

Electrospun Clay : A Versatile Strategy for Fabrication of 3-Dimensional Fibrous Scaffolds

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Electrospinning has been shown as an versatile and efficient way to fabricate the nanofibrous structures. It has many advantages to be used in tissue engineering applications, however, to be used in actual medicinal practice, electrospun fibres have a critical disadvantage: it can only be fabricated into two-dimensional structures with small pore size. Several methodologies have been tried to fabricate three-dimensional electrospun scaffolds. However, according our paper searching, the major challenges of recently advanced methodologies are i) difficulty of alignment of fibers, ii) difficulty in shaping the scaffolds freely, iii) requirement of additional equipment and iv) long fabrication time. In the present study, A novel and fast methodology for fabrication of three-dimensional scaffolds by employing clay-like electrospun matrices that can be shaped freely with a mold, a wire and even a finger is presented. It is also possible to apply the uniaxial alignment of the fibers in the resulting scaffolds with a conventional rotating mandrel collector. Microfibrous scaffolds with any desirable three-dimensional shapes have great potential to contribute to tissue engineering and regenerative medicine.