Research has proven that dental stem cells hold potential for the successful regeneration of dental and other body tissues. In May, experts from around the globe gathered in New York for the first time to discuss the latest concepts and scientific breakthroughs at the International Conference on Dental and Craniofacial Stem Cells, Dental Tribune Asia Pacific Editor Daniel Zimmermann spoke with Columbia University professor and co-organiser Dr Jeremy Mao about the conference and when the first clinical applications might be available for dentists.

**Daniel Zimmermann: Dr Mao, re-growing teeth or parts of it could mean an end to dentistry as we know it. When will this concept become reality?**

**Dr Jeremy Mao:** Research in the area of dental tissue regeneration and engineering is developing rapidly. Different parts of the tooth like the dental pulp, dentine and cementum have been already successfully regenerated in animal models. These techniques are not ready for clinical use yet but they will be available in a few years from now, depending on approval by regulatory agencies like the Food and Drug Administration in the US. Science is only one part of this process.

In contrast with embryonic stem cell research, dental stem cells are harvested from what clinicians refer to as “dental waste” such as extracted teeth or teeth that have fallen out. These cells can only be obtained by destroying the fertilised embryo, which can only be done by the Food and Drug Administration in the US first but as the conference is not one single presentation regarding dental stem cells. Why is that? This is true. There is not much ethical discussion because unlike embryonic stem cells, which can only be obtained by destroying the fertilised embryo, dental stem cells hold potential for re-growing teeth or parts of it.

**Daniel Zimmermann:** Are there quite a number of researchers in Europe and Asia working on dental and craniofacial stem cell research.

**Dr Jeremy Mao:** There are quite a number of researchers in Europe and Asia working on dental and craniofacial stem cell research. Realising this concept will probably benefit most from this research.

**Daniel Zimmermann:** Is there collaboration between scientists that work with dental and medical stem cells?

**Dr Jeremy Mao:** Theoretically, there seems to be no limit to what tissue we can regenerate, so you can expect the whole range of dentistry fields to benefit from these techniques. It is only a matter of time until we have learned enough about article that demonstrated that clones of monocloned stem cells of dental pulp can transform into myoblasts and help with the formation of muscle tissue. This, and other research, suggests that dental stem cells can be used to treat not only dental diseases, but also other medical conditions.

**Daniel Zimmermann:** Can dental stem cells be used for medical applications as well?

**Dr Jeremy Mao:** Very likely. Earlier this year, for example, we published an article that demonstrated that clones of monocloned stem cells of dental pulp can transform into myoblasts and help with the formation of muscle tissue. This, and other research, suggests that dental stem cells can be used to treat not only dental diseases, but also other medical conditions.

**Daniel Zimmermann:** What fields of dentistry will probably benefit most from this research?

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