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## Japanese researchers make brain tissues from stem cells

TOKYO (AFP) — Japanese researchers said Thursday they had created functioning human brain tissues from stem cells, a world first that has raised new hopes for the treatment of disease.

Stem cells taken from human embryos have been used to form tissues of the cerebral cortex, the supreme control tower of the brain, according to researchers at the government-backed research institute Riken.

The tissues self-organised into four distinct zones very similar to the structure seen in human foetuses, and conducted neuro-activity such as transmitting electrical signals, the institute said.

Research on stem cells is seen as having the potential to save lives by helping to find cures for diseases such as cancer and diabetes or to replace damaged cells, tissues and organs.

The team's previous studies showed stem cells differentiated into different cells but until now they had never organised into functioning tissues.

"In regenerative therapy, only a limited number of diseases can be cured with simple cell transplants. Transplanting tissues could raise hopes for greater functional recovery," the institute said in a statement.

"Cultivated tissues are still insufficient and too small to be used to treat stroke patients. But study of in-vitro cultivation of more mature cortex tissues, such as those with six zones like in the adult human brain, will be stepped up," it said.

The tissues could also serve as "a mini organ" for use in studying the cause of the Alzheimer's disease and developing vaccines, it said.

Embryonic stem cells are harvested by destroying a viable embryo, a process that some people find unacceptable.

Riken said cortex tissues were also obtained from "induced pluripotent stem cells," which are similar to embryonic stem cells but artificially induced, typically from adult cells such as skin cells.

The research was led by Yoshiki Sasai at Riken Centre for Development Biology in western Japan's Kobe.