ZFIN records

Are you developing a website that would benefit from linking directly to ZFIN data pages? We recommend the following method.

All ZFIN data pages have a ZFIN id number, which is available in the center of each page directly under the navigation bar. To link to that page, simply note the ZFIN\_id, then include it in the following manner:

[http://zfin.org/cgi-bin/ZFIN\\_jump?record=ZDB-GENE-980528-2060](http://zfin.org/cgi-bin/ZFIN_jump?record=ZDB-GENE-980528-2060)

We also provide a suite of data files representing the majority of data in ZFIN. This data may be helpful in identifying ZFIN IDs of interest. These files are available by following the Download Data link on our home page.

## Figure Gallery – A Sneak Peek at Expression Images

(continued from pg. 3)

A typical search returns many thumbnail strips. Navigate through the strips using the controls above the strip. You can enter a strip number in the counter box or walk through strips using the arrows. Strip navigation is very fast because no page-loading is necessary.

Mousing-over a thumbnail pops up a medium-sized version of the image. Clicking the mid-sized image loads a full-sized version of the image. Links on the pop-up lead to the associated figure page and gene pages.

Figure Gallery (3860 images) 346 / 386

Gene: [trpv4](#)

Gene	Expression Data (current)
<a href="#">abat</a>	3 figure(s) from Thisse
<a href="#">abca1a</a>	1 figure(s) from Thisse
<a href="#">acadvl</a>	2 figure(s) from Thisse
<a href="#">aco2</a>	2 figure(s) from Thisse
<a href="#">add1</a>	8 figure(s) from 2 public
<a href="#">adh5</a>	1 figure(s) from Cañest
<a href="#">adka</a>	2 figure(s) from Thisse
<a href="#">adob</a>	2 figure(s) from Thisse
<a href="#">agbl5</a>	2 figure(s) from Thisse
<a href="#">agpat3</a>	2 figure(s) from Thisse
<a href="#">agrn</a>	1 figure(s) from Kim et al.
<a href="#">agxt2</a>	5 figure(s) from Thisse
<a href="#">agxtl</a>	2 figure(s) from Thisse
<a href="#">ahcyl1</a>	4 figure(s) from Thisse
<a href="#">ahcyl2</a>	4 figure(s) from Thisse
<a href="#">ak3l1</a>	1 figure(s) from Thisse
<a href="#">aktip</a>	1 figure(s) from Thisse
<a href="#">alas1</a>	4 figure(s) from Thisse
<a href="#">alas2</a>	1 figure(s) from Thisse
<a href="#">aldh1a2</a>	2 figure(s) from Grander et al., 2002
<a href="#">aldh4a1</a>	1 figure(s) from Thisse et al., 2004
<a href="#">aldh6a1</a>	3 figure(s) from Thisse et al., 2001

Mangos et al., 2007 Fig. 3

50%-epiboly to Long-pec  
High-pec to Long-pec  
20-25 somites to Long-pec

## Technical Note Regarding y1 and ISH Assays

The y1 line is known to exhibit high background staining in whole mount in situ hybridization assays performed with probes generated from plasmid templates. PCR generated templates which avoid plasmid sequence are reported to be less problematic.

## Clone Artifacts and Withdrawn Genes

ZFIN now allows you to view information classifying cDNA and EST clones as artifacts. Clones are classified as artifacts if they are chimeric, partially processed, intron-containing or subject to nonsense mediated decay (NMD). This assessment is made by ZFIN curators as part of the regular curatorial process or by curators at the Sanger Institute during the annotation of zebrafish genome sequence. Information on the type of problem is displayed in the “Problem Type” field along with an icon alerting the user. The problem clones are associated with genes using a “has artifact” relationship in the SEGMENT (CLONE AND PROBE) RELATIONSHIPS section in the gene page.

