

Electrospun Scaffolds

For Neuroscience and Stem Cell Studies

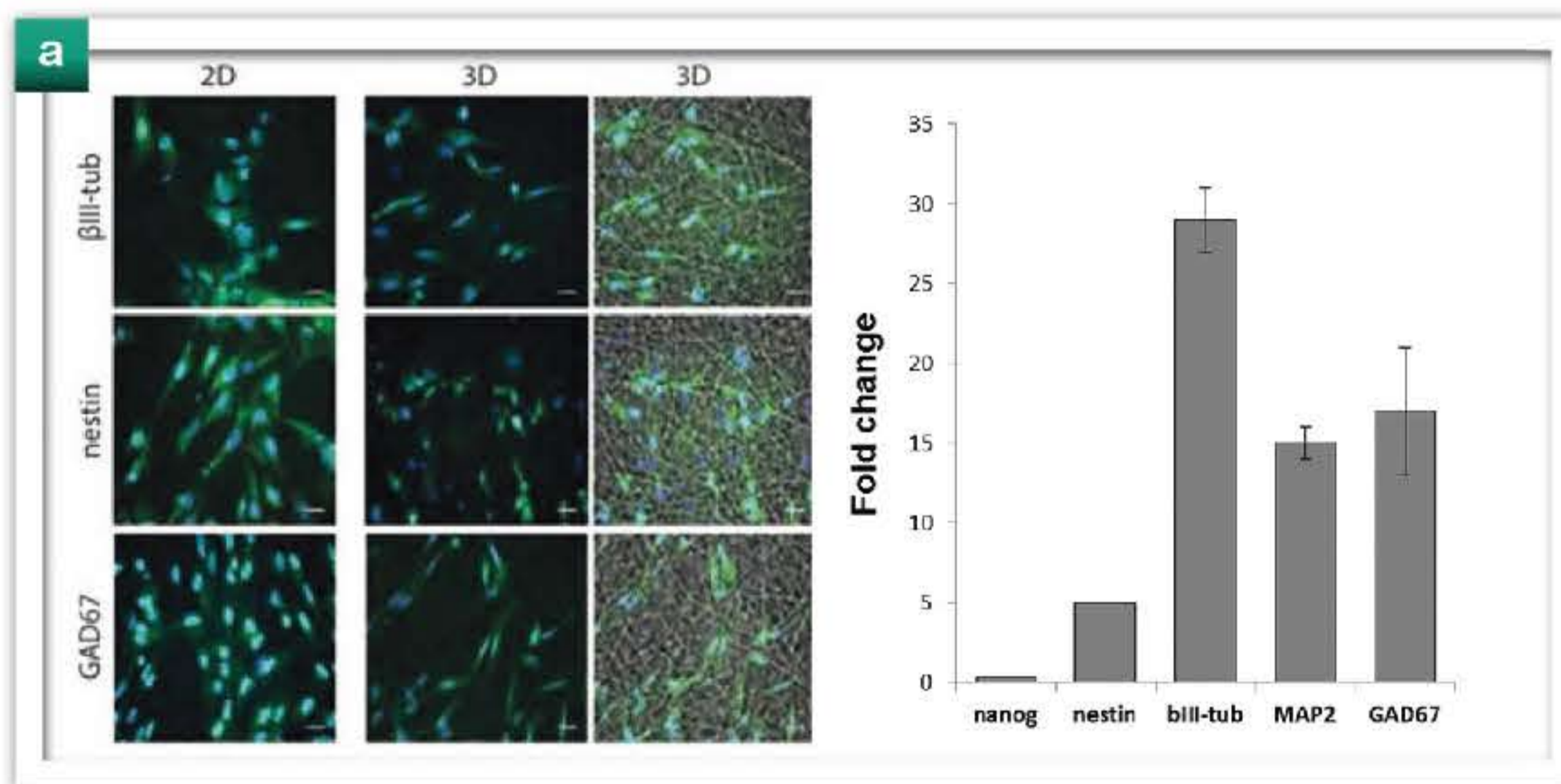
amsbio



MIMETIX
