system. The release pattern of 5%, 10%, and 20% of the drug ciprofloxacin from polyvinyl alcohol with bioglass was greater compared with plain PVA scaffolds in the concentration. The rate of degradation of the scaffold, morphological structure, chemical properties, and pore structure are achieved by altering the glass composition and ciprofloxacin concentrations. The pore size optimizes cell activation and tissue regeneration (Mabrouk et al., 2014).

The therapeutic potential improves in multitudes, when the scaffold is designed for long-term drug delivery. Electrospun polycaprolactone-gelatin fibrous scaffolds instituted with mesoporous bioglass nanoparticles (El-Fiqi et al., 2015) (mBGn) were excellent potential drug substrates. To alleviate the therapeutic potential, they were loaded with dexamethasone. The fibrous scaffold exhibited excellent hydrophilicity, elasticity, and tensile strength. Highly consistent release of dexamethasone was seen, up till 28 days with rapid release of 30% in the first 24 h. Stem cell differentiation and proliferation from periodontal ligament were significantly higher. Substantial bone formation too was evidenced in the rat calvarium model in a 6-week period with mBGn and even more with dexamethasone loading.

Bioactive glasses have been successfully tried as **coatings** on much stronger functional substrates to attribute to their additional functions such as drug delivery, antibacterial action, and increased mechanical strength. The low tensile strength and fracture toughness of bioglass can be overcome by either combining it with a metal or polymer, forming a composite to give fracture toughness and the other way is to use it as a coating on a tougher material (Baino and Verné, 2017). 45S5 coated on polyethylene orbital implant improvised angiogenesis through fibrovascularization (Naik et al., 2007; Ma et al., 2011).

Bioglass on silicone catheter tubes helps in soft tissue fixation (Marotta et al., 1999; Ross et al., 2003). 5Cu-MBG on HA orbital implant showed antibacterial property and drug delivering capability (Ye et al., 2014). Sio_2/Ag nanoclusters on PMMA—poly(methyl methacrylate) ocular prosthesis (Baino et al., 2016, 2017) and polypropylene mesh for hernia repair antibacterial properties due to Ag ions (Muzio et al., 2017).

12.10 BIOGLASS IN DRUG DELIVERY FOR TUMOR GROWTH CONTROL

Tumor proliferation is not only due to the overexpression of oncogenes and diminishing of tumor-suppressive genes, but to a great extent due to angiogenesis. Initial antiangiogenesis decreases the tumor vasculature, diminishing tumor hypoxia, helping greater perfusion of the anticancer drugs (Jain, 2005). Therapeutics in cancer requires improvement in efficient delivery of chemotherapeutics, control of tumor growth, reduced metastasis, and improved survival rate. Only an innovative drug delivery system can efficiently treat diseases related to angiogenesis.