

THE REGULATORY EFFECTS OF CYTOKINES ON LYMPHATIC ANGIOGENESIS

N.-F. Liu, Q.-L. He

Department of Plastic Surgery, Chang Zheng Hospital, Second Military Medical University,
Shanghai, China

ABSTRACT

The effects of fibroblast growth factor basic (bFGF), transforming growth factor α (TGF α), recombinant human epidermal growth factor (EGF), recombinant human tumor necrosis factor α (TNF α), and recombinant interleukin 1 α (IL-1 α) on lymphatic angiogenesis were assessed in cultured newborn bovine lymphatic endothelial cells (NBLEC). bFGF, TGF α , and EGF stimulated the proliferation of NBLEC in a dose-dependent manner, but the combination of either two growth factors did not show synergistic effects on NBLEC DNA synthesis. TNF α and IL-1 α suppressed the multiplication of NBLEC. Treatment with bFGF markedly increased the migration of NBLEC. The tissue plasminogen activator (t-PA) activity was enhanced by bFGF. TNF α also promoted NBLEC t-PA activity.

These results suggest that bFGF is a major multifunctional lymphatic endothelial cell targeted cytokine, and both growth and pro-inflammatory cytokines exert differential regulatory effects on lymphatic endothelial cell proliferation, migration and t-PA activity.