Bio-Spun™ Scaffolds

Bio-Spun™ Scaffolds are completely animal-free and engineered to replicate the body's natural extracellular matrix, offering a reliable alternative to traditional animal-derived materials often used in 3D cell culture.
They are available in a range of medical-grade Polymer materials and thicknesses, and come pre-mounted in Transwell Inserts or Multiwell High-Throughput Screening (HTS) Plates—tailored for specific tissue models and diverse applications.

Polymer- Material:	PET Polyethylene Terephthalate	PU Polyurethane	PDLGA (1.0 IV) Poly(D,L-lactide-co-glycolide)	PDLGA (1.0 IV) / PLLA (1.8 IV) Bilayer Poly(D,L-lactide-co-glycolide) / Poly(L-lactic acid)
Format:				
• 6-Well Individual Inserts[1]	#IIC06-200	#IIC06-302	#IIC06-002	#IIC06-502
• 12-Well Individual Inserts[2]	#IIC12-200	#IIC12-302	#IIC12-002	#IIC12-502
• 24-Well Individual Inserts[2]	#IIC24-200	#IIC24-302	#IIC24-002	#IIC24-502
• 24-Well HTS Plate	#WP24-200	#WP24-302	#WP24-002	#WP24-502
• 96-Well HTS Plate	#WP96-200	#WP96-302	#WP96-002	#WP96-502
Material Properties:	non-degradable, rigid	non-degradable, flexible	biodegradable	biodegradable
Scaffold Thickness:	150µm	15-20µm	100µm	10µm
Growth pattern:	infiltrative, full-thickness models	more surface-bound, partial thickness models	more surface-bound, partial thickness models	infiltrative, full-thickness models
Potential Tissue Models:				
• Skin	X		X	X
• Airway	X		X	X
• Lung	X	X		
• Cardiac		X		
• Arterial		X		
• Intestine	X			
• Liver	X		X	X
• Gut			X	X
• Eye			X	X
• Blood/Brain Barrier		X		
• Muscle		X		
• Organoid/Spheroid	X			
Applications:				
• Cosmeceuticals	X	X	X	X
• Drug Discovery	X	X	X	X
• Tox Screening	X	X	X	X
• Cell Delivery	X			
• Microfluidics Models	X	X	X	X
• Organ-on-Chip Models	X	X	X	X
• Wound healing	X		X	X
• Tissue Regeneration			X	X

[1] 6 Inserts/Plate
[2] 12 Inserts/Plate

For guidance on selecting the right scaffold materials for your specific tissue model or cell culture application, or for further information on these products, please feel free to contact us.

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Bio-Spun™ Scaffold	Type	Application	Differential Advantage vs. Current State	Potential Models
Polyester (PET)	Non-Degradable	• Cosmeceuticals • Drug Discovery • Tox Screening • Cell Delivery • Microfluidics Models • Organ-on-a-Chip Models • Wound Healing	• Scaffold made from polymers that are used in current membrane (polymer recognition) • No animal proteins required to achieve tissue attachment • Staggered porosity allows for tissue ingrowth to better replicate ECM • Contraction does not occur due to cellular infiltration	Skin, Airway, Lung, Intestine, Liver, Organoid, Spheroid (Beneficial for models that require tissue depth, such as full thickness skin models)
Polyurethane (PU)	Non-Degradable	• Drug Discovery • Tox Screening • Microfluidics Models • Organ-on-a-Chip Models	• Scaffold has elastic properties to better replicate flexure in tissues in heart, muscle and lungs vs stiff membranes • No animal proteins required to achieve tissue attachment • Staggered porosity allows for tissue ingrowth to better replicate ECM • Contraction does not occur due to cellular infiltration	Cardiac, Lung, Arterial, Blood/Brain Barrier and Muscle (Beneficial for models that require cells to remain more surface bound, such as partial thickness models)
PDLGA-PLLA Bilayer (Apical : PDLGA Basal: PLLA Electrospun)	Biodegradable	• Cosmeceuticals • Drug Discovery • Tox Screening • Wound Healing • Tissue Regeneration • Microfluidics Models • Organ-on-a-Chip Models	• Scaffold degrades over time leaving only grown tissue • 3D structure results in 3D tissue formation with human proteins • No animal proteins required to achieve tissue attachment • Staggered porosity allows for tissue ingrowth to better replicate ECM	Eye, Skin, Airway, Liver, Gut (Beneficial for models that require tissue depth and want limited scaffold to remain, such as full thickness skin models)
PDLGA	Biodegradable	• Cosmeceuticals • Drug Discovery • Tox Screening • Wound Healing • Tissue Regeneration • Microfluidics Models • Organ-on-a-Chip Models	• Scaffold degrades over time leaving only grown tissue • 3D structure results in 3D tissue formation with human proteins • No animal proteins required to achieve tissue attachment • Staggered porosity allows for tissue ingrowth to better replicate ECM	Eye, Skin, Airway, Liver, Gut (Beneficial for models that require cells to remain more surface bound or apart and would like the scaffold to mostly dissolve, such as partial thickness models)