Electrospun Scaffolds

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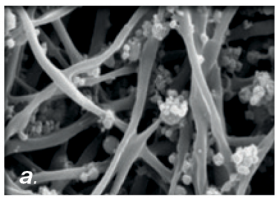
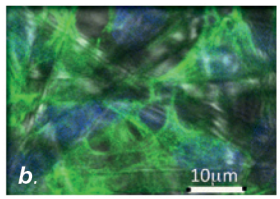
MIMETIX
CELLS IN 3D





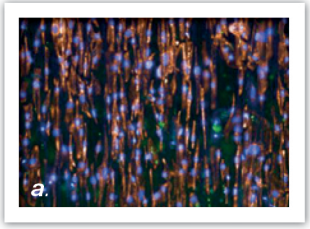
Randomly orientated Mimetix® scaffold:

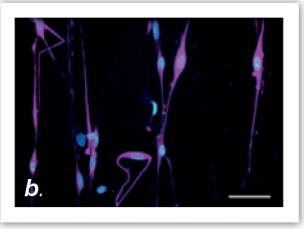
Mimics the extracellular matrix while providing a true 3D environment for the cells to grow.

Applications: non weight-bearing bone regeneration; corneal repair; neurosciences. Evaluated with a range of immortalised cancer lines, primary cells and stem cells.

a. *hMSCs grown for 21 days on PLLA scaffold coated with collagen and hydroxyapatite, courtesy of Balaji Raghavendran, University of Malaya, Malaysia.*

b. *Liver cancer cells grown for 21 days, the Electrospinning Company.*





Aligned Mimetix® scaffold:

Ideal for cells needing physical guidance and/or where cellular orientation influences cell behaviour and function.

Applications: cardiomyocytes, Schwann cells and oligodendrocytes; for *in vitro* myelination assays; nerve conduit repair and tendon repair.

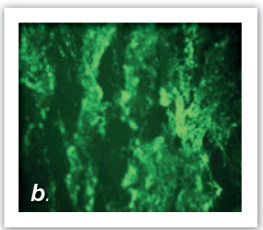
a. *Cardiomyocytes grown for 12 days, courtesy of Elena Trepakova, Merck, USA.*

b. *Schwann cells grown for 21 days, courtesy of Marie Bechler, Edinburgh University, UK.*

Extra Porous Mimetix® air scaffold:

Ideal for flow and bioreactor applications. Up to 95% porosity. Successfully used for stem cell (iPS and hESC) proliferation and differentiation.

a. *Mini bioreactor with Mimetix® air scaffold, courtesy of Stobbe Tech A/S, Denmark.*



b. *Cross section of a 2.5mm scaffold showing complete cell penetration, courtesy of Veronique Chotteau, KTH, Sweden.*

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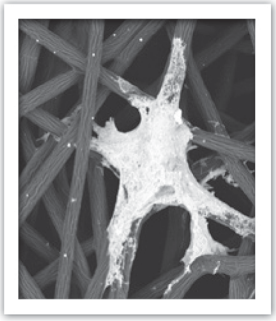
Why choose the Electrospinning technology

- Versatile process
- Tailored scaffold properties
- Wide range of materials
- Reproducible and scalable

Randomly orientated fibre scaffolds

Format	Size	Scaffold Thickness	Fibre Diameter	Pore Size	Porosity
Disks (loose)	1 to 140 mm diameter	25 to 3000 µm	0.5 to 10 µm	3 to 150 µm	80-95%
Disks supplied in hanging inserts or with retaining rings in multiwell plates	6, 12 or 24 well	25 to 400 µm			
Multiwell Plates (welded)	96 or 384 wells	50 µm			
Sheets (and shapes)	1 to 500 cm^2	25 to 3000 µm			



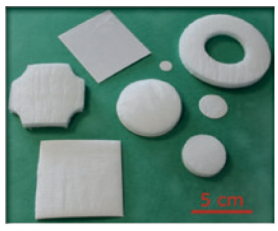
Aligned fibre orientation scaffolds

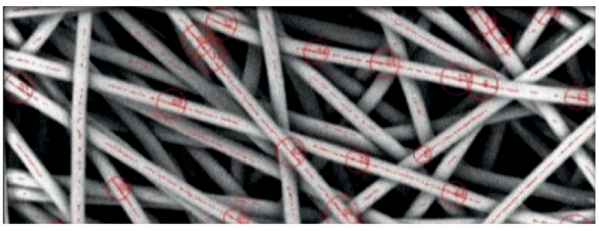
Format	Size	Scaffold Thickness	Fibre Diameter
Cell crown inserts	6, 12 and 24 wells	1 to 8 µm	0.5 to 4 µm
Multiwell Plates (welded)	96 wells		
Petri dish	10 cm		

Example of Polymers

(other polymers and blends are available)

Format	Fibre Diameter	Degradation
Poly Lactides (PLA)	0.5 to 10 µm	>3 years
Poly Lactide glycolides (PLGA)	0.5 to 10 µm	4 weeks to 18 months
Poly Caprolactone (PCL)	0.5 to 10 µm	2 to 3 years
Polyacrylonitrile (PAN)	0.2 to 1.5 µm	none
Poly(lactide-co-caprolactone) (PLCL)	0.5 to 10 µm	6 to 18 months





- Sheets can be processed by die-cutting or laser cutting
- Scaffolds are sterilised by gamma, ebeam or EtO
- Scaffolds can be coated or plasma treated for enhanced wettability

QC Capabilities

- Fibre consistency
- Mechanical testing
- Chemical analysis
- Bioburden studies

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