

Popular science summary

Cells – How to accelerate their aging

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Due to better medical care and living situations, the world's population gets older. This increases the number of patients diagnosed with age-related diseases like Alzheimer or Parkinson, due to the fact that the probability of getting those diseases increases in people aged 60 and older.

A new technology based on stem cells can now generate almost any cell type of a human body including specific cells of the brain. These cells are important players in the development of Alzheimer. Therefore, research uses these cells to better understand the disease and find possible treatments.

The resulting cell types of this technology have the attribute to be young when generated. Young cells are however not useful when studying age-related diseases. Since the cells of the patients are older once the age-related disease develops, our newly generated cells have to be artificially aged.

This study was designed to find a way of accelerating the aging process of those cells. Here something bad was used for the good. The Hutchinson-Gilford Progeria syndrome, caused by a genetic defect, lets patients age faster. We introduced the same genetic defects in stem cells and generated different cell types to look whether the cells are aging or not. The study found promising results, however, further research is still necessary to prove the concept.

Once this approach is functioning, we would be able to use the described technology to create disease specific cells which carry the age-related gene defect. This can be used for better understanding age-related diseases and for finding potential treatments.

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