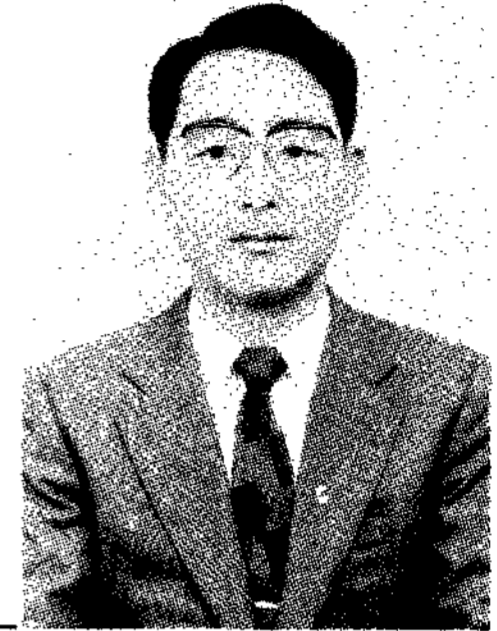


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특강 II Basic Fibroblast Growth Factor in Periodontal Regeneration

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We have already found that basic fibroblast growth factor (bFGF) has an effective biological activity to promote periodontal regeneration in the experimentally-prepared alveolar bony defects (3wall-, 2wall-bony defects and furcation involvements) and naturally occurring alveolar bony defects with periodontitis in beagle dogs. Periodontal regeneration induced by the topical application of bFGF is histologically intact periodontal apparatus without epithelial down growth, ankylosis and root resorption. In order to clarify the regulatory mechanisms of periodontal regeneration by bFGF, we examined the in vitro effects of bFGF on proliferation, alkaline phosphatase activity, calcified nodule formation and extracellular matrix synthesis by human periodontal ligament (PDL) cells, and the expression of FGF receptors (FGFRs) on PDL cells. The extracellular matrices mRNA levels was monitored by RT-PCR utilizing specific primers for collagen, laminin and fibronectin. The expression of FGFRs was detected by radioreceptor assay. As results, bFGF enhanced the proliferative response but inhibited alkaline phosphatase activity and calcified nodule formation of PDL cells. interestingly, the level of laminin mRNA was up-regulated by bFGF stimulation, but that of type I collagen mRNA was down-regulated. In addition, it was revealed that the expression of FGFRs reached its maximum at confluency of PDL cells and was then gradually decreased. These above results indicated that the cytodifferentiation of PDL cells into calcified tissue forming cells was suppressed by bFGF and the proliferation of immature PDL cells and their development can play an important role periodontal regeneration. They also suggest that bFGF can be applied as one of therapeutic modalities which periodontal regeneration.

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