Benzamil, a precise ENAC inhibitor was used, which vanquished VEGF-A and FGF2 leading to decreased vessel formation ranging up to (Mao et al., 2015)% in mouse aortic ring assays.(Adair and Drummond, 2009, 2010)

12.6 ANGIOGENIC ATTRIBUTES OF BIOGLASS ON SOFT TISSUES

When tissue regenerates, the capability of biomaterials to induce vascularization is very crucial. Problems encountered while combining growth factors, promoting angiogenesis, and the tissue-engineered constructs were instability of the growth factors, consistent delivery, optimum dose of factors, and its ability to promote cell viability and tissue growth.

To improve angiogenesis, during bone formation, many a tool has been tried, which includes release of ions, inclusion of angiogenic growth factors such as VEGF, fibroblast growth factor, drugs, and mimicking of hypoxic environment. Huge macropores are instituted into the bioglass to improve the surface area. This distinctive mesoporous structure and composition enhances controlled ion release and easy delivery of growth factors. Bioglass has already proved its potential in inducing gene expression to stimulate bone formation. Recent studies have information on its capability to enhance neovascularization during bone regeneration and healing of soft tissue wounds**.**

Research has shown that, rather than the conventional 45S5 bioglass composition 58S-NBG, nanosized bioactive glass quickened wound healing in animal models (Mao et al., 2015).

So 58S-NBG and 80S-NBG were studied on human umbilical vein endothelial cells. MTS assay was used for cell viability assessment. mRNA levels for the five angiogenic-related genes were assessed. In vitro evaluation has shown improved endothelial cell proliferation, migration, VEGF, and basic fibroblast growth factor and receptor expression. More generation of nitric oxide synthase resulted in more tube formation. Ca and Si were also found in higher levels in the extracts of bioglass. This capability of angiogenesis of bioglass can be of use in therapeutics at multiple levels.

Electrospun gelatin mats mimicking ECM have been tried as scaffolds (Del Gaudio et al., 2013) incorporated with VEGF. Genipin holds together the two different cross-linked concentrations of gelatin. Elisa assay was used to assess the VEGF release at 28 days. When assessed on human mesenchymal stromal cells, the scaffolds showed improvised cellular viability, differentiation of endothelial cells, and chemotactility, strongly suggesting the high angiogenic capability up till 14 days.

The potential of bioactive glass scaffolds to produce vascularization was studied on a rat animal model using Racemic poly(D,L-lactide)-PDLLA composite scaffolds filled with micron-sized and nanosized (m-BG and n-BG, respectively) classical 45S5 bioglass infiltrated with human fibroblasts. Stereological analysis was used to quantify (Gerhardt et al., 2011).