

Biodegradable porous scaffolds for tissue engineering

Harikrishna Yadav Nanganuru
National Institute of Technology, India

Biodegradable porous scaffolds play a key role in tissue engineering. During the last twenty years, many researchers have been worked to develop potentially applicable scaffold materials for tissue engineering. Scaffolds are defined as three-dimensional porous solid biomaterials designed to perform some functions such as promote cell-biomaterial interactions and cell adhesion, permit sufficient transportation of gases, nutrients, and regulatory factors to allow cell survival, proliferation, and differentiation and biodegrade at a controllable rate that approximates the rate of tissue regeneration under the culture conditions of interest. Scaffolds have been used for tissue engineering such as bone, cartilage, ligament, skin, vascular tissues, neural tissues, and skeletal muscle and as vehicle for the controlled delivery of drugs, proteins, and DNA. There are various technologies to construct biodegradable porous scaffolds to regenerate the tissues or organs and also for controlled and targeted release of biologically active agents in tissue engineering applications. These synthetic biodegradable polymer scaffolds, which are designed for tissue engineering were made on a large scale and studied with respect to biocompatibility and structure. Engineering new tissues utilizing cell transplantation on biodegradable polymer scaffolds is an attractive approach to treat patients suffering from the loss or dysfunction of a number of tissues and organs. A new method of preparing porous scaffolds composed of synthetic biodegradable polymers was developed by combining porogen leaching and freeze-drying techniques using preprepared ice particulates as the porogen material. Biodegradable synthetic polymers offer a number of advantages over other materials for developing scaffolds in tissue engineering.

Biography

Harikrishna Yadav has completed Master of Science in Swinburne University of Technology, Australia. He completed Bachelor of Technology in Koneru Lakshmaiah University. He has been working as a faculty in National Institute of Technology, Warangal, India for 2 years. He had published 9 papers in International journals. He attended 2 International Conferences in India

harikrshyadav@gmail.com