

## Does mtDNA copy number mean mitochondrial abundance?

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We have read the article by Vitaly et al. entitled “Reproductive aging is associated with decreased mitochondrial abundance and altered structure in murine oocytes” [1] with great interest. In that article, the authors aimed to establish the phenotype of reproductive aging in their mouse model. To test this idea, a study have been carried out in young and aged female virgin wild type C57BL6J mice to establish their reproductive phenotype by measuring time to conception, litter size, and live birth per dam. Individual oocytes have been analyzed for their mtDNA contents. They have found that oocytes from old mice have 2.7-fold less mtDNA compared to younger controls. They have concluded that as reproductive aging in mice is associated with reduced reproductive competence. Aging is associated with a significant decrease in number of mitochondria in oocytes. They have indicated that their data support mitochondrial organ-

elle loss and dysfunction in oocytes as a potential etiology for reproductive senescence.

We noticed that the term of “mitochondrial abundance” has been used three times in their article. The first is in the title and others in the abstract. We suppose that they used the term of “mitochondrial abundance” in the sense of “mtDNA copy number”. To our knowledge, copy number of mtDNA is not always a reliable predictor for mitochondrial abundance, which implies the total number of organelle in a tissue. In other words, it is known that the copy number of mtDNA does not necessarily correlate with the mitochondrial abundance. Some mitochondrial diseases are known to have increased mitochondria while the mtDNA copy number is decreased [2]. Alternatively, citrate synthase, a mitochondrial matrix enzyme, is one of the best indicators for mitochondrial abundance in tissues [2]. We think that citrate synthase enzyme activity would have been better to estimate the abundance of mitochondria. We wanted to bring out an important point to the attention of the scientists working in this area: Using mitochondrial abundance to stand for mtDNA copy number can be confusing and may cause a contradiction of terms.

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*Capsule* MtDNA copy number is not always correlate with the number of mitochondria of tissue. So, it is not reliable to estimate mitochondrial abundance.

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