



Xenbase

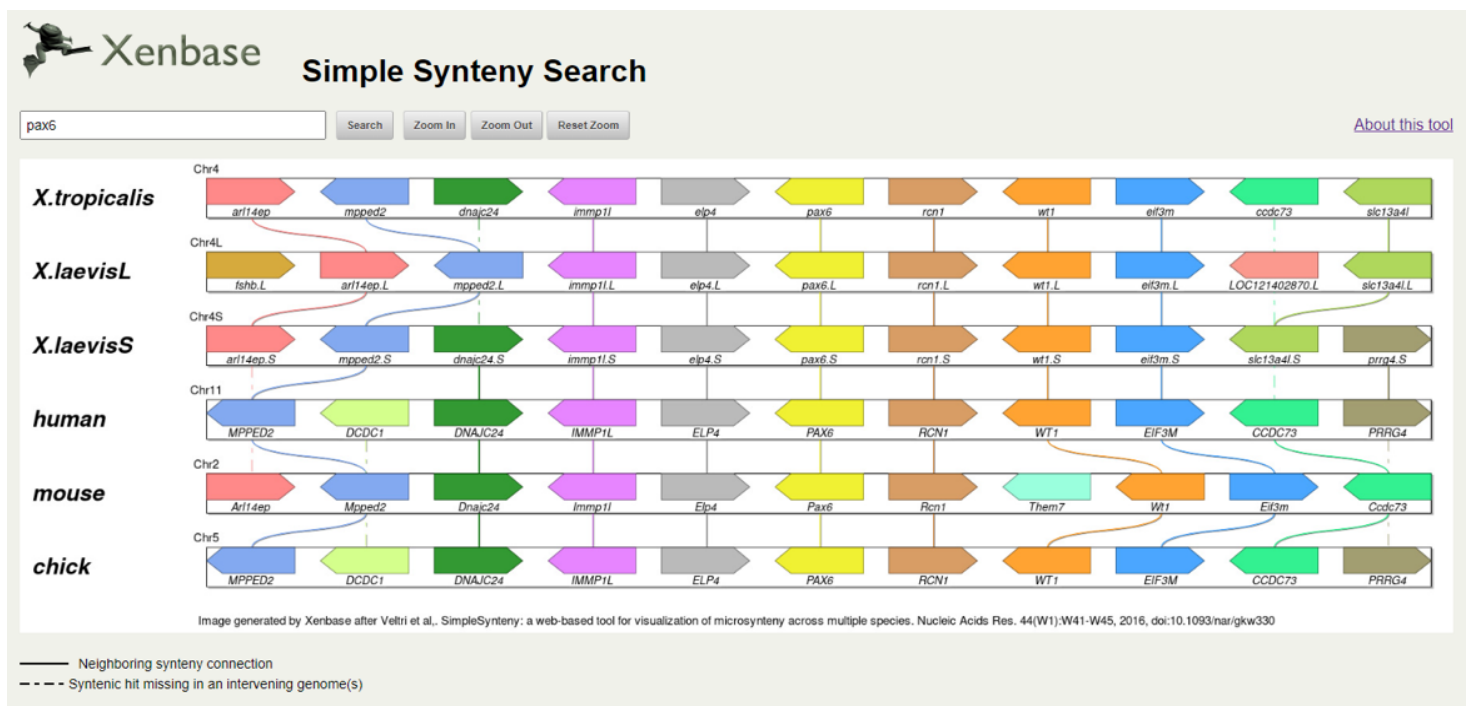
Newsletter Autumn-Fall 2024

NEW TOOL Xenbase Simple Synteny Search: 16,000 *Xenopus* synteny maps!

Synteny, the conserved order of genes on a chromosome, carries valuable information for comparative genomics, phylogenetics and informs gene nomenclature. We have generated **new synteny maps comparing *X. tropicalis*, *X. laevis* L and *X. laevis* S sub-genomes, Human, mouse and chick**. The maps are based on explicit orthology assertions, combined with symbol matching. Each map shows the gene of interest at center, in yellow, flanked by 5 upstream and 5 downstream gene models. Orthologs/paralogs are shown in same color, connecting matched gene symbols by same-colored lines.

