

Mitochondrial 16S rRNA Is Methylated by tRNA Methyltransferase TRMT61B in All Vertebrates

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CORRECTION

Correction: Mitochondrial 16S rRNA Is Methylated by tRNA Methyltransferase TRMT61B in All Vertebrates

Dan Bar-Yaacov, Idan Frumkin, Yuka Yashiro, Takeshi Chujo, Yuma Ishigami, Yonatan Chemla, Amit Blumberg, Orr Schlesinger, Philipp Bieri, Basil Greber, Nenad Ban, Raz Zarivach, Lital Alfonta, Yitzhak Pilpel, Tsutomu Suzuki, Dan Mishmar

Notice of Republication

This article was republished on December 30, 2016, to correct errors in the reference list and corresponding citations, which were unintentionally included from an earlier draft. Please download this article again to view the correct version. The originally published, uncorrected article and the republished, corrected articles are provided here for reference.

In addition, the superscript formatting in “AAM¹AUp” and “tRNA^(UUR)”, the subscript formatting in “MgCl₂”, and a typographical error in “methyltransferase” have been corrected throughout the manuscript. There was also an error in the sentence describing Fig 2A; the correct sentence is: “In contrast, knock down of TRMT10C did not lead to altered cDNA extension”.

The following references have been replaced:

10. Larson ET, Kim JE, Zucker FH, Kelley A, Mueller N, Napuli AJ, et al. Structure of Leishmania major methionyl-tRNA synthetase in complex with intermediate products methionyladenylate and pyrophosphate. *Biochimie*. 2011; 93(3):570–82. doi: [10.1016/j.biochi.2010.11.015](https://doi.org/10.1016/j.biochi.2010.11.015) PMID: 21144880 is now **10.** Piskol R, Peng Z, Wang J, Li JB. Lack of evidence for existence of noncanonical RNA editing. *Nature biotechnology*. 2013;31(1):19–20.

41. Gershoni M, Levin L, Ovadia O, Toiw Y, Shani N, Dadon S, et al. Disrupting Mitochondrial—Nuclear Coevolution Affects OXPHOS Complex I Integrity and Impacts Human Health. *Genome Biology and Evolution*. 2014; 6(10):2665–80. doi: [10.1093/gbe/evu208](https://doi.org/10.1093/gbe/evu208) PMID: 25245408 is now **41.** Brawand D, Soumillon M, Necsulea A, Julien P, Csárdi G, Harrigan P, et al. The evolution of gene expression levels in mammalian organs. *Nature*. 2011;478(7369):343–8.

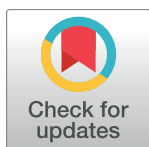
42. Brown A, Amunts A, Bai X-c, Sugimoto Y, Edwards PC, Murshudov G, et al. Structure of the large ribosomal subunit from human mitochondria. *Science*. 2014; 346(6210):718–22. doi: [10.1126/science.1258026](https://doi.org/10.1126/science.1258026) PMID: 25278503 is now **42.** Barbosa-Morais NL, Irimia M, Pan Q, Xiong HY, Gueroussou S, Lee LJ, et al. The evolutionary landscape of alternative splicing in vertebrate species. *Science*. 2012;338(6114):1587–93.

The following references have now been removed:

29. Nakanishi K, Ogiso Y, Nakama T, Fukai S, Nureki O. Structural basis for anticodon recognition by methionyl-tRNA synthetase. *Nature structural & molecular biology*. 2005; 12(10):931–2.

31. Emsley P, Cowtan K. Coot: model-building tools for molecular graphics. *Acta Crystallographica Section D: Biological Crystallography*. 2004; 60(12):2126–32.

47. (This was a duplicate of **42.**) Brown A, Amunts A, Bai X-c, Sugimoto Y, Edwards PC, Murshudov G, et al. Structure of the large ribosomal subunit from human mitochondria. *Science*. 2014:1258026.



