

In favor

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When it comes to mitochondrial replacement therapy, I am fully in support of it due to a plethora of reasons. Prevention of the disease's transmission to the child is of the utmost importance; as a scientist, you would want to ensure the child's safety and well-being for their future. Now, ethically speaking, the future child may have an identity when their past is revealed to them.

Mitochondrial replacement therapy is when they medically transfer nDNA from an oocyte of an infected mother to an egg with good mitochondria. That way, the mother cannot pass down the disease, and the child will not inherit it. There are multiple ways this therapy can be performed. One way is through Maternal Spindle Transfer, which takes the infected nDNA, which gets input into an egg that is unfertilized. Then we have Pronuclear Transfer, but instead, this method involves placing the maternal fertilized egg's nuclear DNA into an egg with non-mutated mitochondria. When it comes to certain procedures, certain arguments can be brought to the table. One of the main concerns is the fact that technically the child will have three parents, and then could potentially bring about self-identity issues throughout the child's youth, causing a lot of confusion. Is their mother the donor or the person raising them? My stance when it comes down to this is that this issue could not be that big of a deal due to it being case-specific. Informing your child about their circumstances and reassuring them with love and compassion will let the child know that just because genetically you may be related to another person does not mean that they are your actual mother/father etc. The point is not all family are blood; it can come from any place or background where unconditional love and security is displayed. Another concern is how scientists go about getting the donors with the healthy mitochondria, which can be seen as using women for their own benefit, which is inherently wrong. In this PubMd article, Baylis said, "that there is a huge risk of coercion and the exploitation of disadvantaged women" (Baylis 2017). Which is true? How much mistreatment and exploitation would they allow for the "betterment of science"? But there are plenty of practices in the world that would not tolerate the mistreatment and exploitation of women. There must be an alternative

Alternatives to MRTs such as crispr cas9 editing software, stem cell transplantation, or adoption. CRISPR/Cas9 gene editing is a really good alternative because, although it can alter or add on specific genes, it can also slice and cut out mitochondrial DNA, which can get rid of mutations and stop future ones from occurring. This is also a better alternative due to its accuracy and being cost-effective. There is also HSCT or someone who can go the adoption route and avoid all this altogether. Adopting a child into your home will impact their life and give them a stable, secure home in which they can feel loved and appreciated. Pivoting to the financial side, how will stakeholders be impacted? With my decision to go with alternative methods to MRT stakeholders would see a drastic regression in shareholders' capital, a lot of people's jobs may be at risk, but it is okay because I would rather see that than women being taken advantage of.

Resources:

<https://pmc.ncbi.nlm.nih.gov/articles/PMC7827455/#:~:text=Generally%2C%20MRTs%20consist%20in%20transferring,modification%20%5B24%2C25%5D.>

<https://pmc.ncbi.nlm.nih.gov/articles/PMC5372994/#:~:text=Abstract,be%20safely%20applied%20in%20humans.>

[https://mitocanada.org/what-is-mitochondrial-replacement-therapy/#:~:text=Mitochondrial%20replacement%20therapy%20\(MRT\)%20is%20a%20procedure,to%20the%20Assisted%20Human%20Reproduction%20Act%20\(AHRA\).](https://mitocanada.org/what-is-mitochondrial-replacement-therapy/#:~:text=Mitochondrial%20replacement%20therapy%20(MRT)%20is%20a%20procedure,to%20the%20Assisted%20Human%20Reproduction%20Act%20(AHRA).)

https://pmc.ncbi.nlm.nih.gov/articles/PMC5043096/#:~:text=Other%20ethical%20concerns%20include:%20*%20**Benefitting%20the,of%20pro%20Doncotic%20genes%20*%20Rearrangement%20of%20chromosomes