GENETICS

PATERNAL MITOCHONDRIAL INHERITANCE

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So far I thought this is not happening in humans, but a PNAS paper published this month shows it may be even a genetic trait as the authors found biparental mtDNA inheritance in 17 members in three multi-generation families.
There are around 50-75 mitochondria in a single sperm which appears to be a quite low number (~0.1%) relative to the number maternal mitochondria.
This unexpected paternal origin of mtDNA raises questions how exactly paternal mtDNA can escape its normal fate of being eliminated from the embryo. Are paternal mitos just being diluted and there is much more (micro-)heteroplasmy than currently known?
I don't know why the authors didn't do formal linkage analysis. And I also don't know if their conclusion is correct "that occasional paternal transmission events seem to have left no detectable mark on the human genetic record" not citing an 1996 PNAS paper

> In the majority of mammals—including humans—the midpiece mitochondria can be identified in the embryo even though their ultimate fate is unknown. The "missing mitochondria" story seems to have survived—and proliferated—unchallenged in a time of contention between hypotheses of human origins, because it supports the "African Eve" model of recent radiation of Homo sapiens out of Africa.

In the age of single cell sequencing it may no more be adequate to believe in maternal inheritance alone.