

Introducing **Xenbase v5.0** including Phenotypes, a new look and integrated *X. tropicalis* v10.0 genome.

***Xenopus* Phenotypes now live!**

Anatomy Phenotypes, e.g., phenotypes of gross morphology, organ, tissue, cellular and molecular changes or aberrant behavior, are now curated from published articles. **Manual Expression Phenotype** (aka EP) captures the vast amount of *Xenopus* data from *changes in gene expression* from ISH and IHC data. Similarly up and down regulated gene expression identified in high throughput sequencing projects (e.g., RNA-Seq) from GEO as captured as **Computed Expression Phenotypes**. Phenotypes are curated from a wide range of experiments including morpholino, TALEN and CRISPR gene knockout/knockdown, transgenes and mutations, effects of toxins, reagents and drugs, and other experimental perturbations and stressors. Curation is ongoing, and more data is added every day, with our highest priority being *Xenopus* models of human disease.

Explore the **Phenotype Search** [here](#) .

- Searching phenotypes is easy - just enter any gene symbol or tissue, organ, or cell type to find relevant phenotype data.
- Disease models can be searched by disease name or their associated gene(s)
- [A video tutorial showing you how to navigate around Phenotypes is coming soon!](#)

Need help? Click [here](#) for a quick guide to the Phenotype Search.

Contact us with questions or feedback: Xenbase@ucalgary.ca

Thanks to our volunteer Phenotype beta-testers who provide insights and feedback. Thank you Jessica, Cindy, Robb, Scott, Margaret, Nicole, Pai, Agustin, Peter, Thomas, Maria-Belén and Dan,!

New Xenbase Homepage Design

Our redesigned [homepage](#) has a cleaner look and more stream-lined menus and links. We hope you like it! Changes to note:

- The **Quick Search** is now across the top of the homepage.
- News, announcements and article spotlight still in front and center in the rotating carousel.
- A new tile for **Phenotypes & Disease Models**.
- **Genomes & Genomics, Gene Expression, Anatomy & Development** tiles collate the most used resources.
- **Literature, Community, Reagents & Protocols, Stock Centers** are all now accessed from the lower panel) as well as general information about Xenbase and *Xenopus* as a model.
- All content is available via drop down menus in the header as before.

See next page for the new look Xenbase homepage!

Our designed homepage is cleaner, less cluttered and makes room for new features.

The screenshot displays the Xenbase website interface. At the top right, there are links for 'Logout', 'My Account', 'Contact Us', and 'Citing Xenbase'. The main navigation bar includes categories like 'BLAST', 'Genomes', 'Expression', 'Genes', 'Phenotypes', 'Anatomy & Development', 'Reagents & Protocols', 'Community', 'Stock Center', and 'Download'. A search bar is located below the navigation bar, with a search button. The main content area features a 'Phenotype Search' section with a search input field and a list of results. To the right, there are sections for 'Latest Xenbase Contents' and 'Announcements'. Below the main content, there are four columns of featured content: 'Genomes & Genomics', 'Gene Expression', 'Phenotypes & Disease Models', and 'Anatomy & Development'. At the bottom, there is a sidebar with navigation links and a central area with a list of resources and two images of Xenopus embryos.

Phenotypes on Xenbase
The latest release of Xenbase includes the ability to search for Phenotypes.

Latest Xenbase Contents
New Gene Pages (50)
Latest Articles (28)
Mutants! (98)
Open Job Postings (9)
Tutorial Videos (5)

Announcements
Xenopus Models of Organogenesis and Disease
MBL Virtual Programs
18th International Xenopus Conference
2020 Xenopus White Paper
Identification of Genetic and Genomic Variants by Next-Gen Sequencing in Non-human Animal Models (U01)
See all Announcements

Genomes & Genomics
X. laevis v9.2 on JBrowse
X. tropicalis v10.0 on JBrowse **New**
GBrowse
GEO ChIP-Seq
Other Browsers and Archives
BLAST *Xenopus*
BLAST Mitochondrial Genomes
BLAST Other Amphibians

Gene Expression
Gene Expression Search
Anatomy Search
GEO RNA-Seq
RNA-Seq stages and tissues
X. laevis Protein Expression
miRNA Catalog

Phenotypes & Disease Models
Phenotype Search **New** (e.g. [microphthalmia](#), [retina](#), [pax6](#))
Mutants
Xenopus Phenotype Ontology (XPO)
Disease Models

Anatomy & Development
Anatomy Atlas
Developmental Images
Movies of Development
Time/Temp Charts
Cell Fate Maps
Xenopus Anatomy Ontology (XAO)

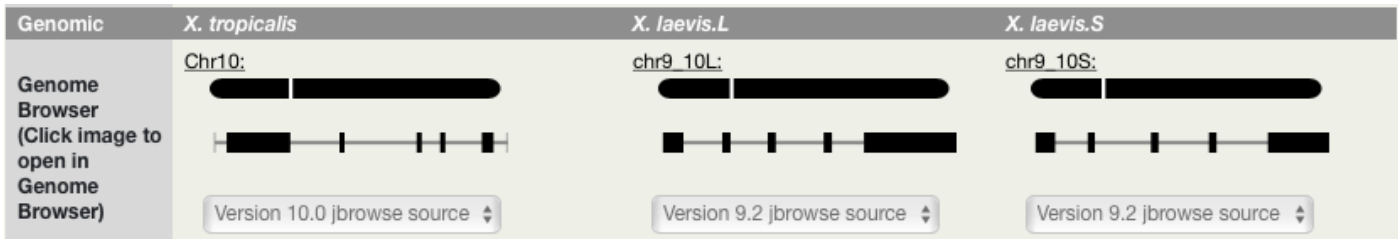
About Xenopus
About Xenbase
Literature & Community
Reagents & Protocols
Stock Centers
External Genomic Resources

- Antibodies
- Morpholinos
- ORFeome
- CRISPR/TALEN Support
- Transgenic Lines

- Small Molecules Wiki
- Protocols Wiki
- Obtain Clones
- Obtain Frogs and Equipment
- Transgenic Constructs

Latest *X. tropicalis* v10.0 genome is now fully integrated in Xenbase.

