# Article information:

mRNA ageing shapes the Cap2 methylome in mammalian mRNA | Nature
<https://www.nature.com/articles/s41586-022-05668-z>

# Article summary:

1. The mRNA cap structure is a critical component of eukaryotic mRNAs, and its methylation state varies between transcripts.

2. Cap methyltransferase 2 (CMTR2) selectively modifies a subset of Cap1 mRNAs to form Cap2-modified mRNA 5′ ends.

3. A new method called CapTag-seq was developed to quantify and map Cap2, revealing an unexpected topology of the Cap2 methylome in mammalian transcriptomes and that Cap2 methylation specificity is largely guided by mRNA age.

# 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 comprehensive overview of the role of mRNA cap structure in eukaryotic mRNAs and how it is modified by CMTR2 to form Cap2-modified mRNA 5′ ends. The article also introduces a new method called CapTag-seq which can be used to quantify and map Cap2, providing insights into the topology of the Cap2 methylome in mammalian transcriptomes as well as its methylation specificity being largely guided by mRNA age.

The article appears to be reliable and trustworthy overall, with no obvious biases or unsupported claims present. All claims are supported by evidence from experiments conducted on different organisms and cell types, as well as mouse tissues. The article also provides detailed information on the methods used for quantifying and mapping Cap2, such as RNase T2 digestion, decapping, ligation of 5' adapter composed of Nm, RT–PCR and next-generation sequencing. Furthermore, potential risks associated with this research are noted in the article, such as preweaning lethality in mice caused by deletion of Cmtr2 gene and effects on growth and proliferation of KRAS-driven lung cancer cells due to lack of CMTR2 activity.

In conclusion, this article appears to be reliable and trustworthy overall with no obvious biases or unsupported claims present.

# Topics for further research:

* mRNA cap structure
* Cap2-modified mRNA 5′ ends
* CapTag-seq
* mRNA age
* RNase T2 digestion
* KRAS-driven lung cancer cells

# Report location:

<https://www.fullpicture.app/item/4b4c50bccd27656afd072f95bb4b8ecd>