Neuroscience in the Mimetix scaffold

Stem cells differentiate into mature neurons in the Mimetix scaffold

Experimental:

a. HeSC cultured in the Mimetix scaffold differentiate into mature neurons. Cells were stained after 21 days, qPCR reveals an increase for postmitotic markers GAD67 and MAP2. Scale bars represent 30μm.*

Experimental:

b. hiPS cells differentiate into mature neurons in the Mimetix scaffolds. Cells were stained after 6 days with Pax6 (green) and Oct3/4 (red). RNA expression of Pax6 was analysed with qPCR.*

Experimental:

c. Foetal cortical stem cells differentiate into mature neurons in the Mimetix scaffold. Cells were stained after 4 weeks with βIII-tub (green), DCX (red) and DAPI (blue), yellow staining is due to the co-expression of βIII-tub and DCX.*

* Image courtesy of Lara Stevanato, ReNeuron, UK.
Differentiated stem cells are active in the Mimetix scaffold

**Experimental:**

a. Neurons form 3D networks in the Mimetix scaffold. Cells were stained after 4 weeks with βIII-tub (green), DCX (red) and DAPI (blue). Image courtesy of Lara Stevanato, ReNeuron, UK.

b. Cortical oligodendrocytes precursors differentiate into active myelinating oligodendrocytes in the aligned Mimetix scaffold. Fibres are stained after 14 days with myelin basic protein (green) and cells with Hoechst (blue). Bechler et al., 2015, Current Biology 25, 2411–2416.*

c. Most cortical oligodendrocyte precursor cells differentiated into oligodendrocytes, as seen by myelin basic protein (MBP) expression and a corresponding reduction in NG2 at 7 days. Cells remain differentiated for 3 weeks. More than 600 cells were counted per condition. Mean and standard deviation are shown for three experiments. Bechler et al., 2015, Current Biology 25, 2411–2416.*

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**Mimetix scaffolds**

**General Features:**

- True 3D environment
- Made from medical-grade poly-L-lactide (PLLA)
- High batch-to-batch consistency
- Compatible with microscopy and automated handling equipment
- Sterile and ready to use

**Mimetix® Scaffold**

The Mimetix 96-well plate has a depth of 50 μm with pores of 15 to 30 μm. This is thick enough to provide the true benefits of 3D cell morphology and behaviour.

**Mimetix® Aligned Scaffold**

The Mimetix Aligned 96-well plate consists of 2 μm aligned microfibres with a depth of 2 to 4 μm. This scaffold provides a physical structure for the 3D culture of cells where orientation influences behaviour.

* https://s100.copyright.com/AppDispatchServlet?publisherName=ELS&contentID=S0960982215008908&orderBeanReset=true
* http://dx.doi.org/10.1016/j.cub.2015.07.056

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