The screenshot shows the ZFIN website interface. At the top left is the ZFIN logo. A navigation bar includes 'Research', 'General Information', and 'ZIRC'. Below this is a secondary navigation bar with 'Home', 'Genes / Markers / Clones', 'Expression', 'Antibodies', 'BLAST', 'Mutants / Tg', 'Anatomy', 'Maps', and 'Publications'. A search box labeled 'Site Search:' is on the top right. The main content area displays 'ZFIN ID: ZDB-CDNA-041114-203'. Below this, the 'cDNA Name: MGC:92577' is shown, followed by 'Problem Type: Chimeric' with a warning icon. A 'Your Input Welcome' button is on the right. The 'CLONE DATA:' section includes: 'Species: Danio rerio', 'Library: Sugano SJD adult male', 'Cloning Site: EcoRI-PstI', 'Digest:', 'Insert Size: 3000', 'Vector: pME18S-FL3', 'Vector Type: Plasmid', and 'Polymerase: T3 RNA polymerase'. The 'PCR Amplification:' section describes the reaction conditions and provides the 5' and 3' primer sequences. A 'Source:' link points to the Zebrafish Gene Collection (ZGC) with an 'order this' link. A link to the 'Thisse in situ hybridization protocol' is also present.

In addition, genes that have been derived from chimeric clones and non-zebrafish genes are classified as “WITHDRAWN” genes at ZFIN. These genes have “WITHDRAWN:” included in the gene name and gene symbol to alert you of the change in gene status. Expression information from chimeric clones are also omitted from the expression search results for the associated genes. 

The screenshot shows the ZFIN website interface for a withdrawn gene. It features the same navigation and search elements as the previous screenshot. The main content area displays 'ZFIN ID: ZDB-GENE-041114-203'. Below this, the 'Gene Name: WITHDRAWN: zgc:92577' and 'Gene Symbol: WITHDRAWN: zgc:92577' are shown, followed by 'Previous Names: zgc:92577(1)' and a 'Nomenclature History' link. A red text message states: 'This gene has been withdrawn because it was derived from a chimeric clone.' A 'Your Input Welcome' button is on the right.

### Share newsworthy items with your colleagues

We invite your submissions to the ZFIN Home Page News section.  
Contact Jonathan Knight at [zfinadm@zfin.org](mailto:zfinadm@zfin.org).

# Zebrafish Single nucleotide polymorphisms (SNPs):

The first phase of zebrafish SNP implementation in ZFIN is complete and it allows you to retrieve all SNPs that have been mapped to a genomic clone. This information can be accessed from the clone page by clicking the Retrieval Details link in the Marker Relationships section.

**ZFIN** Site Search:

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

ZFIN ID: ZDB-BAC-050218-1

**BAC Name:** CH211-10316 Your Input Welcome

**CLONE DATA:**

**Species:** Danio rerio **Strain:** [Tuebingen](#) **Sex:** male

**Tissue:** [testis](#)

**Library:** CHORI-211 **Host:** E. coli DH10B

**Vector:** pTARBAC2.1 **Vector Type:** BAC

**Source:** [BACPAC Resources Center \(BPRC\)](#) [\(order this\)](#)

**MARKER RELATIONSHIPS:**

CH211-10316 Contains [Gene] [abcb6](#), [c2orf24](#), [fam134a](#)

CH211-10316 Contains [SNP] [Retrieval Details \(2\)](#)

The subsequent page offers users the choice of retrieving a text file with a list of SNPs or to conduct a batch query at dbSNP at NCBI. Instructions for the batch query are available by selecting the 'Instructions' link. Several different format options are available at NCBI for the dbSNP query results. Full ZFIN support of zebrafish SNPs including search, retrieval and gene associations is slated to occur after the release of a genome browser in ZFIN. 

**ZFIN** Site Search:

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

ZFIN ID: ZDB-BAC-050218-1

**SNP Retrieval Details**

**Clone Name:** CH211-10316 Your Input Welcome

**Note:** The list of reference SNPs mapped on this genomic clone has been retrieved through data exchange between NCBI and ZFIN. These reference SNP identifiers are created by NCBI during periodic 'builds' of the dbSNP database.

**SNP Retrieval** [\(current status\)](#)

Retrieve 301 reference SNP IDs [\(text\)](#)

**Batch Query:**

Detailed information for the list of reference SNPs on this clone can be obtained through a batch query at dbSNP. To launch a dbSNP batch query, click the "Batch Query" button below.

[Batch Query](#) [Instructions](#)