# Colossal Biosciences successfully revives the dire wolf using genetic engineering



Scientists from Colossal Biosciences, a Texas-based genetic engineering company, have made headlines with their successful reintroduction of the dire wolf, a species that has been extinct for over 10,000 years. The firm showcased three snowy-white dire wolf pups, which have entered the world through advanced gene-editing techniques. The pups are notable not only for their connection to pop culture, particularly their depiction in the series "Game of Thrones," but also for their significance as a landmark achievement in de-extinction efforts.

According to Ben Lamm, the CEO of Colossal Biosciences, the project involves intricate genetic work, which commenced by extracting blood cells from the grey wolf, the dire wolf's closest living relative. The team then analysed ancient DNA obtained from fossils and museum specimens of the extinct dire wolves to modify the living grey wolves’ DNA to closely match that of their predecessors. “I could not be more proud of the team. This massive milestone is the first of many coming examples demonstrating that our end-to-end de-extinction technology stack works,” Lamm remarked, highlighting their achievement.

In addition to the dire wolf, Colossal Biosciences has ambitious plans to resurrect several other extinct species. Among these is the woolly mammoth, for which scientists are reportedly making significant progress. They have sequenced the mammoth's genome and believe they could bring back this iconic creature, which has not roamed the Earth for roughly 4,000 years, in the coming years. Chief science officer Beth Shapiro stated that the recent creation of “woolly mice” serves as a critical step towards reintroducing mammoths, confirming that key genetic signals related to traits such as woolly coats have been identified.

The restoration efforts extend to the dodo—a bird that became extinct in the late 17th century. Colossal is using preserved DNA from museum specimens to engineer the genetic sequence of dodos. The challenge lies in ensuring genetic diversity among the birds, which has caused delays in this project.

Colossal Biosciences is also working on the Tasmanian tiger, or thylacine, which disappeared in 1936. They sequenced the full genome in 2017 and recently discovered a preserved specimen dating back 108 years that allowed them to retrieve a DNA sequence nearly identical to the original thylacine genome.

While the progress made by Colossal is notable, experts have expressed caution regarding the implications of such scientific advancements. Zoologist Philip Seddon from the University of Otago in New Zealand pointed out that the newly created dire wolves are not exact replicas of their extinct ancestors but are instead “genetically modified grey wolves.”

The developments at Colossal Biosciences have reignited interest in the possibilities surrounding de-extinction and genetic engineering, raising questions about the future role of such technologies in conservation and biodiversity.

Source: [Noah Wire Services](https://www.noahwire.com)

## References

* <https://time.com/7274542/colossal-dire-wolf/> - This article corroborates Colossal Biosciences' successful genetic engineering of the dire wolf, including the births of pups named Romulus, Remus, and Khaleesi, marking a significant achievement in de-extinction efforts.
* <https://colossal.com/the-return-of-the-dire-wolf/> - It supports the details of Colossal Biosciences' work on bringing back the dire wolf and their plans for other extinct species like the woolly mammoth and the dodo.
* <https://time.com/7274542/colossal-dire-wolf/> - Colossal Biosciences' plans to resurrect other extinct species, such as the woolly mammoth and the dodo, are discussed, highlighting the challenges and progress in these projects.
* <https://edition.cnn.com/2023/12/06/world/colossal-biosciences-dire-wolves-intl/index.html> - This article explains Colossal Biosciences' approach to de-extinction, including the use of ancient DNA and genetic engineering to create genetically modified versions of extinct species.
* <https://www.scientificamerican.com/article/colossal-biosciences-mammoths-dodo-thylacine-extinction-reversal/> - It provides insights into Colossal Biosciences' broader mission to restore several extinct species, including the woolly mammoth, dodo, and Tasmanian tiger.