


[News](#)
[Articles](#)
[Videos](#)
[Images](#)
[Books](#)
[Health & Medicine](#)
[Mind & Brain](#)
[Plants & Animals](#)
[Earth & Climate](#)
[Space & Time](#)
[Matte](#)

Science News

[Share](#) [Blog](#) [Ci](#)

Fish Go Mad For Ginger Gene

ScienceDaily (Sep. 29, 2009) — There may be plenty of fish in the sea but the medaka knows what it likes. A new study published in the open access journal *BMC Biology* shows how a single gene mutation that turns Japanese Killifish a drab grey colour renders them significantly less attractive to more colourful members of the opposite sex.

See also:

Plants & Animals

- [Fish](#)
- [Life Sciences](#)
- [Mating and Breeding](#)
- [Marine Biology](#)
- [Cloning](#)
- [Genetics](#)

Reference

- [Speciation](#)
- [Allele](#)
- [Species](#)
- [Genetic drift](#)

The medaka, found commonly in Southeast Asia, can be observed in a wide range of colours; from brown, to more uncommon orange and grey variations. Shoji Fukamachi led a team of researchers from the University of Konstanz, Germany and the University of Tokyo, who studied the effects of alterations in a colour-determining gene on mating preferences of the fish.

According to Fukamachi, "We observed that the grey medaka were often rejected in favour of their brown or orange rivals. This is the first demonstration of a single gene that

can change both secondary sexual characteristics and mating preferences."

The greys, however, need not be completely despondent at these findings, as the study also showed that they were preferentially selective for each other.

Orange colour in medaka is determined by the presence of pigmented structures known as xanthophores, and these are reduced in the grey fish carrying the mutant gene. By over-expressing this same gene, the researchers created super attractive bright orange medaka that induced hyperactivity in similarly engineered members of the opposite sex while other potential mates were ignored almost completely.

"Thus, the present finding of the xanthophore-dependent mate choice enables many ingenious experiments to be designed in this and other fish species" said Fukamachi, adding: "This discovery should further facilitate molecular dissection/manipulation of visual-based mate choice."

The strong like-for-like colour preference of medaka mating,



There may be plenty of fish in the sea but the medaka knows what it likes. A new study published in the open-access journal BMC Biology shows how a single gene mutation that turns Japanese Killifish a drab gray color renders them significantly less attractive to more colorful members of the opposite sex. (Credit: Shoji Fukamachi et al BMC Biology 2009)

Ads by Google

[Advertise here](#)

Last Gen Method

Unknown mutations Detection BRCA1 & BRCA2 ready
www.fluigent.com

Genotyping & Scanning

Mutation Scanning & Genotyping with the LightScanner Fast & Simple
www.idahotech.com

Virtual cloning made easy

Use MacVector to design your constructs
www.macvector.com

Gene Mutation

Huge source of genomic DNAs for SNP Methylation & Gene Mutation studies
www.biochain.com

DNA Methylation analysis

Hypermethylation, CpG islands gene silencing, cancer diagnostic
www.varionostic.de

suggests that sympatric speciation could occur as reproductive isolation follows colour switches due to mutations in this colour-determining gene.

Journal reference:

1. Shoji Fukamachi, Masato Kinoshita, Kouichi Aizawa, Shoji Oda, Axel Meyer and Hiroshi Mitani. **Dual control by a single gene of secondary sexual characters and mating preferences in medaka.** *BMC Biology*, 2009; (in press) [\[link\]](#)

Adapted from materials provided by [BioMed Central](#), via [EurekAlert!](#), a service of AAAS.

Email or share this story: | [More](#)

Need to cite this story in your essay, paper, or report? Use one of the following formats:

- APA BioMed Central (2009, September 29). Fish Go Mad For Ginger Gene. *ScienceDaily*. Retrieved September 30, 2009, from <http://www.sciencedaily.com/releases/2009/09/090928191810.htm>
- MLA

Number of stories in archives: 44,032

Related Stories



Ready When You Are: First Evidence That Visual Cues Affect Timing Of Sexual Maturation (Feb. 14, 2007) — Scientists from the

Universities of Exeter and Glasgow today reveal how some females become sexually mature more quickly if they see attractive males. Research published today in the Royal Society ... [> read more](#)



Giant Pandas See In Color (Oct. 15 2006) — They may be black and white, but new research at the

Georgia Institute of Technology and Zoo Atlanta shows that giant pandas can see in color. Graduate researcher Angela Kelling tested the ability of ... [> read more](#)

Uncovering Sex-change Secrets Of Black Sea Bass (Apr. 12, 2006) — David Berlinsky, an

associate professor of zoology at the University of New Hampshire, is studying what triggers sex reversal in black sea bass -- and how to prevent it. The sought-after fish is a ... [> read more](#)

Fish That Live In The Dark Have The Best Ears

(Apr. 29, 2009) — All fish have ears buried inside their heads. But fish that live in the deepest, darkest waters of the ocean may have particularly sensitive ears. Researchers have gathered the first anatomical ... [> read more](#)

Find with keyword(s):

Search

Enter a keyword or phrase to search ScienceDaily's archives for related news topics, the latest news stories, reference articles, science videos, images, and books.

Ads by Google

[Advertise here](#)

The DNA Ancestry Project
Discover Your Ancestry with DNA. Find Ethnic and Geographic Origins. www.DNAAncestryProject.com

BioXpress
Oligonucleotides prediction softw. Free one-month licence available www.bioxpr.com

in silico Cloning Tool
Easy-to-use software for cloning and restriction analysis www.Geneious.com

Russia hopes U.S. to
AIDS vaccine
protects people,
shocks researchers
[more science news](#)

In Other News ...
Senate panel rejects
public healthcare
option
CORRECTED:
Rivals unfazed by
shadow of Obama in



Click button to submit feedback:

Send It

[About This Site](#) | [Editorial Staff](#) | [Awards & Reviews](#) | [Contribute News](#) | [Advertise With Us](#) | [Privacy Policy](#) | [Terms of Use](#)

Copyright © 1995-2009 ScienceDaily LLC — All rights reserved — Contact: editor@sciencedaily.com