CELLS IN 3D

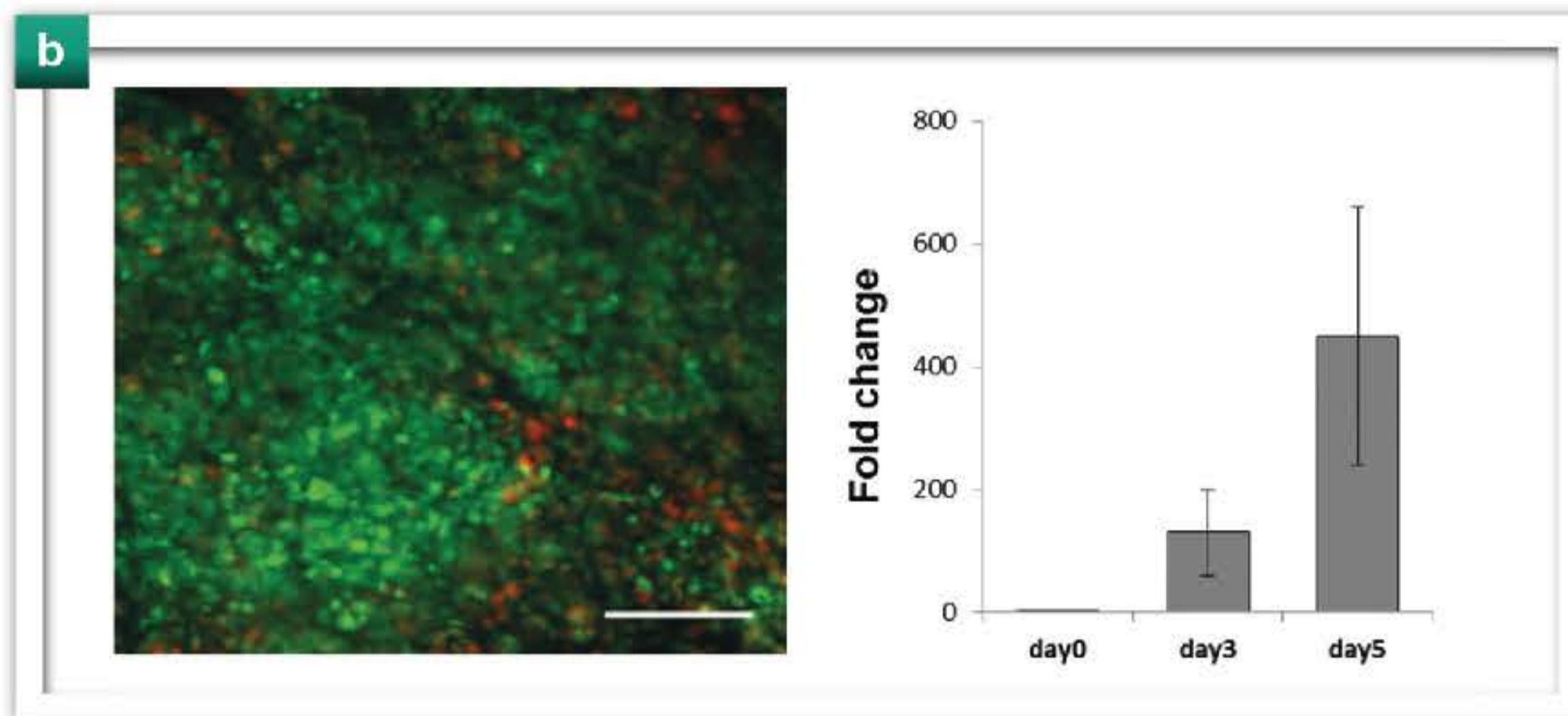
True 3D Environment | Compatible with Imaging | 3D Neuronal Networks

