5.With continuous Innovation in scientific research, new approaches, including gene delivery and the delivery of bioactive molecules such as growth factors, proteins, and peptides, are being developed. Currently, other tissue engineering scaffolds such as calcium phosphates and composite materials (eg, hydroxyapatite, ?-tricalcium phosphate, and whitlockite) for bone tissue engineering and amniotic membranes for corneal tissue engineering are under research.69,77 Skin tissue engineering scaffolds can be categorized as porous, fibrous, microsphere, hydrogel, composite, and acellular materials.73 Typically, natural biomaterials and their derivatives are biodegradable, absorbable, and harmless to the body, but their strength and processing performance are poor and their degradation speed cannot be controlled.These include natural polymers (chitosan, hyaluronic acid, and collagen), nanocomposite scaffolds (eg, nanobioactive glass and metal NPs), and conducting polymers (eg, polyaniline, polypyrrole, and polythiophene).73-75 Taghiabadi et al synthesized an intact amniotic membrane-based scaffold for cultivating adipose-derived stromal cells (ASCs).By ASCs on an acellular human amniotic membrane (HAM), they created a neoteric skin substitute.76 Zhang et al designed a conductive and antibacterial hydrogel based on polypyrrole and functionalized Zn-chitosan molecules for the management of infected chronic wounds.Hence, in order to improve the mechanical and biological properties of scaffolds (eg, adhesion, strength, processing performance, and degradation speed) and accelerate wound healing, composite scaffolds have been developed by combining the characteristics and advantages of different materials.In contrast, synthetic biomaterials, such as polyethylene glycol (PEG) nano-scaffolds, show more stable structural properties and can be chemically modified.Depending on their constituents, these composite scaffolds can achieve specific functions.

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