



Colossal Eyes Thylacine Revival with Near-Complete Genome

Description

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Thylacines, or Tasmanian tigers, went extinct in 1936

Colossal Biosciences

Colossal, a de-extinction company, has announced that it has nearly completed sequencing the genome of the extinct thylacine, boasting over 99.9 percent completion. However, it has yet to provide substantiating evidence for this claim.

“Sequencing a complete genome is notoriously challenging,” explains Emilio Mármol-Sánchez from the University of Copenhagen, who first extracted RNA from a preserved thylacine. For reference, the human genome’s final sections were only fully sequenced recently.

Once widespread across Australia, thylacines were reduced to Tasmania by European colonization, with the last recorded individual dying in 1936. The genome was initially sequenced in 2017, using a 108-year-old preserved pouch, but it had numerous gaps. Colossal claims to have filled many of these gaps using DNA from a 120-year-old tooth.

While the genome may seem complete, without other thylacine genomes for comparison, its accuracy remains questionable. Instead, the team relies on related species to estimate completeness. Furthermore, there is no established method to create living cells with this genome.

Consequently, Colossal plans to modify the fat-tailed dunnart, a living marsupial, to mirror thylacine traits. This approach raises the intriguing question: would this creation genuinely resemble an extinct species, or simply be a peculiar version of a contemporary animal?

While Colossal emphasizes its focus on progress rather than scientific publications, many eagerly await tangible proof of its ambitious claims.

Topics:

Vocabulary List:

1. **De-extinction** /di:ɪk'stɪŋk.jən/ (noun): The process of bringing an extinct species back to life through genetic or reproductive means.
2. **Sequencing** /'si:.kwəns.ɪŋ/ (verb): The process of determining the order of nucleotides in a DNA or RNA molecule.
3. **Genome** /'dʒi:.nəʊm/ (noun): The complete set of genes or genetic material present in a cell or organism.
4. **Accuracy** /'æk.jər.ə.si/ (noun): The quality or state of being correct or precise.
5. **Substantiating** /səb'stæn.ji.eɪt/ (verb): Providing evidence to support or prove the truth of something.
6. **Traits** /treɪts/ (noun): Distinguishing characteristics or qualities especially of one’s physical attributes or behavior.



Comprehension Questions

Multiple Choice

1. What is one of the challenges mentioned in sequencing a complete genome?
Option: High cost
Option: Technical difficulties
Option: Lack of researchers
Option: Overabundance of data
2. When did the last recorded thylacine individual die?
Option: 1920
Option: 1936
Option: 1955
Option: 1971
3. Which species does Colossal plan to modify to mirror thylacine traits?
Option: Kangaroo
Option: Koala
Option: Fat-tailed dunnart
Option: Wallaby
4. What method does the team rely on to estimate the completeness of the thylacine genome?
Option: DNA replication
Option: Related species comparison
Option: Genetic engineering
Option: Mutation analysis
5. What does Colossal emphasize in relation to their focus?
Option: Profit generation
Option: Public relations
Option: Scientific publications
Option: Technological advancements
6. Which university is Emilio Mármol-Sánchez from?
Option: Stanford University



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- Option: Harvard University
 - Option: University of Copenhagen
 - Option: Oxford University

True-False

- 7. Colossal has completed sequencing the genome of the extinct thylacine.
- 8. The thylacine genome was initially sequenced in 2017 using a 120-year-old tooth.
- 9. There is an established method to create living cells with the thylacine genome.
- 10. Many people are skeptical about Colossal's ambitious claims.
- 11. The fat-tailed dunnart is a reptile species.
- 12. Colossal is primarily focused on scientific publications to validate their claims.

Gap-Fill

- 13. The thylacines were reduced to Tasmania by European colonization, with the last recorded individual dying in _____.
- 14. The team claims to have filled many gaps in the thylacine genome using DNA from a _____-year-old tooth.
- 15. Without other thylacine genomes for comparison, the accuracy of the genome remains _____.
- 16. Colossal plans to modify the _____ to mirror thylacine traits.
- 17. Many eagerly await tangible proof of Colossal's ambitious _____.
- 18. Sequencing a complete genome is notoriously _____.



