

Miron RJ, Dard M, **Weinreb M**. Enamel matrix derivative, inflammation and soft tissue wound healing. *J Periodontal Res.* 2015 Oct;50(5):555-69.

Abstract

Over 15 years have now passed since enamel matrix derivative (EMD) emerged as an agent capable of periodontal regeneration. Following thorough investigation, evidenced-based clinical application is now established for a multitude of clinical settings to promote regeneration of periodontal hard tissues. Despite the large number of studies and review articles written on this topic, no single review has compiled the influence of EMD on tissue inflammation, an area of research that merits substantial attention in periodontology. The aim of the present review was to gather all studies that deal with the effects of EMD on tissue inflammation with particular interest in the cellular mechanisms involved in inflammation and soft tissue wound healing/resolution. The effects of EMD on monocytes, macrophages, lymphocytes, neutrophils, fibroblasts and endothelial cells were investigated for changes in cell behavior as well as release of inflammatory markers, including interleukins, prostaglandins, tumor necrosis factor- α , matrix metalloproteinases and members of the OPG-RANKL pathway. In summary, studies listed in this review have reported that EMD is able to significantly decrease interleukin-1 β and RANKL expression, increase prostaglandin E2 and OPG expression, increase proliferation and migration of T lymphocytes, induce monocyte differentiation, increase bacterial and tissue debris clearance, as well as increase fibroplasias and angiogenesis by inducing endothelial cell proliferation, migration and capillary-like sprout formation. The outcomes from the present review article indicate that EMD is able to affect substantially the inflammatory and healing responses and lay the groundwork for future investigation in the field.