Blood vessel cells aid tissue repair in teeth

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Research presented at the recent held first International Conference on Dental and Craniofacial Stem Cells in New York in the US could mean a breakthrough in future tissue and organ repair. In an experiment involving incisors from rodents, a mammal species that includes mice and squirrels, researchers from the UK, Brazil and the US found that connective tissue cells can transform into specialised cells to repair damaged tissue in teeth.

Their results have been published in the latest issue of Proceedings of the National Academy of Sciences of the USA.

Previous research suggested that so-called pericytes, usually found in small blood vessels, have the potential to transform into different cells. This new study is the first claiming to have found genetic evidence that they can also act as stem cells to regenerate lost or damaged tissue. In the experiment, they were transplanted into the tooth, where they transformed into dental pulp cells.

“This is the first time perivascular cells have been shown to differentiate into specialised cells during a natural repair process,” says Prof. Paul Sharpe from the Department of Craniofacial Development at the Dental Institute at King’s College London, who led the study. “In addition to the obvious significance for understanding the cellular mechanisms of tissue repair, it also has wider implications for areas of regenerative medicine/dentistry directed towards stimulating natural repair following tissue damage or disease.”

Blood vessel cells inside a tooth (DTI/Photo Kings College London, UK)

References:

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