All About Zebrafish!

R P U N N J P D U D R G M D V C L J G O W Q A V S EMSITJNXHZUEOVARLZYROGZVE GAOTVEXCHSTCSHRNJBKOBIELE NKTFHZORYSWGLKEOIYFLOWZSU N K O O L I B Y T R Y M U G D F O W O E P O V N D O E L T A S P H R Y Y J O C G F R C R L S F I ITFOUPLKGDOIRFAXZEIEVCSRM EJINPEYMTIOJHEZEFXHMRWPOG RDSEDVNUJCMSITKJZGRCRIYXD TAWOLBZDHRDCMJOOEFKDILOPU LMGFBSTFYPSTKHKNNUPYN ZXJNSTRANSPARENTDERWAORZ OAUKNENXKUZVZJTFSRNYNHSU H H G Z B P I Y A L R P J U Y F J M B L C E U H S UDBPSFNMTGYTJIFTDAQJYUVN O R U Z K C H I C C J H D O D D C F A R L Z W Y H O T T Y S O B Z S G V F O E Y P C V O L G G J H F K V W R R Y C O V J H S E C B H W P F R L A X D V S M W V Z Z J G V D F F X J R G B W L O J S T LASCOLIRUHNEGEGIIDTEPIFUC X P R U F U W Y R Q U Y Q E F B S O E M T F B B D R B J S W H R D V O J S G C Q P I W Q A Q N U O F F O B Q E N I I H A V N D N K I A D M R O Y B P I NEERCSCITENEGEXONYZLCBQVF TTEKCAHZEQVJQOJEEJLVQNOAW

Word Bank

Directions: Find the underlined words below in the word find above!



Obtained from childrenshospital.org

Research Findings!

<u>Transparent</u>: In February of 2006 it was announced that a Zebrafish that is transparent throughout its entire life was engineered by Richard White, MD, PhD. This will allow researchers study genetic defects from the embryonic stage into adult life. White, specifically, is using the fish to study melanoma tumor cell migrations.

<u>Color</u>: After 11 years of studying Zebrafish and with the help of 25 people, a skin color gene was identified. In fact, when the corresponding gene was isolated from a light skinned human and inserted into a Zebrafish, a light striped fish was produced!

Fun Facts!

Thirty: Zebrafish are being studied in thirty different countries and in over 300 labs by developmental biologists and geneticists.

Sonic Hedgehog: A protein associated with the development and organization in limb development of zebrafish and other vertebrates.

<u>Hox</u>: These are types of genes used to create the anterior-posterior axis during zebrafish embryo development.

Danio Rerio: This is the scientific name for zebrafish.

<u>Genetic screen</u>: A method used to identify genotypes and phenotypes of interest and used to create a genetic library.

<u>Model System</u>: Zebrafish have been used as a model system for cancer research and vertebrate development.

Places!

<u>Hackett</u>: The Perry Hacket Lab is based at the University of Minnesota and began studying Zebrafish in 1990. The newest research, directed by Dritan Agalliu and Chris Kaufman, focuses on finding new ways to inactivate genes.

People!



<u>Chistiane</u>: Christiane Nusslein-Volhard won a Nobel Prize in 1995 for her work on Drosophila; however, back in 1986 she established her first Zebrafish tanks after getting inspired by a paper on Zebrafish published in 1982 by George Streisinger. By 1995, she along with the help of others, had created 1,200 different mutant strains of Zebrafish and had 7,000 aquariums.

Obtained from: nobelprize.org

<u>Streisinger</u>: George Streisinger is considered to be the founding father of Zebrafish research. He used Zebrafish to develop a way to screen the offspring of mutants for mutations. He died while scuba diving, but research in his lab still continues.

<u>Collodi</u>: Paul Collodi is a professor at Purdue University and the creator of the peer-reviewed journal Zebrafish.

Accessing the Word Search:

On the Homepage, the Games and Tutorials link will be selected.

On this page, another link called WordFind should be created. This linked could be added in as follows:

"You can choose from a variety of <u>crossword puzzles</u> that test your knowledge of everyday zebrafish concepts and terms OR check out our zebrafish <u>riddles</u>." (present already on website) *Additionally, learn fun facts about the people and research findings surrounding zebrafish by completing a <u>word search</u>.* (add on to page).

Only two changes were made from the draft. A period was added following "This is the scientific name for zebrafish" and the apostrophe was removed from "children'shospital.org", which is under the picture of the transparent zebrafish.

Bibliography

Angel Amores, Allan Force, Yi-Lin Yan, Lucille Joly, Chris Amemiya, Andreas Fritz, Robert K. Ho, James Langeland, Victoria Prince, Yan-Ling Wang, Monte Westerfield, Marc Ekker, * John H. Postlethwait *† .Zebrafish *hox* Clusters and Vertebrate Genome Evolution. *Science*:1711-1714.

"Christiane Nusslein-Volhard Autobiography". <u>The Nobel Foundation</u>. 1995. http://nobelprize.org/nobel_prizes/medicine/laureates/1995/nusslein-volhard-autobio.html>. 26 April 2009.

Jenkins, D. (2009). Hedgehog signalling: Emerging evidence for non-canonical pathways. *Cellular Signalling*, 21(7), 1023-1034.

Sumanas, S., & Lin, S. (2004). Zebrafish as a model system for drug target screening and validation. *Drug Discovery Today: TARGETS*, *3*(3), 89-96.

The Hackett Lab. <u>University of Minnesota</u>. June 5, 2000 http://www.cbs.umn.edu/labs/ perry/>. 26 April 2009.

"Transparent fish to make human biology clearer". 8 Feb. 2006. <u>Children's Hospital</u> <u>Boston</u>.http://www.childrenshospital.org/newsroom/Site1339/mainpageS1339P1sublevel400. 26 April 2009.

W Driever, L Solnica-Krezel, AF Schier, SC Neuhauss, J Malicki, DL Stemple, DY Stainier, F Zwartkruis, S Abdelilah, Z Rangini, J Belak and C Boggs .A genetic screen for mutations affecting embryogenesis in zebrafish. *Development*: 37-46.

"Zebrafish K-12". <u>Institute of Neuroscience, University of Oregon</u>. http://www.neuro.uoregon.edu/k12/george streisinger.html>. 26 April 2009.

"Zebrafish research leads to the discovery of a skin color gene". <u>Daily News Center</u>. 16 Dec. 2006. http://health.dailynewscentral.com/content/view/0002017/47/. 26 April 2009.