Stem cells differentiate into mature neurons in the Mimetix scaffold



Experimental:

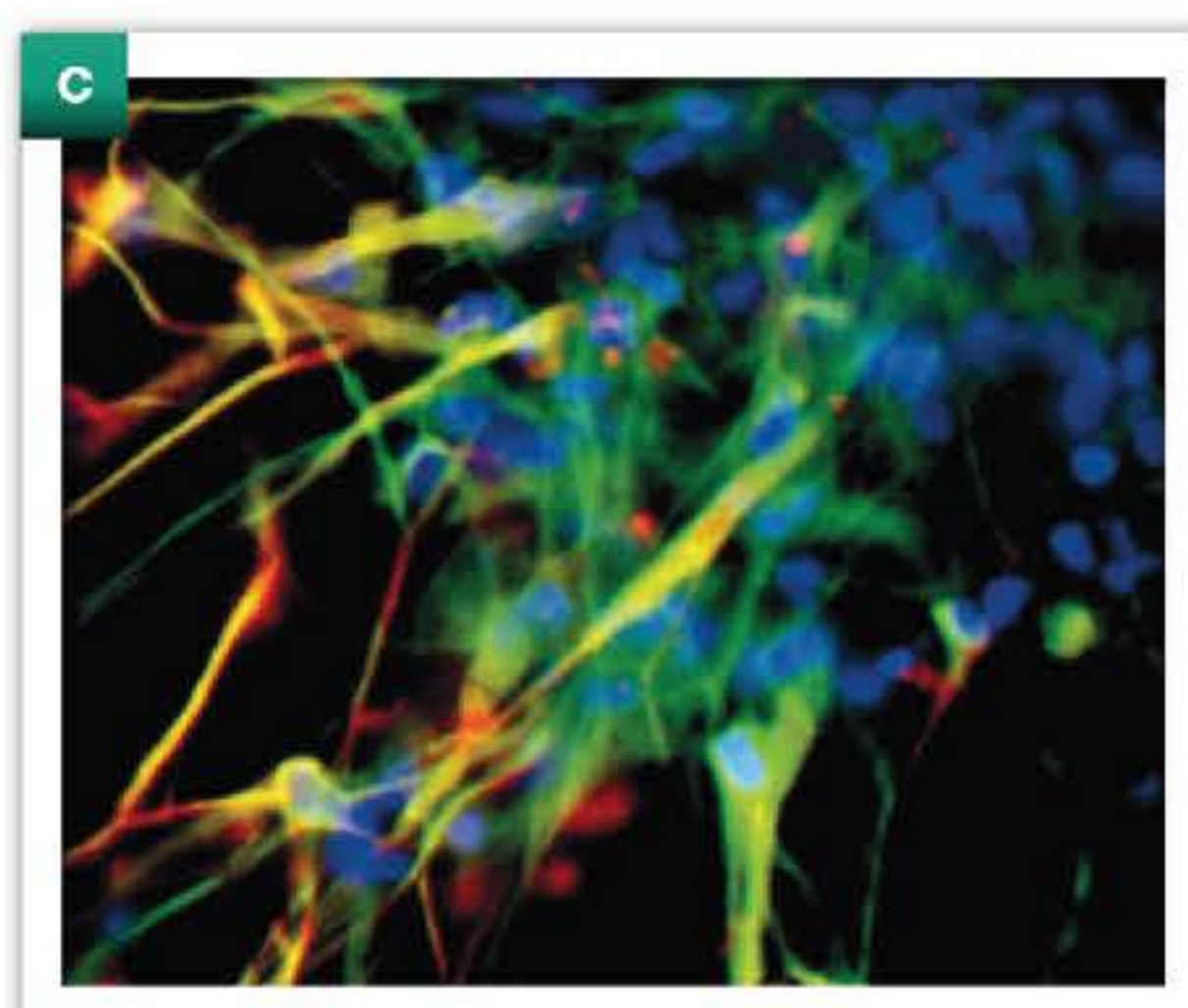
a. HeSC cultured in the Mimetix scaffold differentiate into mature neurons. Cells were stained after 21 days, qPCR reveals an increase for postmitotic markers GAD67 and MAP2. Scale bars represent 30µm.*



