ВКЛАД АВТОРОВ

И.К. Кунеев и Ю.С. Иванова (равный вклад): получение и подготовка целлюлозных матриц, культивирование клеток, заселение матриц клетками, исследование свойств клеток в матрицах, участие в написании текста статьи; Ю.А. Нащекина: разработка метода покрытия целлюлозных матриц коллагеном, Е.К. Патронова: обработка полученных данных; А.В. Соколова: участие в исследовании свойств клеток в матрицах; А.П. Домнина: план экспериментов, обработка и анализ полученных результатов, участие в написании и редактирование текста статьи.

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Development of Method for Three-Dimensional Cultivation of Human Mesenchymal Stem/Stromal Cells Using Cellulose Scaffolds

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The development of methods for culturing cells in three-dimensional systems is an urgent focus of modern cell biology. When cultured in the 3D system, a tissue-specific architecture is reproduced and the real microenvironment and cell behavior *in vivo* are more precisely recreated. Human mesenchymal stem/stromal cells (MSCs) are typically isolated and cultured as a monolayer 2D culture. In this work, we developed a method for three-dimensional cultivation and tissue-specific decidual differentiation of MSCs isolated from human endometrial tissue using a matrix derived from decellularized apple. Decellularized apple matrices have sufficient mechanical strength, are biocompatible, accessible, easy to use, and have ample scope for surface modification. This cell culture system is suitable for both confocal microscopy and flow cytometry studies. The model we developed can become the basis for the creation of new cell products and tissue-engineering structures in the field of regenerative biomedicine.

Keywords: 3D cultivation, decellularized plants, endometrial mesenchymal stem/stromal cells, decidual differentiation