



# Christmas Tree Genome Hasn't Changed Much In 100 Million Years

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Science can make better corn and, well, better everything – except perhaps the Christmas tree.

The genome of conifers like spruce, pine and fir has remained pretty much the same for the last 100 million years – a remarkable feat of genomic stability. Researchers analyzed

the genome of conifers and compared it to that of flowering plants. Both plant groups stem from the same ancestor but diverged about 300 million years ago.

They compared the genome macrostructure for 157 gene families present both in conifers and flowering plants. They observed that the genome of conifers has remained particularly stable for at least 100 million years, while that of flowering plants has undergone major changes in the same period.

"That doesn't mean there haven't been smaller scale modifications such as genetic mutations," points out Jean Bousquet, who holds the Canada Research Chair in Forest and Environmental Genomics at Université Laval. "However, the macrostructure of the conifer genome has been remarkably stable over the ages."

This great stability goes hand in hand with the low speciation rate of conifers. The world is currently home to only 600 species of conifers, while there are over 400,000 species of flowering plants.

"Conifers appear to have achieved a balance with their environment very early," said Bousquet. "Still today, without artifice, these plants thrive over much of the globe, particularly in cold climates. In contrast, flowering plants are under intense evolutionary pressure as they battle for survival and reproduction."

So today's conifers have a genome a lot like they did when dinosaurs roamed the Earth – maybe dinosaurs ate Christmas trees at Christmas. [If they could be ruling on other planets](#), anything is possible.

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