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.*

**(a. and b.) Experimental work performed at KTH, Sweden. The work leading to these results has received funding from the European Union Seventh Framework Programme (FP7/2007-13) under grant agreement No. 601700.*

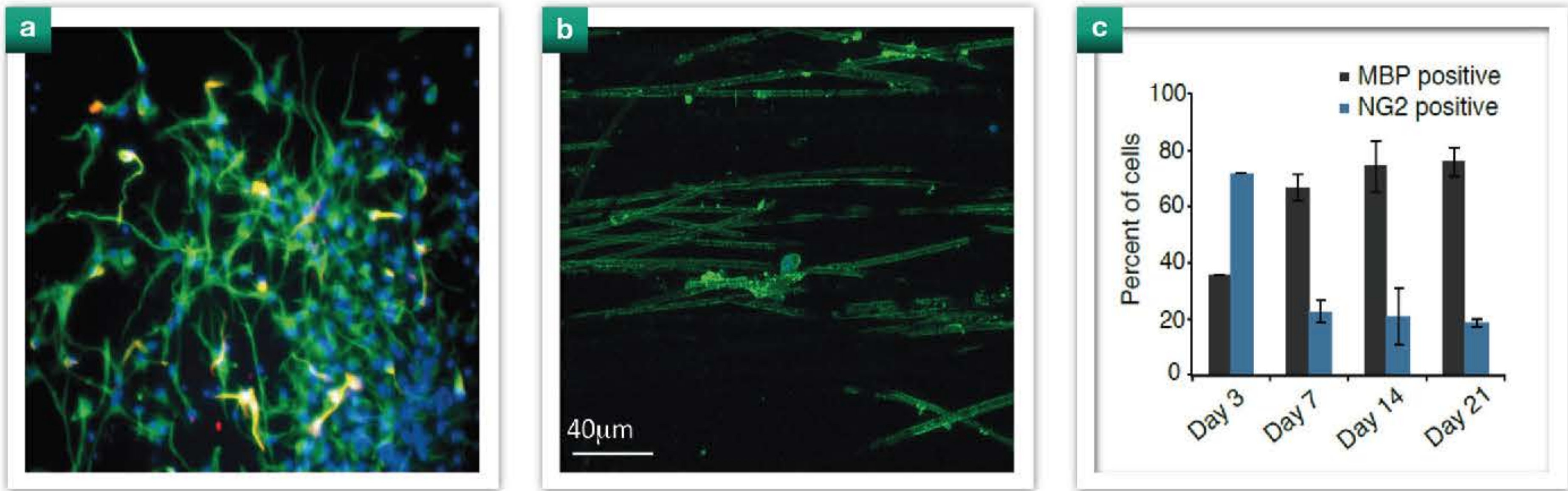


Experimental:

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

**Image courtesy of Lara Stevanato, ReNeuron, UK.*

Differentiated stem cells are active in the Mimetix scaffold



Experimental:

