

Anatomy Atlases and Resources

Atlases and Anatomical Resources

[Developmental Atlas](#) - Illustrated atlas of Prim-5 (24h), Long-Pec (48h), Protruding mouth (72h) and Day 5 (120h) stages.

[Developmental Staging Series](#) - Descriptions of embryonic and larval stages and criteria for staging.

[Movies of development](#)

Off-site Resources

[Z-Brain Atlas](#) - Z-Brain is a 3D reference atlas, that contains neuroanatomical labels and regional definitions within a standard coordinate space.

[The Zebrafish Virtual Atlas](#) and [The Zebrafish Anatomy Project](#) - The Zebrafish Atlas contains 2- and 3-dimensional, anatomical reference slides of zebrafish to support research and education worldwide.. Serial histological images of wild type zebrafish are used for 3D reconstructions. A collaboration between the Keith Cheng and Stephen Moorman labs.

[Brain Browser](#) - A tool for 3D visualization of transgene reporter patterns in 6 dpf larval zebrafish - Burgess Lab.

[Normal table of postembryonic zebrafish development: Staging by externally visible anatomy of the living fish](#) - Parichy, Elizondo, Mills, Gordon, Engeszer

[Digital Embryos](#) - nuclear positions and movement in entire wild-type and mutant zebrafish embryos over the first 24 hours of development. Figures, Movies and datasets from EMBL Heidelberg.

[FishNet](#) is a three dimensional database of zebrafish development from the early embryo to adult. Models of zebrafish development may be virtually sectioned, viewed as 3D renderings, or downloaded.

[Vascular anatomy web site](#) Weinstein laboratory, NIH

[Histology and Histopathology Atlas of the Zebrafish V2.01](#) A collection of images explaining the histology and toxicological pathology of the zebrafish with a focus on endocrine disruption. Leo van der Ven and Piet Wester National Institute for Public Health and the Environment Netherlands.

[Hardcopy atlas of early zebrafish brain development](#) - Mueller and Wullimann 2005

[Hardcopy atlas of the adult nervous system](#) - Wullimann, Rupp, and Reichert

[Bgee](#): Retrieve and compare gene expression patterns across species, notably in zebrafish.

The ZFIQ (Zebrafish Image Quantitator) software toolkit provides a set of image analysis tools for quantitative, reproducible and accurate interpretation of zebrafish imaging data.

[Zebrafishbrain](#) - information about the neuroanatomy of the developing zebrafish brain. High resolution confocal imaging of intact brains in which neuroanatomical structures are labeled by combinations of transgenes and antibodies.

Zebrafish Anatomical Ontology

[Download the Anatomical Ontology in OBO format](#)

[Search the Anatomical Ontology](#)

[Request Anatomical Term at GitHub](#) or email us: curators@zfin.org

The anatomical ontology is a list of structures, organized hierarchically into an ontology, with descriptions of each structure. The current version of the zebrafish anatomical ontology is being written by a [consortium of researchers](#), each serving as an expert for a particular set of anatomical structures. Additional anatomical information derived from the current literature is provided by the ZFIN curation group. Development of a complete and uniform anatomical ontology for the zebrafish is vital to the success of zebrafish science. The anatomical ontology is necessary for:

* Effective data dissemination and informatics. Reference to anatomical structures is central to all phenotypic description. For example, in situ expression patterns are described in terms of the structures in which expression is observed; mutations are described in terms of the anatomical

structures that are affected. In this way, anatomical structure is the common ground on which expressed genotype meets mutational phenotype, yielding powerful insight into gene function. A concise and consistent anatomical ontology is necessary to support this correlation, particularly in an automated or computer-aided fashion.

* A reference framework. By defining what anatomical structures exist, the ontology establishes a framework for a variety of reference resources, including a concise staging series (i.e., defined by development of structures, not time), an atlas of reference images indexed by anatomical structure and developmental age, annotated 3-D reconstructions and time lapse movies.

* Interoperability. A stable, concise anatomical atlas is the key to leveraging work done in other species, particularly through semi-automated mapping between zebrafish data (stored in ZFIN) and data stored in other species' databases (e.g. MGI, Flybase). Given dictionaries for two species, mapping relationships between analogous structures (e.g. fins in fish=legs in flies) can be developed; searches based on mutations affecting zebrafish fins could yield genes expressed in *Drosophila* legs.

Organizational Meetings

[Summary of 1st organizational meeting - May 10-11, 1999](#)

[Summary of 2nd organizational meeting - December 10, 1999](#)