

RNA provides clues to explain longevity of ginkgo trees

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A team of researchers affiliated with several institutions in China and one in the U.S. has found that ginkgo biloba trees do not experience senescence. In their paper published in the *Proceedings of the National*

Academy of Sciences, the group describes their RNA analysis of Ginkgo biloba cambium and what they learned from it.

Prior research has shown that ginkgo biloba [trees](#) can live for as long as 1000 years. To learn more about their longevity, the team working in China collected [tissue samples](#) from nine ginkgoes aged approximately 600, 200 and 20 years old. Prior efforts at studying tree aging were focused on the leaves. In this new effort, the researchers were more interested in the vascular cambium—the thin layer of tissue that produces outer bark and inner wood. RNA analysis showed no sign of senescence. They did find that the older trees produced less auxin, a common plant hormone, and more [abscisic acid](#), a hormone produced in response to stress. The older trees also had thinner annual rings. But there was little difference in efficiency of photosynthesis and seed germination rates in trees of different age, and the activity of the genes in all of the tree ages was similar. There were also no differences in disease resistance. The researchers were unable to find any sign of programmed death and were also unable to explain the lack of senescence. They note that some trees have been found to respond to stress by rededicating resources, but they found no evidence of that in the ginkgoes.

Though the evidence suggests the trees are immortal, the researchers point out that they all die at some point due to fire, disease or damage from storms, or from human activities. Wild ginkgos are now on the brink of extinction due to overlogging. The researchers also acknowledge that their study was too limited in scope to rule out the possibility that the trees might exhibit some form of [senescence](#) after they reach a certain age. The next step for the team will be looking for gene mutations—a common sign of mortality.

More information: Li Wang et al. Multifeature analyses of vascular cambial cells reveal longevity mechanisms in old Ginkgo biloba trees,

Proceedings of the National Academy of Sciences (2020). [DOI: 10.1073/pnas.1916548117](https://doi.org/10.1073/pnas.1916548117)

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