Try it here: <https://www.xenbase.org/xenbase/static/gene/synteny.jsp> Just enter a gene symbol, hit search. It's not perfect, and LOC genes are currently excluded. We are working to expand coverage- the next version will integrate reciprocal BLAST and InParanoid to resolve orthology for more genes.

Test it out and tell us if you find any bugs: Xenbase@cchmc.org



Synteny can also be explored in JBrowse2 via the Genomes menu Xenbase. A beta 'minimap' track of *X. laevis* v10.1 L subgenome versus *X. tropicalis* v10 track has been loaded. **Hints for better viewing on JB2:** 1) Use the 'three dots' (in upper left corner) option to check the 'link views' to synchronize zoom in/out. 2) On the right hand side there are zoom in/out options > use the ∨ drop down to select 'horizontally flip' to align genes where patterns are naturally reversed! A new better version of these synteny tracks on JB2 is coming soon!

REGISTER NOW for XRET 20224: *Xenopus* Resources and Emerging Technologies Meeting @ NXR, Woods Hole MA.

When: Fri, October 11, 2024 — Mon, October 14, 2024

Registration closing soon!!

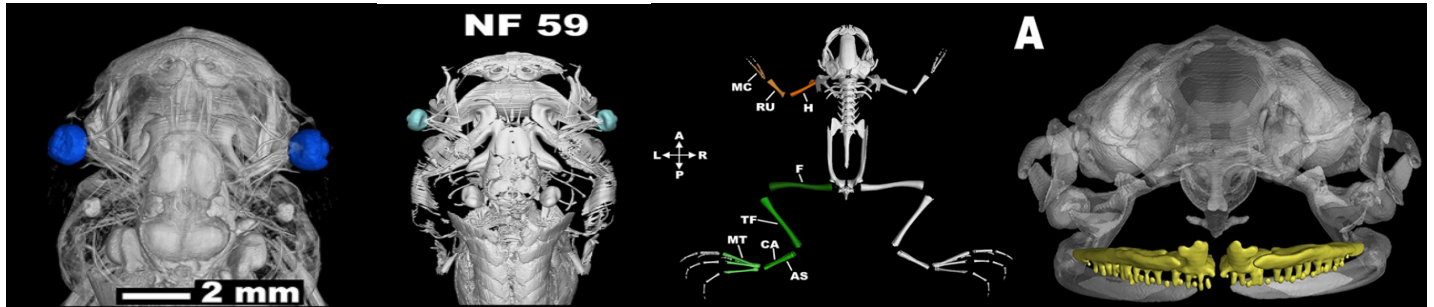
Register here: <https://www.mbl.edu/research/resources-research-facilities/national-xenopus-resource/workshops-and-meetings>

WORKSHOP GO Jamboree at XRET: Community Curation for *Xenopus* genes

In the 2024 *Xenopus* researcher survey, 63% of people said YES, they would be happy to annotate the genes they work on for GO! A community curation workshop will be held on the last day of the XRET meeting in Woods Holes MA. We will train you to use a simple GO annotation tool (called **GOAT**) to annotate the genes you know best using GO, from your own papers. Just bring your laptop! In preparation, register for an ORCID [here](#). **No need to register for the workshop itself- everyone is welcome!** GO *Xenopus*!

When: Monday 9-10.30am Monday October 14th, 2024, XRET Woods Hole.

NEW ANATOMY RESOURCE *Xenopus* 3D anatomy atlas module from Jakub Harnos' Lab (Masaryk University, Czech Republic) now on Xenbase.



High-quality X-ray microtomography images cover the lifespan of the African Clawed Frog in unprecedented detail were recently published in Gigascience ([doi: 10.1093/gigascience/giae037](https://doi.org/10.1093/gigascience/giae037)) and shared with Xenbase, to share with you! All of the microCT data files from this open access resource can be downloaded from Xenbase server. **Access 3D atlas files here:** https://bigfrog2.xenbase.org/pub/xenbase/images/Laznovsky_3D_Atlas/

LAST CHANCE! The 2024 Xenbase -*Xenopus* Research community survey.