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

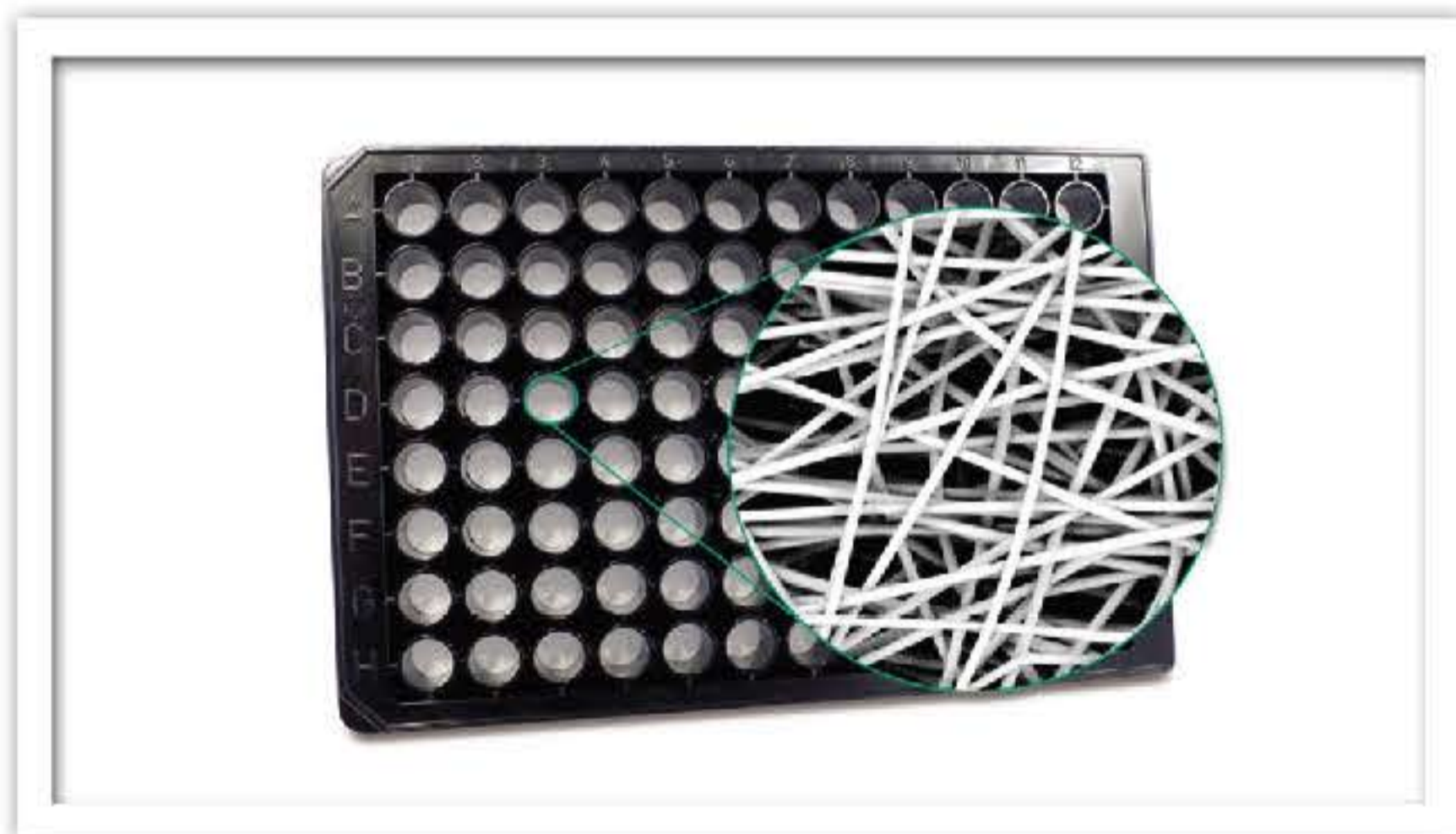
*<https://s100.copyright.com/AppDispatchServlet?publisherName=ELS&contentID=S0960982215008908&orderBeanReset=true>

