Role of adiponectin in adipose tissue wound healing

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ABSTRACT. The purpose of this study was to investigate the mechanism behind adipose tissue wound healing (ATWH). The preadipocyte cell line 3T3-L1 was cultured and expression of adiponectin receptors (AdipoR1/2) was detected by immunohistochemistry and reverse transcription polymerase chain reaction. The concentration of adiponectin secreted at different cell densities was measured by enzyme-linked immunosorbent assay, while preadipocyte proliferation and migration were determined in vitro by MTT and wound closure assays. AdipoR1/2 were found to be expressed in 3T3-L1 preadipocytes. There were no statistically significant differences in the concentrations of adiponectin secreted by cell solutions of different densities (P > 0.05). In addition, adiponectin was seen to promote the growth and migration of preadipocytes. In conclusion, adiponectin may regulate ATWH by promoting preadipocyte proliferation and migration, and its systemic and/or local application is proposed as a
promising therapeutic approach for the treatment of wounds incurred as a result of surgery.

**Key words:** Wound healing; Adiponectin; Adipose tissue; Preadipocyte; Proliferation; Migration