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Cell suplying into the experimetally induced foreign body granuloma from the bone marrow mesenchymal cells

Toshiyuki Kawakami[1], Masahito Shoumura[1], Saeka Matsuda[1], Keita Moriyama[1], Keisuke Nakano[2], Hidetsugu Tsujigiwa[3], Hitoshi Nagatsuka[2] and Naoto Osuga[1]
[1]Matsumoto Dental University, Japan
[2]Okayama University, Japan
[3]Okayama University of Science, Japan

Objective: In this study, cholesterin was implanted in the subcutaneous tissue in mice to induce the formation of cholesterol granuloma. Histological and Immunohistochemical (IHC) and Immunofluorescent (IFHC) examinations were carried out to determine the type and source of cells.

Materials & Method: The GFP bone marrow transplanted-model mice were embedded 10 mg of cholesterin into the subcutaneously tissues. After from 2 weeks and till 6 months, the embedded tissues were examined by histopathology. Further, GFP cell mechanism was further assessed by IHC using double IFHC staining with GFP-S100A4, GFP-Runx2 and GFP-CD31.

Result: At 2 weeks, cholesterin was replaced partly by granulation tissues. The majority of cells in the granulation tissues were macrophages and foreign body giant cells and the center consists of small amount of fibroblasts, collagen fibers and capillaries. At 3 to 6 months, the cholesterin was mostly substituted by fibrous tissues consisting mainly of fibroblasts and collagen fibers with some macrophages and foreign body giant cells. Immunohistochemistry revealed that macrophages and foreign body giant cells were positive to GFP and CD68 although the fibroblasts and capillaries in the outer portion of cholesterol granulomas were GFP negative. Some spindle shape fibroblasts were also GFP positive. Immunofluorescent double staining revealed that cells lining the blood vessels were both positive to GFP and CD31 indicating that those were endothelial cells and were actually derived from the transplanted bone marrow cells.

Conclusion: The results suggest that macrophages, foreign body giant cells as well as fibroblasts and capillary endothelial cells are bone marrow derived mesenchymal cells.

Biography

Toshiyuki Kawakami is the Chairman of Hard Tissue Pathology Unit, Department of Hard Tissue Research, Matsumoto Dental University, Graduate School of Oral Medicine. He is the Director of Matsumoto Dental University Liberally; the Director of Japanese Society of Oral Pathology; the Director of Society of Hard Tissue Generative Biology; Academic Council of Japanese Society of Pathology; Japanese Association of Oral Biology and Japanese Stomatological Society. He has been serving as the Senior Editorial Adviser of the *Journal of Hard Tissue Biology* published by the Hard Tissue Biology Network Association.

kawakami@po.mdu.ac.jp

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