A system and method for simultaneous live-cell imaging and growing

Technology reference #2042

Problem Addressed

Spin-based bioreactors grow organoids efficiently but they cannot examine the organoids in detail as it grows. Additionally, it involves physical transferring of organoids to a separate chamber for imaging, causing perturbation and contamination, which can affect the results. The present invention discloses a low-cost 3D printed microfluidic bioreactor was developed which supports simultaneous live organoid imaging and long-time organoid growth with drug delivery support.

Technology

The primary object of the invention is to provide a novel, compact and simple system for providing a live cell growth culture platform and simultaneously imaging the non-perturbed live cells growing in the microfluidic chip by using an optically transparent glass disk window. Another objective of the present invention is to provide a cost-effective 3D printed or moulded microfluidic chip for imaging each single cell growing in the chip without physical transferring of cells to prevent perturbation and contamination.

Advantages

1. low cost

2. live organoid imaging

3. tracking of neuron/cells on-chip

Applications

- Stem cell-based research for treatment of diseases like spinal cord injury, diabetes, rheumatoid arthritis, cerebral palsy, Alzheimer's, Parkinson's, and targeting cancer treatment.

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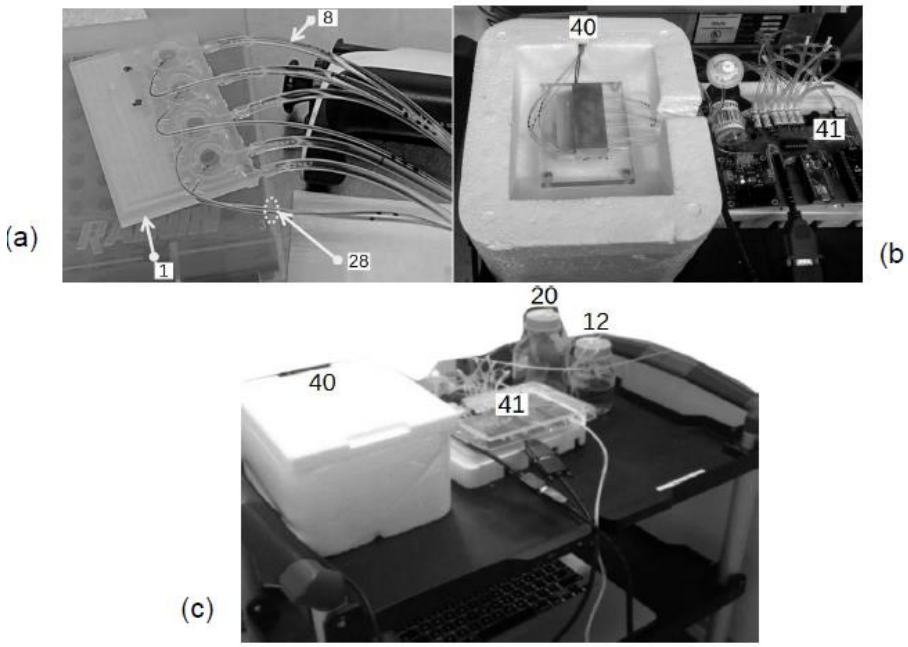
Domain

Lifesciences / Medical / Food

Image



IIT Madras is seeking parties interested in licensing and commercialization of this technology.

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