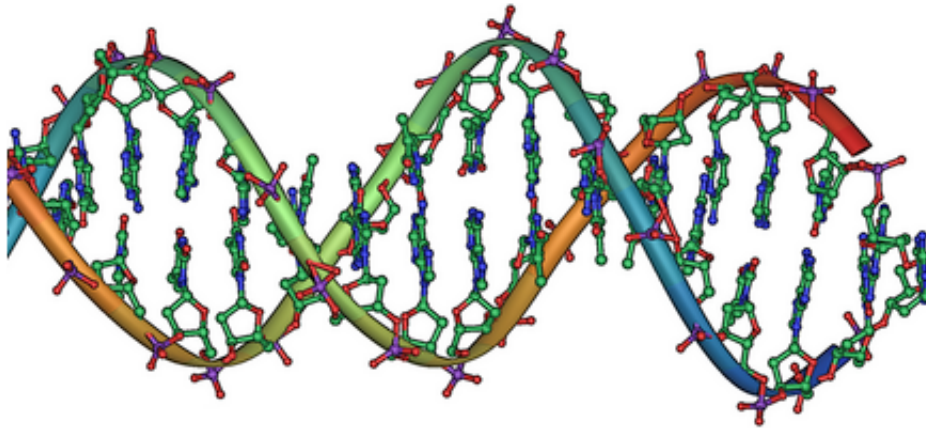


Size matters—the more DNA the better

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DNA double helix. Credit: public domain

A new study from researchers at Uppsala University shows that variation in genome size may be much more important than previously believed. It is clear that, at least sometimes, a large genome is a good genome.

'Our study shows that females with larger genome lay more eggs and males with larger genome fertilize more eggs', says research leader Göran Arnqvist, Professor of Animal Ecology at Uppsala University.

The study of seed beetles is published in the scientific journal *Proceedings of the Royal Society B* of London.

The amount of nuclear DNA per cell, or the size of the genome, varies by orders of magnitude across organisms. Our understanding of the evolutionary forces that are responsible for this variation is very limited. For unknown reasons, there are simple plants with a genome almost 50 times as large and grasshoppers with a genome 5 times as large as our own! In fact, the insects with the smallest and largest genomes differ by a factor of 200, yet they all look and act like typical insects.

Biological explanations for these dramatic differences come in two flavours:

The first suggests that variation in genome size is made up by "junk" DNA that has little bearing on organismal function and that random processes determine genome size.

The second instead suggests that the amount of DNA matters and that [natural selection](#) shapes genome size. The study of [seed beetles](#) now present evidence suggesting that natural selection may be more important.

The study is published in the scientific journal *Proceedings of the Royal Society* of London. Their results show that variation in [genome size](#) may be much more important than previously believed. It is clear that, at least sometimes, a large genome is a good genome.

More information: "Genome size correlates with reproductive fitness in seed beetles." *Proceedings of the Royal Society B* of London. [DOI: 10.1098/rspb.2015.1421](https://doi.org/10.1098/rspb.2015.1421)

Provided by Uppsala University

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