Thank you to everyone who has replied to our survey questions- you've given us lots of great feedback and new ideas... but we'd like to hear from even *more* people. The **survey is closing soon**, so if you can spare us a few minutes, please take it today: <https://forms.gle/5WFANQTKA6TuSyg67>

Xenbase has a NEW Xenbase YouTube Channel

Check out new movies about *Xenopus* frogs on our new YouTube channel: **Please like us and subscribe!**

Latest Videos: https://www.youtube.com/@xenbase_mod2

Xenbase tutorials are on YouTube too:

Xenbase Tutorials: <https://www.youtube.com/@XenbaseTips>

You can view, share, and embed video links for your classes, research talks, or viewing pleasure.

If you do reuse these resources, please give copyright attribution to Xenbase (<http://www.xenbase.org/>, RRID:SCR_003280).

BTW, the old channel still exists, but we will post all new material to the new channel. Access the older videos: https://www.youtube.com/@xenbase_mod1

Community Forums: Join the discussion. Pose a Question. Ask for help.

There are 3 community forums *Xenopus* people use to reach the community, find a collaborator, request a reagent, and get answers. Get the details of these *Xenopus* research community groups here:

<https://www.xenbase.org/xenbase/static-xenbase/xine/xine.jsp>

R U on SM? Follow us on X (#Xenbase_MOK), Blue Sky (@xenbase.bsky.social), Mastodon (@xenbase_mod Need Help? Have Questions? Contact us via the Xenbase help desk: Xenbase@cchmc.org

NEW XENOPUS BOOK *Xenopus Normal Table Redux*.

Edited by Peter Vize. Illustrated by Natalya Zahn. A reworked version of Nieuwkoop & Faber’s classic text, the new *Xenopus Normal Table Redux* merges the beauty, art and science of Natalya Zahn’s extraordinary nature illustrations with the wisdom and richness of the 1956 N&F text, supplemented by new stages (e.g., oogenesis, metamorphs), views, internal and external staging details, and molecular markers. **The volume itself is also a work of art!** Limited to just 100 copies, it is hand sewn and bound by artist and lecturer Adj. Prof. Sydney Vize (yes, Peter’s daughter!), in a flat large format (12x9.5inches/ 30.5x24cm; 14pt font) that lays flat when opened. It is produced in 4 colors on luxurious egg-shell textured 80lb Neenah paper and will be priced at \$300 USD. First copies will be available in October. To reserve your copy, please contact Peter Vize directly: pvize@ucalgary.ca

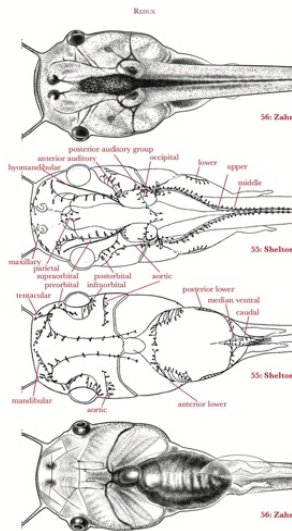
Sample pages from, *Xenopus Normal Table Redux*

**XENOPUS
NORMAL TABLE
REDUX**

A Systematic Survey of Development
from Early Oogenesis to the Young Froglet

Edited by Peter D. Vize
Art by Natalya Zahn
Binding and Book Artistry by Sydney F. Vize

