Stem cell tech may help mitochondrial disease

The following is an excerpt of a longer story.

Last week's big news about production of genetically matched human embryonic stem cells holds potential for treating mitochondrial disease, because the matching is not precise. Somatic cell nuclear transfer, the method that produced Dolly the sheep, duplicates nuclear DNA from the donor nucleus, but not the mitochondria, which are those of the egg cell receiving the nucleus.

Mitochondria are the asterisk in the textbook explanation that all DNA is packaged into chromosomes in the nucleus. Mitochondria contain their own DNA, reproduce on their own, and scientific evidence strongly suggests they evolved from invading bacteria that became symbiotic. While mitochondria have a tiny number of genes, their function is essential for human life.

Embryonic stem cells generated by SCNT would have the same nuclear DNA as the donor cell, but healthy mitochondria. And that gives rise to the possibility of a new kind of gene therapy, said UC San Diego stem cell researcher Louise Laurant.

Read the full story here: Stem cell tech may help mitochondrial disease