Cell Migration Via Improved Mechanotaxis

Published date: March 23, 2017

Technology description

Controlling cell migration is integral to a variety of applications including in tissue engineering and medical device implantation. One approach, known as chemotaxis is the common method for guiding cell migration in a single direction in the body. However under that approach, artificially generating a consistent, accurate, repeatable and/or stable chemical gradient can be challenging, or impossible. Another approach to cell migration, known as mechanotaxis is a promising alternative. But current mechanotaxis techniques are not capable of replicating cell migration similar to chemotaxis.
To address this situation, researchers at UC Berkeley have developed the first mechanotaxis approach that is capable of producing cell guidance similar to chemotaxis -- but without the practical limitations.

Application area

Applications in which induction and guidance of cell movement through surface patterning is beneficial
Tissue Engineering and wound repair
Medical Device Implantation particularly immune response enhancement

Advantages

Cell migration comparable to chemotaxis techniques but without the impractical attributes of chemotaxis
Fabricated with high repeatability due to it use of standard microfabrication techniques and homogeneous materials
Long effective life-span due to superior resistance to the chemically hostile environment of the body

Institution

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