Orymandias Publishing Company
Coffs Harbour, NSW

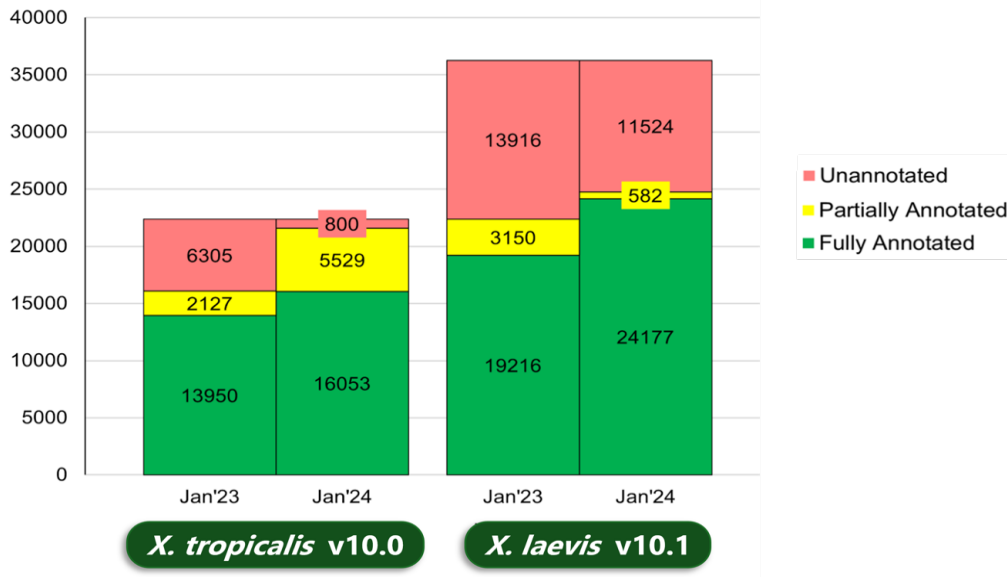


STAGE 12. Age 13.25 h; length 1.4-1.5 mm.
External criteria: Medium yolk plug stage. Yolk plug circular; diameter somewhat less than one quarter of diameter of egg (± 25%). More and less pigmented fields radiating from yolk plug.
Internal criteria: Neural anlage extended cranial; neural and epidermal areas clearly distinguishable anteriorly. Mesodermal mantle reaching to some distance from animal pole at dorsal side; beginning of segregation of prechordal and chordal areas. Archenteron extending over more than 90°; first indications of widening.
Molecular criteria: Neural plate, *ms2* and *ms3*.

STAGE 12.5. Age 14.25 h; length 1.4-1.5 mm.
External criteria: Small yolk plug stage. Future position of neural plate and median groove indicated by darker pigment lines. Yolk plug usually ovoid, variable in size.
Internal criteria: Clear delimitation of ecto-, meso- and endodermal germ layers. Neural anlage in sensorial layer of ectoderm reaching nearly up to animal pole of egg. Mesodermal mantle has reached its definitive extension, at dorsal side close to animal pole, at lateral and ventral sides to 40-50° from animal pole; first indication of notochord formation. Archenteron extending up to animal pole and markedly widened.
Molecular criteria: Axial mesoderm (future notochord) expressing *akt*.

STAGE 13. Age 14.75 h; length 1.5-1.6 mm.
External criteria: Slii-blastopore stage. Neural plate faintly delimited; slight elevation of its rostral part and slight flattening of its caudal part. Caudal part of median groove formed. Illustration is a dorsal view, with anterior upwards.
Internal criteria: Formation of neural anlage still restricted to sensorial layer of ectoderm; first more intimate attachment in dorsal midline between epithelial and sensorial layer of ectoderm, and between the latter and the underlying archenteron roof. Presumptive somite mesoderm double-layered. Archenteron extended to about 10° ventral to animal pole; caudal archenteron ring-

UPDATE FYI *Xenopus* v10 gene model annotation improvements by Xenbase.



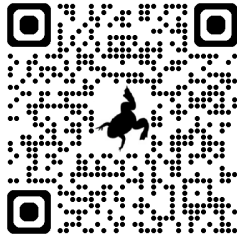
LATEST v10 *Xenopus* Genome Files for Download

In collaboration with of colleague Taejoon Kwon (UNIST, Rep. Korea), Xenbase has made new downloadable files which you can use for high-throughput data analysis (RNA-Seq and ChIP-Seq) and gene list for GO enrichment. These ‘clean’ files and the most up-to-date gene reports available.

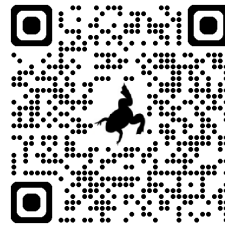
We highly recommend you use v10 *Xenopus* genome and proteome files for data analysis!

