



# Bring back mammoths again

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Received 7 August 2021; Accepted 22 August 2021; Published 30 August 2021

Climate change is now a global headache for all. Everyday scientists try to discover so many methodologies to reach out from this situation. Climate change not only impact on human life style but also it highly impact animal society. Due to climate change so many animal species were extinct or endangered. The reason behind this is, sometimes they can't tolerate the changed climate or they can't find proper food or may be climate change affect their habitat. Some extinct species due to climate change are dodo, great aukstellers sea cow, tasmanian tiger, passenger pigeon, pyrenean ibex, baiji white dolphin, west african black rhinoceros, cheetah, carolina parakeet, neanderthal, quagga etc.

Mammoth is also one of the extinct species. It is said that, 5 million year ago they were appear at southern and eastern Africa. With the passage of time their related species were found in Eurasia after that they also shifted to America. The last species of this family was woolly mammoth, Northern, or Siberian mammoth. They are leaving Russia's Wrangel Island in the Arctic Ocean (Siberia's coast) before extinct, about 4000 year ago. The genome study of last woolly mammoths says that, they are suffered from serious genetic disorders (deleterious mutations) due to inbreeding, due to which they were lost their smelling sense which was affected their food habit because they were generally preferred intense smelling flower after this problem they were intake very small amount of food, male fertility was also decreased which results in decrease their population of this species. Scientists believe that, this species' genomic study can be solved the mystery of extinction of illustrious Ice Age species.

From a study it was found that Asian elephant and mammoth genome have so many similarities. In this

21st century the advancement in science and technology basically in the field of biotechnology open a path for bring back the woolly mammoth. The motive behind this is not to alive mammoth in this earth once again. The main purpose of this research is, by using gene editing method, they want to edit gene of Asian elephant gene by using woolly mammoth gene, which helps to able Asian elephants to stay in cool region like North America or Siberia. This project continued from last 6 years. The aim of this project is, the genes within the mammoth genome that code for three essential adaptations i.e. production of oxyhemoglobin at very low temperature, thick hair protects from the elements, subcutaneous fat for insulation and fasting, to input in Asian elephant gene. Till date successfully they edited number of genes into Asian Elephant i.e. cell lines, generating increasingly mammoth-like cells with each precise edit. Mutations for mammoth hemoglobin, extra hair growth, fat production, down to nuanced climate adaptations such as slightly altered sodium ion channels in cell membranes have already been engineered into fibroblast cell lines. This much success gives scientists a ray of hope for success. As per the estimation of that researchers group 10 year more time will required for complete this project and 200 million USD use for complete this project.

## ACKNOWLEDGMENT

The authors are grateful to the journal editor and the anonymous reviewers for their helpful comments and suggestions.

## DECLARATION OF CONFLICTING INTERESTS

The authors declared no potential conflicts of interest for the research, authorship, and/or publication of this article.