TECHNICAL RESEARCH DOCUMENTS AND MEDICAL PUBLICATIONS FOR:

DAMAGED BONE AND CARTILAGE

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Stem cells from dental pulp have been shown to have the ability to differentiate into osteoblasts. Studies have shown that dental pulp stem cells are a promising tool for bone generation. Stem cells from teeth have been expanded, differentiated, and implanted into animal models and have repaired bone defects. Stem cells from dental pulp may one day be used to treat human bone disorders, like osteoporosis, bone injury, and bone deformation.

Paper 1:

Three years after transplants in human mandibles, histological and in-line holotomography revealed that stem cells regenerated a compact rather than a spongy bone: biological and clinical implications.

Giuliani A, Manescu A, Langer M, Rustichelli F, Desiderio V, Paino F, De Rosa A, Laino L, d'Aquino R, Tirino V, Papaccio G. "Three years after transplants in human mandibles, histological and in-line holotomography revealed that stem cells regenerate a compact rather than a spongy bone: biological and clinical implications." Stem Cells Transl Med (2013). PMID: 23502599

http://www.ncbi.nlm.nih.gov/pubmed/23502599

Paper 2:

Transplantation of human dental pulp stem cells: enhance bone consolidation in mandibular distraction osteogenesis.

Alkaisi A, Ismail AR, Mutum SS, Rifin Ahmad ZA, Masudi S, Razak NH. "Transplantation of human dental pulp stem cells: enhance bone consolidation in mandibular distraction osteogenesis." J Oral Maxillofac Surg (2013). PMID: 24040948

http://www.ncbi.nlm.nih.gov/pubmed/24040948

Paper 3:

Fibroin Scaffold Repairs Critical-Size Bone Defects In Vivo Supported by Human Amniotic Fluid and Dental Pulp Stem Cells.

Riccio, Massimo, et al. "Fibroin Scaffold Repairs Critical-Size Bone Defects In Vivo Supported by Human Amniotic Fluid and Dental Pulp Stem Cells." Tissue Engineering Part A 18.9-10 (2012): 1006-1013.

http://online.liebertpub.com/doi/abs/10.1089/ten.tea.2011.0542

Paper 4:

Osteogenic potential of effective bone engineering using dental pulp stem cells, bone marrow stem cells, and periosteal cells for osseointegration of dental implants.

Ito K, Yamada Y, Nakamura S, Ueda M. "Osteogenic potential of effective bone engineering using dental pulp stem cells, bone marrow stem cells, and periosteal cells for osseointegration of dental implants." Int J Oral Maxillofac Implants (2011). PMID: 22010075

http://www.ncbi.nlm.nih.gov/pubmed/22010075

Paper 5:

Promising cell-based therapy for bone regeneration using stem cells from deciduous teeth, dental pulp, and bone marrow.

Yamada Y, Ito K, Nakamura S, Ueda M, Nagasaka T. "Promising cell-based therapy for bone regeneration using stem cells from deciduous teeth, dental pulp, and bone marrow" Cell Transplant (2011). PMID: 21054950

http://www.ncbi.nlm.nih.gov/pubmed/21054950

Paper 6:

A feasibility of useful cell-based therapy by bone regeneration with deciduous tooth stem cells, dental pulp stem cells, or bone-marrow derived mesenchymal stem cells for clinical study using tissue engineering technology.

Yamada Y, Nakamura S, Ito K, Sugito T, Yoshimi R, Nagasaka T, Ueda M. "A feasibility of useful cellbased therapy by bone regeneration with deciduous tooth stem cells, dental pulp stem cells, or bone-marrow derived mesenchymal stem cells for clinical study using tissue engineering technology." Tissue Eng Part A (2010). PMID: 20067397

http://www.ncbi.nlm.nih.gov/pubmed/20067397

Paper 7:

Human mandible bone defect repair by the grafting of dental pulp stem/progenitor cells and collagen sponge biocomplexes.

d'Aquino R, De Rosa A, Lanza V, Tirino V, Laino L, Graziano A, Desiderio V, Laino G, Papaccio G. Eur Cell Mater. 2009 Nov 12;18:75-83. PMID: 19908196

http://www.ncbi.nlm.nih.gov/pubmed/19908196

Paper 8:

Stem cells from deciduous tooth repair mandibular defect in swine.

Zheng Y, Liu Y, Zhang CM, Zhang HY, Li WH, Shi S, Le AD, Wang SL.
J Dent Res. 2009 Mar;88(3):249-54. PMID: 19329459

http://www.ncbi.nlm.nih.gov/pubmed/19329459

Paper 9:

SHED repair critical-size calvarial defects in mice.

Seo BM, Sonoyama W, Yamaza T, Coppe C, Kikuiri T, Akiyama K, Lee JS, Shi S. Oral Dis. 2008 Jul;14(5):428-34. PMID: 18938268

http://www.ncbi.nlm.nih.gov/pubmed/18938268

Paper 10:

Dental pulp stem cells: a promising tool for bone regeneration.

d'Aquino R, Papaccio G, Laino G, Graziano A.
Stem Cell Rev. 2008 Spring;4(1):21-6. PMID: 18300003

http://www.ncbi.nlm.nih.gov/pubmed/18300003

Paper 11:

In vivo evaluation of human dental pulp stem cells differentiated towards multiple lineages.

Zhang W, Walboomers XF, Van Kuppevelt TH, Daamen WF, Van Damme PA, Bian Z, Jansen JA. J Tissue Eng Regen Med. 2008 Mar-Apr;2(2-3):117-25. PMID: 18338838

http://www.ncbi.nlm.nih.gov/pubmed/18338838

Paper 12:

Reconstruction of large cranial defects innonimmunosuppressed experimental design with human dental pulp stem cells.

de Mendonça Costa A, Bueno DF, Martins MT, Kerkis I, Kerkis A, Fanganiello RD, Cerruti H, Alonso N, Passos-Bueno MR. J Craniofac Surg. 2008 Jan;19(1):204-10. PMID: 18216690

http://www.ncbi.nlm.nih.gov/pubmed/18216690

Paper 13:

Mesenchymal progenitor cells in adult human dental pulp and their ability to form bone when transplanted into immunocompromised mice.

Otaki S, Ueshima S, Shiraishi K, Sugiyama K, Hamada S, Yorimoto M, Matsuo O.
Cell Biol Int. 2007 Oct;31(10):1191-7. Epub 2007 Apr 14. PMID: 17524678

http://www.ncbi.nlm.nih.gov/pubmed/17524678

Stem cell knee injection shown to regenerate meniscus, reduce pain.

Paper 14:

Stem cells were used for meniscal regeneration and the control of knee pain. Treatment was with allogeneic human mesenchymal stem cells.

http://www.healio.com/orthopedics/biologics/news/online/%7B0cd61592-5eed-4b52-a868-e7576aab3fdf%7D/stem-cell-knee-injection-shown-to-regenerate-meniscus-reduce-pain