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TITLE

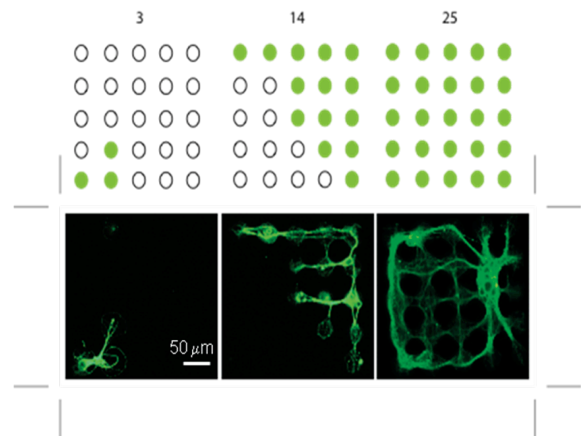
Process and device for the determination of alterations in neuronal connectivity and/or morphology

INVENTORS

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DESCRIPTION

The present invention relates to a method and a device to assess/quantify the capability to extend neurites of cultured neurons which express neuropathological symptoms or which are subjected to rescue treatments. Neurons are cultured on substrates providing a series of adhesion spot arrays which are characterized by different and gradually increased inter-spot distances. These two-dimensional culture substrates drive the neuronal physical connections in a given direction, according to the interspot distance that is set up appropriately during the substrate fabrication steps. This method can be used to compare physical connections of neurons from different sources, such as from wild-type animals and from transgenic animal models of neuropathologies to detect anomalies in neuronal behavior.



APPLICATIONS

The proposed method can be used in biomedical field to study the neuronal capability of neuronal cell derived from different sources to extend neuritis. Moreover the method can be combined with light-imaging techniques for reading-out the results of the bio-assay, as well as with substrate integrated sensors (e.g. electrodes) to assess the functionality of the extended physical connections.

KEYWORDS

neurite, connection, spot, array

BIBLIOGRAPHIC DATA

Biosaggio e dispositivo per rivelare e/o quantificare la capacità di cellule neuronali di formare estensioni neuritiche e/o connettere altri neuroni

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