*<http://dx.doi.org/10.1016/j.cub.2015.07.056>

Mimetix scaffolds

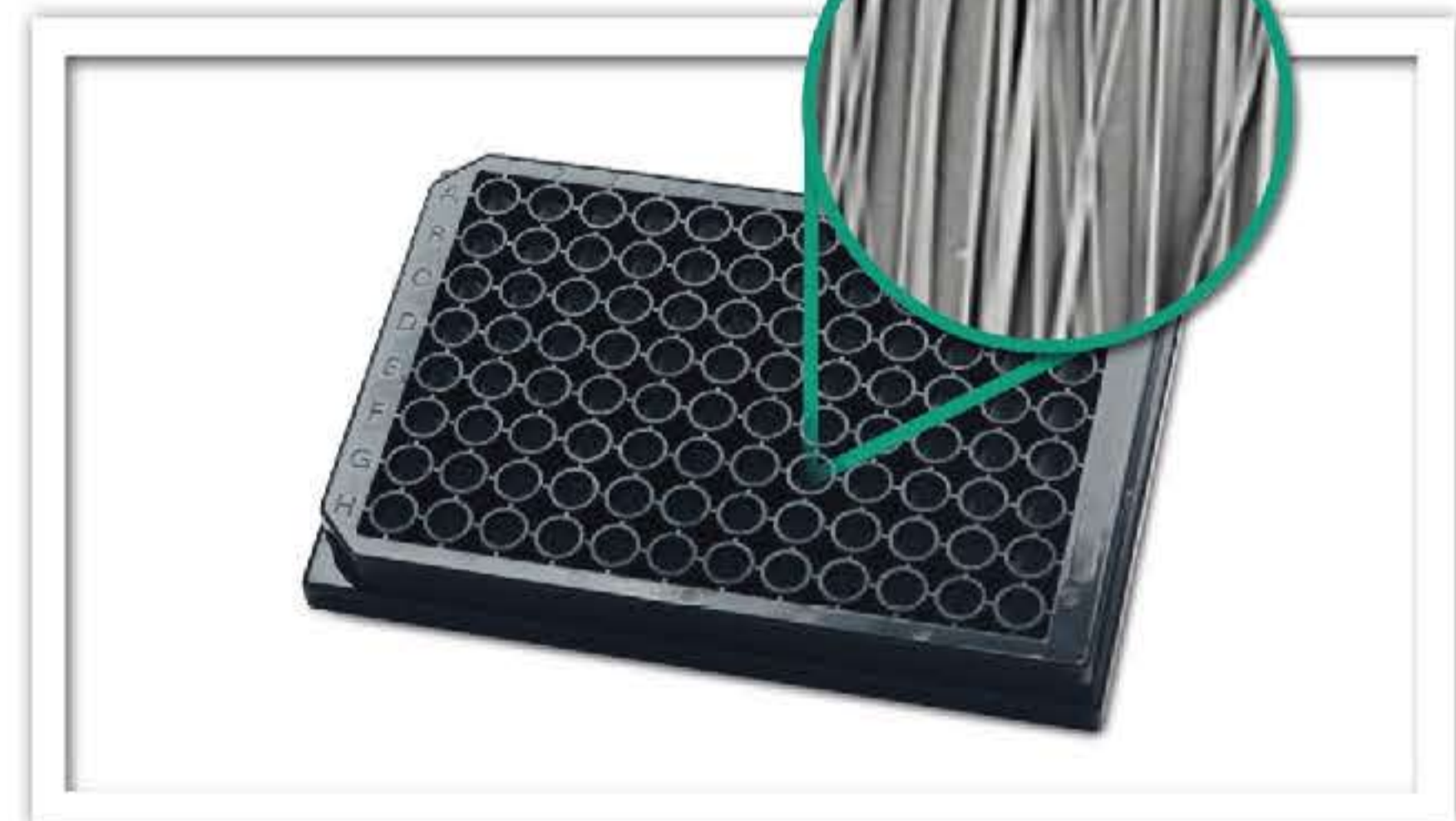
General Features:

- 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 μ m with pores of 15 to 30 μ m. 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 μ m aligned microfibres with a depth of 2 to 4 μ m. This scaffold provides a physical structure for the 3D culture of cells where orientation influences behaviour.

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