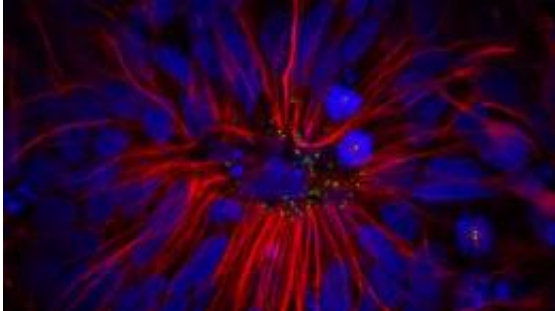


Brain cells created from patients' skin cells

February 7 2012



Neural stem cells. Credit: Yichen Shi (Livesey Lab) University of Cambridge

(Medical Xpress) -- Cambridge scientists have, for the first time, created cerebral cortex cells – those that make up the brain’s grey matter – from a small sample of human skin. The researchers’ findings, which were funded by Alzheimer’s Research UK and the Wellcome Trust, were published today in *Nature Neuroscience*.

Diseases of the [cerebral cortex](#) range from developmental conditions, such as epilepsy and autism, to neurodegenerative conditions such as Alzheimer’s. Today’s findings will enable scientists to study how the human cerebral cortex develops, how it ‘wires up’ and how that can go wrong (a common problem leading to learning disabilities).

It will also allow them to recreate brain diseases, such as Alzheimer’s, in the lab. This will give them previously impossible insight, allowing them to both watch the diseases develop in real time and also develop and test

new drugs to stop the diseases progressing.

Dr. Rick Livesey of the Gurdon Institute and Department of Biochemistry at the University of Cambridge, principal investigator of the research, said: “This approach gives us the ability to study human brain development and disease in ways that were unimaginable even five years ago.”

For their research, the scientists took skin biopsies from patients and then reprogrammed the cells from the skin samples back into [stem cells](#). These stem cells as well as human embryonic stem cells were then used to generate cerebral cortex cells.

Dr. Livesey added: “We are using this system to recreate Alzheimer’s disease in the lab. Alzheimer’s disease is the commonest form of dementia in the world, and dementia currently affects over 800,000 people in the UK. It’s a disease that primarily affects the type of nerve cell we’ve made in the lab, so we’ve the perfect tool to create a full, human model of the disease in the lab.”

Dr. Simon Ridley, Head of Research at Alzheimer’s Research UK, the UK’s leading dementia research charity, said: “We are really pleased to have contributed funding for this work and the results are a positive step forward. Turning stem cells into networks of fully functional nerve cells in the lab holds great promise for unravelling complex [brain](#) diseases such as Alzheimer’s.

“Dementia is the greatest medical challenge of our time – we urgently need to understand more about the condition and how to stop it. We hope these findings can move us closer towards this goal.”

Provided by University of Cambridge

Citation: Brain cells created from patients' skin cells (2012, February 7) retrieved 27 April 2024 from <https://medicalxpress.com/news/2012-02-brain-cells-patients-skin.html>

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