

PRESS RELEASE

EMBARGOED UNTIL SUNDAY 13 JULY, 14.30 CEST (13.30 BST)

STEM CELLS ARE GOOD FOR THE BRAIN

For some years, scientists have been speculating over why stem cells exist in the brain, as brain regeneration is limited. A German team of neuroscientists believe these stem cells help keep the brain healthy and active.

Speaking at Europe's major neuroscience conference today (Sunday 13 July), Professor Gerd Kempermann from the Center for Regenerative Therapies in Dresden explained that the emerging hypothesis for the function of these neural stem cells is for maintenance of a healthy brain, rather than regeneration. The hippocampus – the region of the brain that is central to memory - requires modifications (plasticity) at a cellular level, a much more complex process than synaptic plasticity at the junction of the neurons used by other brain regions. In the adult hippocampus, stem cells produce new neurons throughout life, a process known as 'adult neurogenesis'. Surprisingly, cognitive activity, as well as physical exercise, stimulate this process..

"Our idea is that new neurons in the adult hippocampus allow this system to remain flexible to the cognitive challenges an individual might meet during his or her life. New neurons might add to a particular reserve that allows better compensation in the face of degeneration and loss," Professor Kempermann proposed.

He suggests that on the other hand if this neural stem-cell based system fails, this loss of cellular plasticity might contribute to some aspects of psychiatric disorders such as depression, schizophrenia and dementia. Stimulating adult neurogenesis might thus be a way to deal with these disorders.

"New neurons in the adult hippocampus might help to explain why mental and physical activity is good for the aging brain", he said.

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This research so far is in mice. Very little is known about this process in humans, but Professor Kempermann is fairly confident that the same regulatory principles apply in humans too.

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Notes to Editors

FENS 2008 is hosted by the Swiss Society for Neuroscience and will attract over 5,000 international delegates. The Federation of European Neuroscience Societies, founded in 1998, aims to advance research and education in neuroscience, representing neuroscience research in the European Commission and other granting bodies. FENS is the European partner of the American Society for Neuroscience. FENS represents a large number of national European neuroscience societies and has around 16000 members. <http://fens2008.neurosciences.asso.fr/>