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The following references have now been added:

- 28.** Greber BJ, Boehringer D, Leibundgut M, Bieri P, Leitner A, Schmitz N, et al. The complete structure of the large subunit of the mammalian mitochondrial ribosome. *Nature*. 2014;515(7526):283–6.
- 30.** Noeske J, Wasserman MR, Terry DS, Altman RB, Blanchard SC, Cate JH. High-resolution structure of the Escherichia coli ribosome. *Nature structural & molecular biology*. 2015;22(4):336–41.
- 43.** Greber BJ, Boehringer D, Leitner A, Bieri P, Voigts-Hoffmann F, Erzberger JP, et al. Architecture of the large subunit of the mammalian mitochondrial ribosome. *Nature*. 2014;505(7484):515–9.
- 44.** Bar-Yaacov D, Hadjivasiliou Z, Levin L, Barshad G, Zarivach R, Bouskila A, et al. Mitochondrial Involvement in Vertebrate Speciation? The Case of Mito-nuclear Genetic Divergence in Chameleons. *Genome Biol Evol*. 2015;7(12):3322–36. doi: [10.1093/gbe/evv226](https://doi.org/10.1093/gbe/evv226). PubMed PMID: 26590214; PubMed Central PMCID: PMC4700957.
- 49.** Robinson JT, Thorvaldsdóttir H, Winckler W, Guttman M, Lander ES, Getz G, et al. Integrative genomics viewer. *Nature biotechnology*. 2011;29(1):24–6.
- The citation numbers of the following references have changed:
- 8.** is now **9.** Wang IX, Core LJ, Kwak H, Brady L, Bruzel A, McDaniel L, et al. RNA-DNA differences are generated in human cells within seconds after RNA exits polymerase II. *Cell Rep*. 2014; 6(5):906–15. doi: [10.1016/j.celrep.2014.01.037](https://doi.org/10.1016/j.celrep.2014.01.037) PMID: 24561252
- 9.** is now **8.** Bar-Yaacov D, Avital G, Levin L, Richards AL, Hachen N, Jaramillo BR, et al. RNA—DNA differences in human mitochondria restore ancestral form of 16S ribosomal RNA. *Genome research*. 2013; 23 (11):1789–96. doi: [10.1101/gr.161265.113](https://doi.org/10.1101/gr.161265.113) PMID: 23913925
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- 18.** is now **17.** Amunts A, Brown A, Toots J, Scheres SH, Ramakrishnan V. The structure of the human mitochondrial ribosome. *Science*. 2015; 348(6230):95–8 doi: [10.1126/science.aaa1193](https://doi.org/10.1126/science.aaa1193) PMID: 25838379
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- 30.** is now **31.** Wang HH, Isaacs FJ, Carr PA, Sun ZZ, Xu G, Forest CR, et al. Programming cells by multiplex genome engineering and accelerated evolution. *Nature*. 2009; 460(7257): 894–8. doi: [10.1038/nature08187](https://doi.org/10.1038/nature08187) PMID: 19633652
- 43.** is now **45.** Li H, Durbin R. Fast and accurate short read alignment with Burrows-Wheeler transform. *Bioinformatics*. 2009; 25(14):1754–60. PMID: 19451168. doi: [10.1093/bioinformatics/btp324](https://doi.org/10.1093/bioinformatics/btp324)
- 44.** is now **46.** Li H, Handsaker B, Wysoker A, Fennell T, Ruan J, Homer N, et al. The Sequence Alignment/Map format and SAMtools. *Bioinformatics*. 2009; 25(16):2078–9. PMID: 19505943. doi: [10.1093/bioinformatics/btp352](https://doi.org/10.1093/bioinformatics/btp352)
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- 46.** is now **48.** He Y, Wu J, Dressman DC, Iacobuzio-Donahue C, Markowitz SD, Velculescu VE, et al. Heteroplasmic mitochondrial DNA mutations in normal and tumour cells. *Nature*. 2010; 464(7288):610–4. PMID: 20200521. doi: [10.1038/nature08802](https://doi.org/10.1038/nature08802)
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biology. *J Vis Exp.* 2013;(79):e50762. doi: [10.3791/50762](https://doi.org/10.3791/50762) PMID: 24084388; PubMed Central PMCID: PMC3960857.

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Supporting Information

S1 File. Originally published, uncorrected article.

(PDF)

S2 File. Republished, corrected article.

(PDF)

Reference

1. Bar-Yaacov D, Frumkin I, Yashiro Y, Chujo T, Ishigami Y, Chemla Y, et al. Mitochondrial 16S rRNA Is Methylated by tRNA Methyltransferase TRMT61B in All Vertebrates. *PLoS Biol* 2016; 14(9): e1002557. doi: [10.1371/journal.pbio.1002557](https://doi.org/10.1371/journal.pbio.1002557) PMID: 27631568