Answer

Multiple Choice: 1. Technical difficulties 2. 1936 3. Fat-tailed dunnart 4. Related species comparison
5. Progress rather than scientific publications 6. University of Copenhagen

True-False: 7. False 8. False 9. False 10. True 11. False 12. False

Gap-Fill: 13. 1936 14. 120 15. questionable 16. fat-tailed dunnart 17. claims 18. challenging

Vocabulary quizzes

Multiple Choice (Select the Correct answer for each question.)

1. Who are professionals who study human history and prehistory through the excavation of sites and the analysis of artifacts and other physical remains?

Option: Geologists

Option: Archaeologists

Option: Biologists

Option: Astronomers

2. What is the complete set of genes or genetic material present in a cell or organism?

Option: Hormone

Option: Protein

Option: Genome

Option: Carbohydrate

3. Which natural substance is known for its powerful pain-relieving properties?

Option: Morphine

Option: Insulin

Option: Vitamin C

Option: Caffeine

4. The process of combining different aspects into a unified whole is known as:

Option: Isolation

Option: Integration

Option: Segregation

Option: Differentiation

5. What type of prehistoric flying reptile is known for its membranous wings and long beak?

Option: Tyrannosaurus Rex

Option: Pterosaur

Option: Stegosaurus



Option: Trilobite

6. What is the act of maintaining or protecting something from damage decay or loss?

- Option: Destruction
- Option: Preservation
- Option: Neglect
- Option: Disposal

7. The term "alleviate" means to:

- Option: Intensify
- Option: Worsen
- Option: Increase
- Option: Relieve

8. What is an abnormal mass of tissue that forms when cells divide uncontrollably?

- Option: Virus
- Option: Tumour
- Option: Bacteria
- Option: Parasite

9. Disruptions refer to:

- Option: Harmony
- Option: Chaos
- Option: Balance
- Option: Stability

10. What scientific process involves carefully removing soil to uncover archaeological remains?

- Option: Reconstruction
- Option: Excavation
- Option: Destruction
- Option: Restoration

Gap-Fill (Fill in the blanks with the correct word from the vocabulary list.)

11. _____ lifestyles involve minimal physical activity and a lot of sitting.

12. DNA _____ helps in understanding the order of nucleotides in a genetic code.

13. Some individuals benefit from talk _____ to improve mental health.

14. The _____ system is responsible for transporting blood throughout the body.



15. Scientists are _____ their findings with additional research data.
16. Conditions affecting the brain are often termed _____ disorders.
17. Efforts towards _____ aim to revive extinct species using genetic techniques.
18. Characteristics like eye color and height are examples of inherited _____.
19. The neurotransmitter _____ plays a key role in regulating mood and emotions.
20. Persistent feelings of worry and fear often characterize a state of _____.

Matching Sentences (Match each definition to the correct word from the vocabulary list.)

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| 21. Historical items such as pottery tools and jewelry found at archaeological sites are known as artefacts. |
| 22. The process of a caterpillar turning into a butterfly is a beautiful transformation in nature. |
| 23. Understanding the human genome has opened new possibilities in the field of genetics. |
| 24. The scientist double-checked the results to ensure the accuracy of the experiment. |
| 25. Having a clear plan and defined strategies is key to success in any endeavor. |
| 26. The artist's painting featured an intricate design that amazed viewers with its complexity. |
| 27. Understanding the mechanics of how engines work is crucial for a mechanical engineer. |
| 28. Architects study different types of structures to design safe and functional buildings. |
| 29. The doctor performed a thorough examination to determine the cause of the patient's symptoms. |
| 30. Massages can help alleviate muscle tension and promote relaxation. |

Answer

Multiple Choice: 1. Archaeologists 2. Genome 3. Morphine 4. Integration 5. Pterosaur 6. Preservation 7. Relieve 8. Tumour 9. Chaos 10. Excavation

Gap-Fill: 11. Sedentary 12. Sequencing 13. Therapy 14. Vascular 15. Substantiating 16. Neurological 17. De-extinction 18. Traits 19. Serotonin 20. Anxiety

Matching sentence: 1. Artefacts



2. Transformation 3. Genome 4. Accuracy 5. Strategies 6. Intricate 7. Mechanics 8. Structures 9. Examination
10. Alleviate

CATEGORY

1. Sci/Tech - LEVEL4

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