



Human molar scaffold. (DTI/Photo courtesy by Columbia University, USA)

May 26, 2010 | USA

Columbia University announces break-through in tooth regeneration

by Daniel Zimmermann, DTI

NEW YORK, USA/LEIPZIG, Germany: Dental implants could soon become a secondary choice for replacing natural teeth. According to new research from the College of Dental Medicine at Columbia University in New York, three-dimensional scaffolds infused with stem cells could yield an anatomically correct tooth in as soon as nine weeks once implanted. The new technique, developed by Columbia University professor Jeremy Mao, has also shown potential to regenerate periodontal ligaments and alveolar bone, which could make way to re-grow natural teeth that fully integrate into the surrounding tissue.

Previous research on tooth regeneration has been focusing on harvesting stem cells directly on dental implants to improve osseointegration or outside the body where the tooth is grown under laboratory conditions and implanted once it has matured. Mao's technique, which has been tested on animal-models, is moving the harvesting process directly into the socket where the tooth can be grown 'orthotopically'.

"A key consideration in tooth regeneration is finding a cost-effective approach that can translate into therapies for patients who cannot afford or who aren't good candidates for dental implants," Dr Mao told *Dental Tribune Asia Pacific*. "Our findings represent the first report of regeneration of anatomically shaped tooth-like structures in vivo."

Dr Mao's study has been published in the recent *Journal of Dental Research* and will be presented at this year's International Association of Dental Research congress in Barcelona. Columbia has also announced to have filed