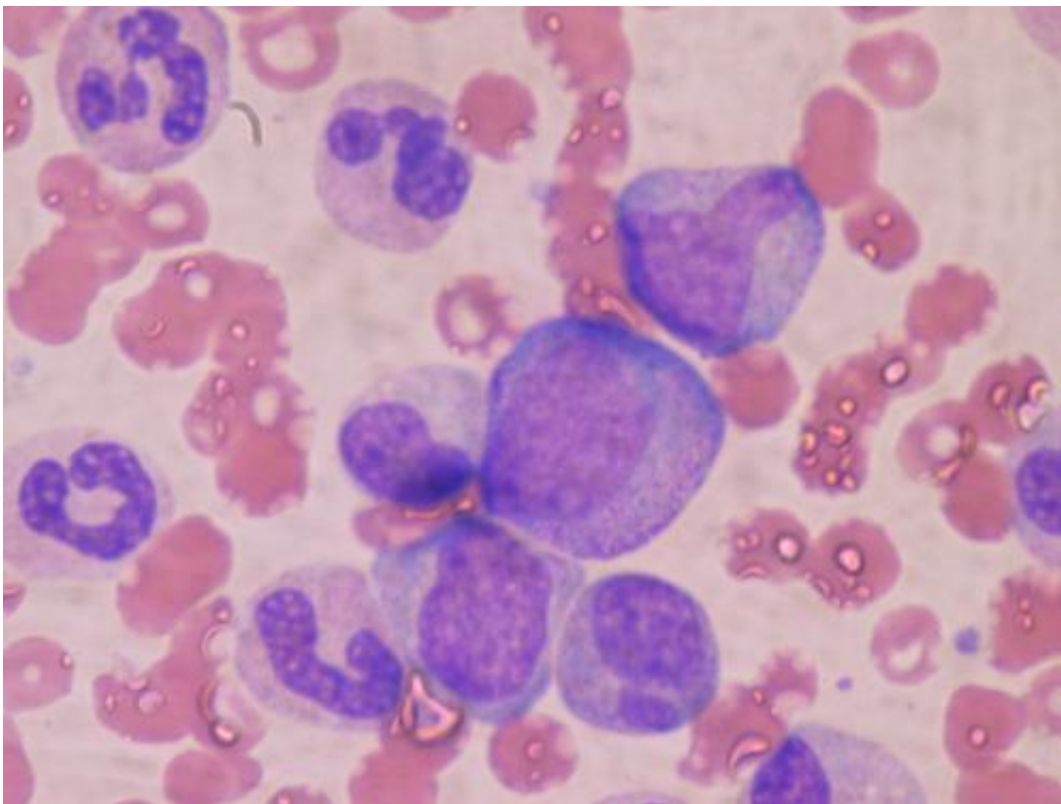


Researchers describe the regenerative potential of solid bone marrow aspirate concentrate

April 18 2022



Hematopoietic precursor cells: promyelocyte in the center, two metamyelocytes next to it and band cells from a bone marrow aspirate. Credit: Bobjgalindo/Wikipedia

A new study compares the regenerative potential of blood/bone marrow

aspirate concentrates obtained from arterial blood, venous blood, and bone marrow aspirate. The study, conducted in rabbits, is reported in the peer-reviewed journal *Tissue Engineering Part A*.

Blood concentrate material such as platelet-rich fibrin (PRF) is used in clinical practice to promote tissue regeneration in the fields of dentistry, orthopedic surgery, and plastic surgery. In the current study, Masako Fujioka-Kobayashi from The Nippon Dental University, Tokyo, Japan, and colleagues introduce a new type of solid [bone marrow](#) aspirate concentrate (sBMAC) material and show its regenerative potential in both gingival fibroblasts and osteoblasts in vitro compared with that of conventional PRF.

They have found that sBMAC induced significantly greater migratory potential than PRF obtained from either arterial or venous blood and also demonstrated promoted greater cell growth.

According to the investigators, "sBMAC treatment led to greater cell migration, angiogenesis, collagen synthesis, and higher osteoblast differentiation potential than Ar-PRF or Ve-PRF. Therefore, it was suggested that sBMAC might be a new candidate to promote wound healing and bone regeneration."

"Koyanagi and coauthors at The Nippon Dental University have elegantly shown that solid bone marrow aspirates may be a promising therapeutic approach for promoting wound healing, particularly in bone settings. This exciting work brings to light the increasing use of naturally derived materials as the basis for novel therapeutics," says Tissue Engineering Co-Editor-in-Chief John P. Fisher, Ph.D., Fischell Family Distinguished Professor & Department Chair, and Director of the NIH Center for Engineering Complex Tissues at the University of Maryland.

More information: Masateru Koyanagi et al, Regenerative Potential

of Solid Bone Marrow Aspirate Concentrate Compared to Platelet-Rich Fibrin, *Tissue Engineering Part A* (2022). [DOI: 10.1089/ten.TEA.2021.0225](https://doi.org/10.1089/ten.TEA.2021.0225)

Provided by Mary Ann Liebert, Inc

Citation: Researchers describe the regenerative potential of solid bone marrow aspirate concentrate (2022, April 18) retrieved 22 November 2023 from <https://medicalxpress.com/news/2022-04-regenerative-potential-solid-bone-marrow.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.