

Jenny Stovall
Professor Rinehart-Kim
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Genomic Sequencing Leads to New Discoveries on Beethoven

An article by The Wall Street Journal was posted on March 23, 2023, reading about the DNA in Beethoven's hair. This article is related to genetics because the researchers mentioned in this article used genome sequencing to learn more about the health problems that Beethoven faced. It is also explained how scientists used pieces of Beethoven's hair to learn more about the health problems that he endured throughout his life, and ultimately, the health problems leading to his death. For many years, questions have been raised about Beethoven's health. Before he died, Beethoven wrote a letter asking that his medical problems be examined and released to the public after he died.

There were many samples of hair from Beethoven, so the first thing researchers did was verify that his hair was his. Of the eight samples of hair the research started out with, only five samples of hair were determined to belong to Beethoven. Two others did not have enough DNA to test on, and one sample, called the Hiller lock, was found to have belonged to a woman. In his hair samples, scientists found hepatitis B infection, an infection that can lead to liver cirrhosis (one of the factors that claimed Beethoven's life). They also found a genetic factor for liver disease.

These scientists also compared the Y chromosomes of five living males in the Van Beethoven lineage. Using the saliva of these five Van Beethoven males, scientists performed testing of their chromosomes to ultimately compare it to Beethoven's chromosomes. When comparing the Y chromosome of Beethoven with the Y chromosome of the five Van Beethoven males, it was determined that their Y chromosomes did not match each other. Although the five males and Beethoven all shared a common ancestor, it is speculated that at some point in the lineage, one of the offspring ended up with a different biological father than what was initially thought. These living relatives are related to each other, but their Y chromosome was not the same as Beethoven's. At the very end other article, it was concluded based off the genetic findings that liver cirrhosis was the ultimate cause of death for Beethoven.

After discussing the scientific findings on Beethoven's hair, the article then goes into a more historical context, telling the historical story behind Beethoven and his family. Beethoven never married or had children with anyone, so there is not a direct descendant of Beethoven that can be observed for gene comparison. As for the three locks of hair that were found to not belong to him, they will no longer be on display at museums.

I believe that The Wall Street Journal accurately represented this genetics-related topic. This journal gave a brief overview of the research that was performed, and the journal page was wrote in a way that it is easy to understand.

A scientific article by Current Biology supports what was mentioned in The Wallstreet Journal, and even went into more depth about the research. For example, the article by Current Biology goes into detail about how the researchers took five males who are in the Van Beethoven lineage and looked at their Y chromosomes. Throughout this article, there are graphs that represent different comparisons; for example, there was a graph showing the Y chromosome of the five Van Beethoven men. There is also another graph in this article that goes into the factors behind Beethoven's liver disease.

Overall, there was nothing that the Wall Street Journal wrote that was incorrect. It could have gone into more detail about how the testing was performed, but given that it is not a scientific article, it still did a good job of explaining how the genetic testing was performed.

Works Cited

Marcus, A. DNA from Beethoven's hair unlocks family secret. *The Wall Street Journal*. <https://www.wsj.com/articles/beethoven-dna-hair-health-98155ce5>. (2023).

Begg, T. et al. Genomic analyses of hair from Ludwig van Beethoven. *Current Biology*. <https://doi.org/10.1016/j.cub.2023.02.041>. (2023).