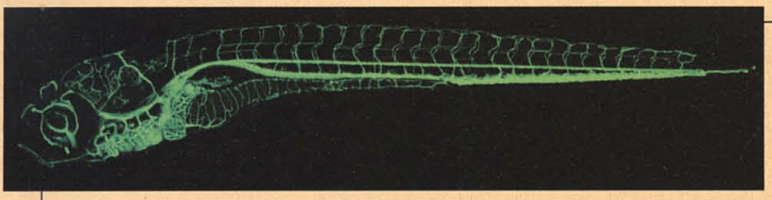


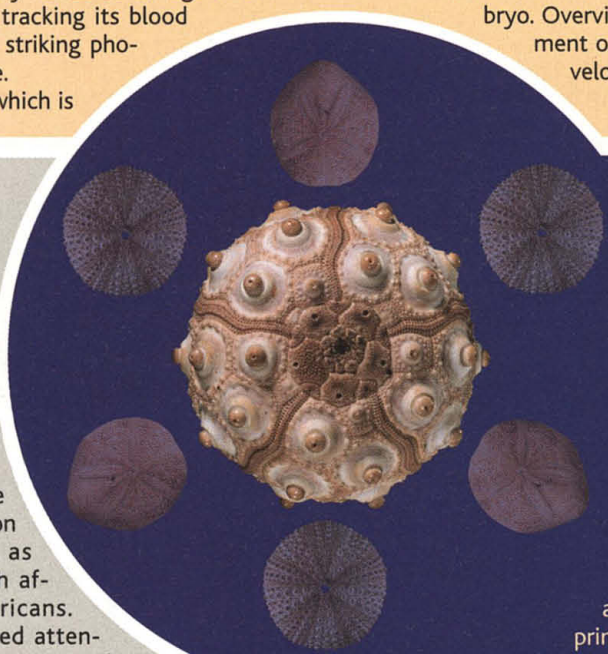
IMAGES

Zebrafish Revealed

Much to the delight of developmental biologists, young zebrafish are exhibitionists. Their see-through tissues reveal the anatomical changes of early growth and differentiation, making this fast-maturing species a laboratory star. The new Interactive Atlas of Zebrafish Vascular Anatomy* takes advantage of the zebrafish's transparency, tracking its blood vessel development with striking photos, drawings, and footage.

To produce the atlas, which is aimed primarily at researchers and students, developmental biologist Brant Weinstein and colleagues at the National Institute of Child Health and Human Development in Bethesda, Maryland, injected zebrafish embryos with fluorescent dye that illuminates the blood vessels, then photographed the fish using confocal microscopy. The resulting images cover the first 7 days after fertilization, during which the fish morphs from a comma-shaped lump of cells into a feeding, free-swimming larva. For each developmental stage, concise text describes the major changes and links to photos and labeled diagrams. Users can view the fish from different angles and watch films that zoom inside the embryo. Overviews sum up major trends, such as the establishment of intestinal circulation, and compare vascular development in zebrafish and other vertebrates.

* eclipse.nichd.nih.gov/nichd/lmg/redirect.html

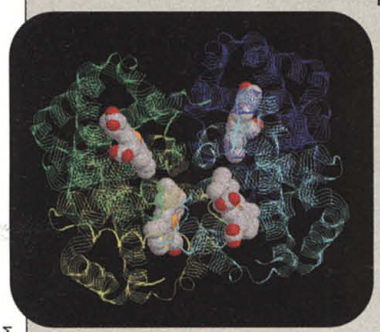


DATABASES

The Globin Gang

Researchers are fascinated by hemoglobin, the oxygen-toting protein that makes blood red, for many reasons. Mutations in the globin chains, for instance, cause some of the most common genetic diseases, such as sickle cell anemia, which afflicts over 50,000 Americans. Globins have also grabbed attention as an example of protein evolution, because they're ancient molecules shared with plants and bacteria. A site at Pennsylvania State University offers a wealth of data on globin sequences, along with a new Web tool for aligning DNA.

On their Globin Gene Server,* Penn State biochemist Ross Hardison, computer scientist Webb Miller, and collaborators are converting two books of the 1000-some known human globin mutations into databases. The globin library can be searched by various fields (such as specific mutation or phenotype) and links to MEDLINE abstracts. Another database holds experimental results from 50 research papers on globin regulation. Users can also see how human globins align with those of several mammals.



The Penn State team also recently unveiled a Web tool called PipMaker for comparing DNA sequences.† "One of the beautiful aspects," says Hardison, is that PipMaker can align much longer sequences (up to 2 million bases) than most such tools can handle.

* globin.cse.psu.edu
† bio.cse.psu.edu

FIELD GUIDES

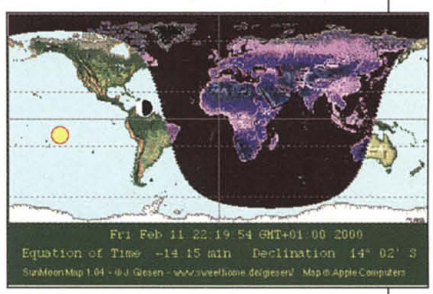
Sea Urchin Trove

Spiny sea urchins and disk-shaped sand dollars are familiar members of the echinoids, a class of marine invertebrates with an intricate skeleton composed of plates. There are about 800 species of these echinoids around the world, and their fossil record goes back 450 million years, making them of great interest to paleontologists studying evolution. A new site from the Natural History Museum in London offers basic background on echinoid anatomy and life history for students and amateurs. But its primary purpose is "to provide a taxonomic resource for the scientific community" with identification keys and over 200 taxonomic pages, many with detailed photos. Curator Andrew Smith has covered 12 of the 76 echinoid families so far and eventually hopes to include all fossil and living genera.

www.nhm.ac.uk/palaeontology/echinoids/index.html

TOOLS

Follow the Sun



Want to see the phases of this month's moon, or find out when to catch the sunrise on your vacation to Tahiti? Then check out the GeoAstro Applet Collection,* a set of sun-moon Java calculators created by a German high school teacher and hobby programmer. The applets can show you day and night on a world map, tell you what a tree's shadow should be like at any time, compute the phases of the moon, predict equinoxes and solstices, and more. Lots of links lead to related info on other sites.

* www.jgiesen.de/GeoAstro/GeoAstro.htm

Send great Web site suggestions to netwatch@aaas.org

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