- The new *X. tropicalis* v10.0 genome is everywhere it should be across Xenbase- on the Gene Pages, as an option BLAST, on JBrowse and GBrowse, and incorporated on MO pages.



Improvements to Morpholino Pages

- Morpholinos are now aligned to *X. tropicalis* v10.0 and *X. laevis* v9.2 to show **target** and **off-target** hits. *Did you know there are 2670 Xenopus MOs in Xenbase ?*
- Morpholino JBrowse track is now available for both *X. tropicalis* v10.0 and *X. laevis* v9.2.
- Morpholino pages also have a snapshot of the MO aligned to new genomes.

Summary [Attributions](#) [Wiki](#)

XB-MORPHOLINO-17251697

Morpholino Name: pax8 MO2

Synonyms:

mRNA Target: [pax8](#)

Morpholino Type: translation blocking morpholino (5' UTR)

Sequence:
5' CTAGTCCCTGGTAAATCCACAGTGC 3'

Source: [Gene Tools LLC](#)

mRNA Target	tropicalis	laevis.L	laevis.S
Identities	24/25	22/25	25/25
genomic	5' GCACTGTGGATTACCAGGGACTCG 3'	5' GCTCTGTGGATTACCAGGGACTCA 3'	5' GCACTGTGGATTACCAGGGACTAG 3'
MO	3' CGTGACACCTAAATGGTCCCTGATC 5'	3' CGTGACACCTAAATGGTCCCTGATC 5'	3' CGTGACACCTAAATGGTCCCTGATC 5'

Genomic Alignments	Position	Identity	Strand	Target	mRNA
laevis 9.2	chr3S:26440526..26440550	25/25	Antisense	target	pax8.S
	chr3L:118183481..118183505	22/25	Antisense	target	pax8.L
tropicalis 10.0	Chr3:125804949..125804973	24/25	Antisense	target	pax8
	Chr8:10886529..10886553	21/25	Sense	off-target	LOC116406899
	Chr8:10886529..10886553	21/25	Antisense	off-target	Xetrov107052389m.g

Publications

First: [Pax8 and Pax2 are specifically required at different steps of Xenopus pronephros development.](#), *Dev Biol* 2015

Improvements to Gene Pages

- Link to CRISPRscan tracks (Guide RNAs for Coding regions) and available Mutant lines (from NXR and EXRC) now listed as Reagents on Gene Pages.
- Rat orthologues added with links to the Rat Genome Database (RGD).
- UniProt proteins and InterPro Links now on Gene Page/Protein tab.
- More Disease resources (see External Links) added to summary: COSMIC, MARRVEL, GTR, dbVAR, GHR and gnomAD.
- Gene Pages for all mtDNA genes and mitochondrial tRNAs.

Summary Expression **Gene Literature (609)** GO Terms (32) Nucleotides (124) Proteins (62) Interactants (1103) Wiki

XB-GENEPAGE-483692

Gene Symbol: *pax8*

Gene Name: *paired box 8*

Synonyms: *XPax8*, *XPax-8*, *pax-8* (Add synonyms, Nomenclature history)

Gene Function: paired box transcription factor

Protein Function ⓘ: Probable transcription factor. Involved in kidney development, acting synergistically with *lhx1/lim-1* to establish the pronephric primordium in late gastrulae/early neurulae.

InterPro ⓘ: Pax2 C, Paired dom, WH-like DNA-bd sf, Homeobox-like sf [±]

Interactants: Human Physical (26), Co-citation (725), Co-expression (2), Co-regulation (350)

Diseases:

Disease Ontology: [congenital nongoitrous hypothyroidism 2](#)

OMIM: [HYPOTHYROIDISM, CONGENITAL, NONGOITROUS, 2; CHNG2](#)

External Links: [ClinVar](#), [ClinGen](#), [MalaCards](#), [KEGG Disease](#), [DECIPHER](#), [COSMIC](#), [MARRVEL](#), [GTR](#), [DisGeNET](#), [dbVAR](#), [GHR](#), [gnomAD](#)



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Citing Xenbase

If you use Xenbase, please cite us in your papers. Xenbase (<http://www.xenbase.org/>, RRID:SCR_003280)

General article on Xenbase: *Karimi et al. 2018, NAR 46:D1:D861-868, doi:10.1093/nar/gkx936.*

GEO data: *Fortriede et al. 2020, NAR 48:D1:D776-782. doi:10.1093/nar/gkz933*

Disease Research: *Nenni et al. 2019, Frontiers in Physiology, Vol.10, doi:10.3389/fphys.2019.00154*

Impressed? Find a bug? Contact us with comments, questions or feedback: Xenbase@ucalgary.ca