

ABSTRACT**METHOD AND APPARATUS FOR MAKING THREE-DIMENSIONAL BIOMIMETIC SCAFFOLD WITH GRADUAL COILED COMPOSITE STRUCTURE**

A method for making a three-dimensional biomimetic scaffold with a gradual coiled composite structure is disclosed, comprising: determining a micro-appearance of the coiled structure of the three-dimensional biomimetic scaffold; preparing the coiled structure having the determined micro-appearance by electrohydrodynamic jet printing; selecting the number of the layers of the coiled structures in a fiber unit, to determine a structural gradient characteristic of the fiber unit; and forming the coiled structures in the fiber unit layer by layer, based on the determined structure gradient characteristic of the fiber unit, and reducing coiled degrees of the layers of the coiled structures gradually, so that the fiber unit has a structure starting from a coiled shape at the bottom to a linear shape at the top. In addition, an apparatus implementing the above method is also disclosed. The three-dimensional biomimetic scaffold made by the method and the apparatus according to the present invention has a controllable multi-size structure, porosity, and fiber diameter, and its internal structure is a gradual coiled composite structure, so it is more favorable for cell adsorption after cell inoculating, and differentiation and proliferation during cell culture.

Fig.1