

Claim: White flower has world's longest genome

8 October 2010, By RAPHAEL G. SATTER , Associated Press Writer



An ordinary-looking white flower from Japan may carry something quite extraordinary within its pale petals - the longest genome ever discovered.

Researchers at London's Kew Gardens said Thursday they'd discovered that the *Paris japonica* has a [genetic code](#) 50 times longer than that of a human being. The length of that code easily beats its nearest competitor, a long-bodied muck dweller known as the marbled lungfish.

"We were astounded really," said Ilia Leitch, of Kew's Jodrell Laboratory.

Leitch and her colleagues suspected the plant might have an larger-than-usual genetic code as its relatives have rather large ones too. But the sheer size of this flower's genome caught them by surprise. If laid end-to-end it would stretch to more than 300 feet.

"We certainly didn't expect to find it," she said.

A genome is the full complement of an organism's DNA, complex molecules that direct the formation and function of all living organisms. The size of an organism's genome is typically measured by the

number of bases it contains - base pairs being the building blocks of DNA. The human genome, for example, has about 3 billion bases and measures about 6 feet in length.

The marbled lungfish has a whopping 130 billion bases. And the 12-inch (30-centimeter) flower studied by Leitch turns out to have 150 billion.

Outside experts were impressed.

"This is certainly an enormously large genome," said Nick Lane, a fellow at the Department of Genetics, Evolution and Environment at University College London. "I don't know of any larger genomes among plants or animals."

Still, he cautioned that micro-organisms known as amoebas might have even longer codes, saying that the record "might not last long."

Both Leitch and Lane said the find illustrates the staggering diversity of [genome](#) sizes. While *Paris japonica* and the marbled lungfish have huge ones, other genetic codes are minuscule - the parasite known as *Encephalitozoon intestinalis*, for example, carries approximately 2,300 bases.

It's not always clear why the range varies so wildly. Bigger genomes don't necessarily mean a more complex organism. Whereas genes are generally supposed to correspond to some traits - blonde hair, for example, is genetically determined - in organisms with huge genomes, many genes don't appear to correspond to anything.

"Effectively, some cells carry massive amounts of 'junk,' or at least non-coding DNA, whereas others have very little," Lane said.

Leitch said that geneticists are still discussing the question of why some organisms carry masses of non-coding DNA, and that the study of organisms such as the *Paris japonica* can help add to the

debate.

"It's a question that's long intrigued scientists," she said.

The results of her team's research are being published in the *Botanical Journal of the Linnean Society*.

More information: Pellicer J, Fay MF, Leitch IJ. 2010. The largest eukaryote genome of them all? *Botanical Journal of the Linnean Society*
Doi:[dx.doi.org/10.1111/j.1095-8339.2010.01072.x](https://doi.org/10.1111/j.1095-8339.2010.01072.x)

©2010 The Associated Press. All rights reserved.
This material may not be published, broadcast, rewritten or redistributed.

APA citation: Claim: White flower has world's longest genome (2010, October 8) retrieved 18 October 2021 from <https://phys.org/news/2010-10-white-world-longest-genome.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.