ND

Cell Culture Substrates for Controlled Cell Orientation

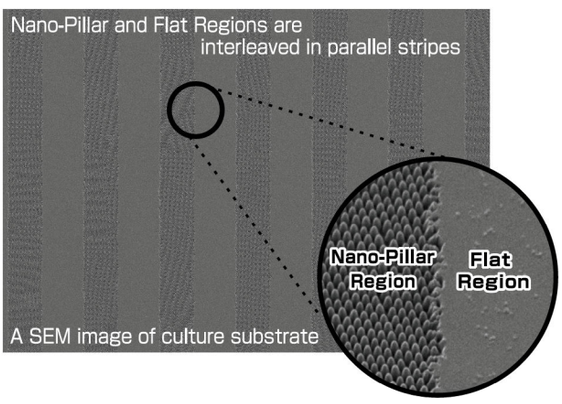
(ND Cell Aligner Dish)

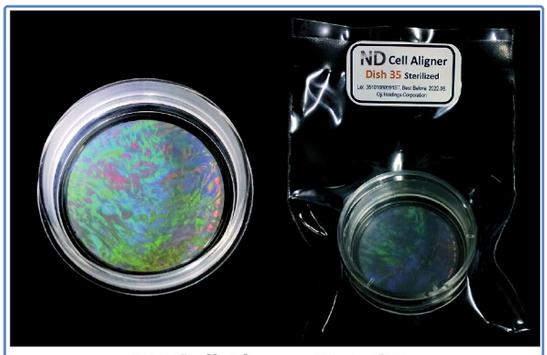
NANO DOT ARRAY

On the basis of the nanofabrication engineering, cell sheet culture substrates have been newly developed which is useful for regenerative medicines and bioassays.

Nanopatterned Substrates

The newly developed culture substrates have nano-pillar and flat regions interleaved in parallel stripes.
There is difference in adhering behavior of cells between nano-fabricated and flat surface. In the case of cells prefer a flat surface, they adhere in the flat stripe region with orientation extending along the stripes. Accordingly, a cell sheet with a controlled cell orientation is obtained.





ND Cell Aligner Dish 35
35mm dish with stripe pattern at the bottom.
Made of Polystyrene or COP, individually packed and sterilized.

Benefit of Controlling the Cell Orientation

The cells in vivo exert their functions when they have original orientation. Hence, by means of controlling the cell orientation, it is possible to form an artificial tissue having similar morphology and functions to a biotissue. In particular, this technique is effective for expression of original cell functions in myocardial cells, skeletal muscle cells, and nerve cells etc.

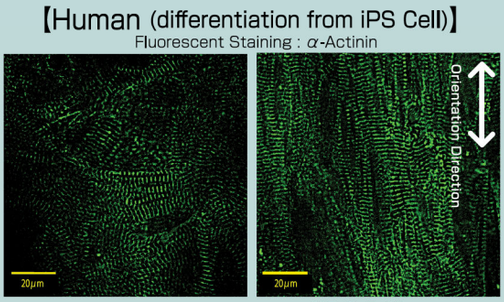
Features of the **ND Cell Aligner Dish**

- ○ Substrates for Cell-sheet with controlled cell orientation.
- ○ Cell-sheet with controlled cell orientation becomes available for regenerative medicines and bioassays etc.
- ○ Width and length of stripes are adjustable on demands of cell type or purpose of culture.

Experiments

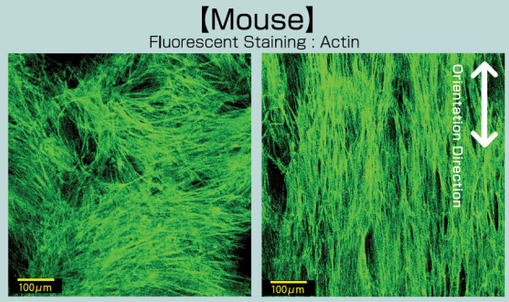
Cardiomyocyte are efficiently oriented along the stripes showing unidirectional contraction.

【Human (differentiation from iPS Cell)】
Fluorescent Staining : α-Actinin



Flat Surface Substrate | **ND Cell Aligner** (Pattered Substrate)

【Mouse】
Fluorescent Staining : Actin



Flat Surface Substrate | **ND Cell Aligner** (Pattered Substrate)

To purchase the ND Cell Aligner dishes, please contact us by e-mail below.

【Technical information /contact us】
https://www.ojiholdings.co.jp/r_d/theme/nano_dot_array.html

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Beyond the Boundaries