



>>> PRESS RELEASE | Not to be released before: December 3rd, 2015, 12:00 noon EST to coincide with the study's online publication in *Cell*

Killifish project sheds light on the genetic basis for ageing

Scientists from the Max Planck Institute (MPI) for Biology of Ageing in Cologne have sequenced the genome of the African turquoise killifish, a new powerful model system to study ageing in vertebrates. The study, published today in the renowned journal *Cell*, provides new understanding into the genetic basis of ageing.

An international team headed by Dario Riccardo Valenzano, PhD, from Cologne and Anne Brunet, PhD, at Stanford University, has accomplished to sequence and map the entire genome of the turquoise killifish, which is the shortest-lived vertebrate that can be raised in captivity. The genome map allows scientists to navigate through the genome and identify the sequence and localization of most of the genes of this species. The data is available to scientists worldwide - with an online genome browser (<http://africanturquoisekillifishbrowser.org>), thus opening up a new research platform for the work with the killifish.

The new genome map reveals how genes can determine lifespan in this short-lived organism. "Ageing genes occur in different variants in nature. Different variants of the same gene could underlie evolution of both short and long lifespan", explains Dario Riccardo Valenzano, head of the research team at the Max Planck Institute for Biology of Ageing. "In the killifish we can discover the evolutionary forces that shape ageing. This unique fish species is a natural experiment that is teaching us how short lifespan can evolve in the wild."

The paper will be published at the same time as another killifish genome paper by a team from the Leibniz Institute on Aging, Fritz Lipmann Institute in Jena, in the same issue of *Cell*. „It is a big day for our fish model. I think the work of both groups will usher in a new level of emphasis on the killifish as a model for ageing research", Valenzano said.

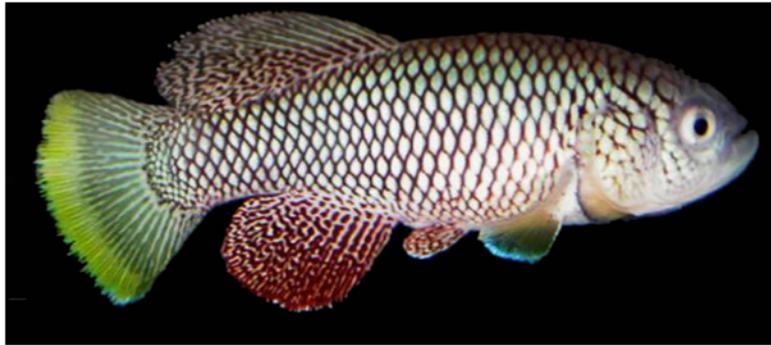
About the Killifish

Turquoise killifish age very rapidly and live only up to about six months. The short lifespan of the killifish is likely a consequence of an evolutionary adaptation to the environmental conditions. They live in ponds in southern Africa, which contain water only during the short rainy season. Only rapid growth and maturation allow the killifishes to produce offspring during this limited time. After a few weeks when they are reproductively active, fish start displaying several ageing symptoms, including decreased physical activity, lowered fertility and high risk for cancer. Dario Riccardo Valenzano explains how this phenomenon can be implemented in scientific research: "We can watch the ageing process of the

killifish in real time in the lab. With its short lifetime the killifish is an ideal model organism to explore the basic mechanisms of ageing in vertebrates”.

Press photo:

We are happy to send photo material to you. Please contact Dr. Maren Berghoff.



(Adult male turquoise killifish, *Notobranchius furzeri*)

Original publication:

Dario Riccardo Valenzano, Bérénice A. Benayoun, Param Priya Singh, Elisa Zhang, Paul D. Etter, Chi-Kuo Hu, Mathieu Clément-Ziza, David Willemsen, Rongfeng Cui, Itamar Harel, Ben Machado, M.C. Yee, Sabrina C. Sharp, Carlos D. Bustamante, Andreas Beyer, Eric A. Johnson, and Anne Brunet

The African turquoise killifish genome provides insights into evolution and genetic architecture of lifespan

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