

# 5<sup>th</sup> World Congress on **Cell & Stem Cell Research**

March 23-25, 2015 DoubleTree by Hilton Chicago - North Shore, USA

## **Human dental pulp stem cells in ceramic; accelerate bone formation during mandibular distraction osteogenesis in rabbit model**

**Amera Khalil Alkaisi**

University of Anbar College of Dentistry Ramadi, Iraq

The major disadvantage of distraction osteogenesis (DO) is the long treatment period which may compromise healing. The main aim of this study was to enhance bone formation during DO using tissue engineering construct consist of stem cells from dental pulp of deciduous teeth (SHD) seeded in macroporus biphasic calcium phosphate (MBCP) scaffold. A randomized controlled trial was conducted. Eighteen skeletally immature New Zealand white rabbits were divided into 3 groups, with 6 in each, the SHD/MBCP as group 1, the SHD group 2 and control group 3. MBCP was synthesized and characterized in engineering campus USM and SHD were isolated, expanded, and characterized in craniofacial lab USM. Six million cells and 6 million cells seeded in MBCP were transplanted into the distracted area for group2 and 1 respectively during the osteotomy period. After a 4-days latency period, a total of 6 mm was distracted for 6 days. The newly formed bone was analyzed Biochemically, histologically, and histomorphometrically at 2, 4, and 6 weeks postoperatively. (Kruskal-Wallis test) was used for data analysis, and  $P < 0.05$  was considered statistically significant. The cell lineage was positive for the 2 mesenchymal stem cell markers tested (CD105 and CD166). More mature bone in the SHD/MBCP transplanted group was observed. Alkaline phosphates level was significantly different,  $P < 0.001$ . Histomorphometric measurements detected that the percentage of newly formed bone in SHD/BCP, SHD and control were 72.73, 59.78, and 32.13 respectively with statistically significant difference between the groups  $P < 0.001$ .

### **Biography**

Amera has completed her PhD in Universiti Sains Malaysia School of dental Sciences 2013. She is lecturer in oral and maxillofacial department. She has published several articles and presented several research papers in National and International Journals conferences. She is a member of editorial committee of 2 international Journals.

### **Notes:**