

# Bioengineering company creates induced pluripotent stem cells from elephant skin cells

March 7 2024, by Bob Yirka

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Model at the Royal BC Museum. Credit: Wikipedia

A team of bioengineers at de-extinction company Colossal Biosciences has [announced](#) that they created induced pluripotent stem cells (iPSC)

from elephant skin cells. In speaking with the press, officials with the team reported that they are still in the process of writing a paper describing their efforts and plan to post it on the *bioRxiv* preprint server. Ewen Callaway has published a [News article](#) in *Nature* about the announcement.

Colossal Biosciences is a bioengineering company with a mission to bring back [extinct animals](#) such as the woolly mammoth. Prior research has suggested the possibility of engineering cells from a modern close relative (such as an elephant) into iPSCs, which could then theoretically be further engineered to replace genes in an embryo with those of the [ancient species](#), followed by implantation into the womb of a modern elephant, where it would develop into the desired animal—a woolly mammoth, perhaps.

Researchers at Colossal Biosciences have been hard at work on the first part of the process, engineering elephant cells to convert them into viable iPSCs, but they have found it rough going. Elephants, it turns out, have unique biology that makes it much more difficult to create iPSCs using their cells than those of other species, such as the white rhinoceros and drills (a primate closely related to baboons and mandrills), cells of which have been successfully engineered to become iPSCs.

To do the same with elephant cells, the researchers found, required a different approach involving treating the skin cells with chemicals used to engineer mice and [human cells](#). They also added so-called Yamanaka factors and changed genes that were responsible for the production of TP53. The result was four lines of elephant iPSCs, which, the team notes, looked and behaved like other iPSCs created from other animals.

It is important to note that the end goal at Colossal Biosciences is not to bring back a woolly mammoth, but to create a mutant elephant with many of the traits of a woolly mammoth, such as added fat and a shaggy coat.

Such creatures, the team suggests, could be released into the wild in places like Siberia, where they could perform the same ecological role that was once played by woolly mammoths.

**More information:** Ewen Callaway, Will these reprogrammed elephant cells ever make a mammoth?, *Nature* (2024). [DOI: 10.1038/d41586-024-00670-z](https://doi.org/10.1038/d41586-024-00670-z)

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