# Article information:

Chemical evidence of preserved collagen in 54‐million‐year‐old fish vertebrae - Dutta - 2020 - Palaeontology - Wiley Online Library  
<https://onlinelibrary.wiley.com/doi/10.1111/pala.12469>

# Article summary:

1. Collagens are the most abundant protein in vertebrates and provide tensile strength, torsional stiffness and prevent mechanical failure of tissues.

2. Animal soft tissues are characterized by nitrogen-bearing macromolecules which are labile and prone to diagenetic alterations.

3. This study demonstrates that collagen is preserved in Early Eocene fish vertebrae using pyrolysis-comprehensive two-dimensional gas chromatography coupled to time-of-flight mass spectrometry (py-GC×GC-TOFMS) and immunofluorescence analysis.

# Article rating:

Appears well balanced: The article presents the information in a reliable and balanced way, without biases and prejudices. The claims made in the article are well supported and, where applicable, all sides of the argument are given opportunity to present their point of view. The article appears trustworthy and reliable.

# Article analysis:

The article provides a detailed description of the methods used to detect the presence of collagen in 54 million year old fish vertebrae, as well as an overview of the relevant literature on the topic. The authors have provided evidence for their claims, such as citing studies that have previously detected collagen in dinosaur bones from the Cretaceous period, as well as providing evidence for their own findings through pyrolysis-comprehensive two-dimensional gas chromatography coupled to time-of-flight mass spectrometry (py-GC×GC-TOFMS) and immunofluorescence analysis.

The article does not appear to be biased or one sided, as it presents both sides of the argument regarding the preservation of collagen over deep time. It also acknowledges potential risks associated with diagenetic alteration, such as nitrogen bearing macromolecules being labile and prone to alteration. Furthermore, it provides a detailed description of the methods used to detect collagen in fossilized fish vertebrae, which adds credibility to its claims.

The only potential issue with this article is that it does not explore any counterarguments or present any opposing views on its findings. However, this is likely due to the fact that there is no existing evidence that contradicts its findings at this point in time.

# Topics for further research:

* Preservation of collagen over deep time
* Diagenetic alteration of collagen
* Pyrolysis-comprehensive two-dimensional gas chromatography
* Time-of-flight mass spectrometry
* Immunofluorescence analysis of fossils
* Counterarguments to collagen preservation in fossils

# Report location:

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