Scan QR code to get to the directory. Click links below to download specific files.

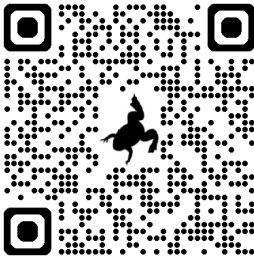
X. laevis v10.1 Genome files



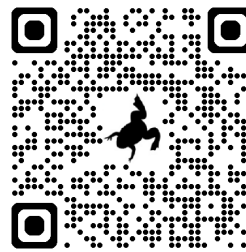
X. tropicalis v10.0 Genome files



X. laevis v10.1 Annotation files



X. tropicalis v10.0 Annotation files



Release notes detailing the sources for the data:

[RELEASE.xenLae10.2024_06](#)

[RELEASE.xenTro10.2024_06](#)

GFF3 with all non-coding RNAs removed:

[xenLae10.xb2024_06.sorted.gff3.gz](#)

[xenTro10.xb2024_06.sorted.gff3.gz](#)

FASTA file for CDS in the GFF3:

[xenLae10.xb2024_06.sorted.gff3_cds.fa.gz](#)

[xenTro10.xb2024_06.sorted.gff3_cds.fa.gz](#)

FASTA file of protein for CDS in the GFF3:

[xenLae10.xb2024_06.sorted.gff3_prot.fa.gz](#)

[xenTro10.xb2024_06.sorted.gff3_prot.fa.gz](#)

FASTA file of mRNA transcripts in the GFF3:

[xenLae10.xb2024_06.sorted.gff3_tx.fa.gz](#)

[xenTro10.xb2024_06.sorted.gff3_tx.fa.gz](#)

GTF version of the GFF file:

[xenLae10.xb2024_06.sorted.gtf.gz](#)

[xenTro10.xb2024_06.sorted.gtf.gz](#)

Stock Center Updates Which stock centers supply frogs, antibodies, clones and cell lines?

The *Xenopus* stock centers are publicly funded, noncommercial, resource centers where the staff work to support your research. Here's a quick guide to the major *Xenopus* stock centers, including the DSHB, and the newest supplier- the XenIP (<https://xeninfo.kr>) founded by Dr. Jaebong Kim in Korea. Learn more about the stock centers and how to contact them here: <https://www.xenbase.org/xenbase/stockCenter/index.do>

WHAT CAN I ORDER?	North America			Europe+		Asia	
	NXR	XRRI*	DSHB	EXRC	TEFOR	NBRP Japan#	XenIP Korea
<i>X. laevis</i>	y	y		y	y	y	y
WT strains	y	y		y	y	y	y
Mutant lines	y			y		y	
Transgenic lines	y	y		y		y	
Xla.ORFeome	y			y			
<i>X. tropicalis</i>	y			y	y	y	
WT strains	y			y	y	y	
Mutant lines	y			y		y	
Transgenic lines	y			y		y	
Xtr.ORFeome	y			y			
Egg extracts, Ovaries & Oocytes	y			y	y		
Sperm & Testes	y			y		y	
Tadpoles	y			y	y	y	
Froglets	y	y		y			
Custom KO/Tg lines	y			y			
Research Hotel^	y			y			
XenMD^^				y			
Phenotyping service					y		
CRISPR gRNAs	y			y			
ORFeome & Clones (plasmids/ fosmids/ BACs)		y		y		y	coming soon
EST IMAGE clones				y		y	
Genomic DNA/RNA				y		y	
Cell Lines		y	y	y			
Antibodies		y	y	y			
Aquariums/Tanks/Frog Food**	No	No	No	No	No	No	yes!

NBRP has regulatory limitations so mostly supplies just domestic researchers in Japan. XenIP is a new, small resource, supplying only Korean *Xenopus* labs at this time. *XRRI can only provide small numbers of animals to start a colony, not large numbers of animals for experiments.^ *Research Hotel* is a residency program where researchers access their resources and expertise of their scientists, while doing their own lab work. ** Stock centers generally don't supply husbandry items, but XenIP can supply some items locally. Search the internet &/or join [XenCare husbandry group](#) for advice and information.