

New method for creating long-lived stem cells used for bone replacement

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Human mesenchymal stem cells (hMSCs) can develop into bone cells and are useful for tissue engineering and regeneration. However, when grown in the laboratory they quickly lose their ability to continue dividing and they die. A method for genetically engineering hMSCs so they become immortal and still retain their ability to become bone cells is described in an article published in *BioResearch Open Access*.

D.S. Bischoff, N.S. Makhigani, and D.T. Yamaguchi, Veterans Administration Greater Los Angeles Healthcare System and The David

Geffen School of Medicine at University of California, Los Angeles, inserted a gene called human telomerase (TERT) into hMSCs. The authors provide evidence to support the ability of human TERT to enhance the growth capacity of hMSCs in "Constitutive Expression of Human Telomerase Enhances the Proliferation Potential of Human [Mesenchymal Stem Cells](#)." They demonstrate that they were able to produce a stable hMSC cell line that can be grown in culture through repeated cell divisions and that the stem cells can differentiate into osteoblasts for potential use in bone engineering applications.

"Generating a stable human mesenchymal stem cell line that retains osteoblastic and adipogenic potential has important benefits for bone engineering studies, particularly those which require a large number of cells," says Editor-in-Chief Jane Taylor, PhD, MRC Centre for [Regenerative Medicine](#), University of Edinburgh, Scotland.

More information: The article is available free on the *BioResearch Open Access* website at <http://www.liebertpub.com/biores>.

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