Bio-Spun™スキャフォールド 材質ガイド

BioSurfaces
Nanomaterial Solutions

スキャフォールド材質	**PET** Polyethylene Terephthalate	**PU** Polyurethane	**PDLGA** Poly(D,L-lactide-co-glycolide)	**PDLGA-PLLA Bilayer** Poly(D,L-lactide-co-glycolide) / Poly(L-lactic acid)
材質の分解性	非分解	非分解	生分解性	生分解性
スキャフォールド厚	150µm	15-20µm	10µm	100µm
アプリケーション：				
- Cell Derivery	✓			
- Cosmeceuticals	✓		✓	✓
- Drug Discovery	✓	✓	✓	✓
- Microphysiological Systems (MPS)	✓	✓	✓	✓
- Organ-on-a-Chip	✓	✓	✓	✓
- Tissue Regeneration			✓	✓
- Tox Screening	✓	✓	✓	✓
- Wound Healing	✓		✓	✓
想定される組織モデル：				
- Airway	✓		✓	✓
- Arterial		✓		
- Bood-brain barrier (BBB)		✓		
- Cardiac		✓		
- Eye			✓	✓
- Gut			✓	✓
- Intestine	✓			
- Liver	✓		✓	✓
- Lung	✓	✓		
- Muscle		✓		
- Organoid/Spheroid	✓			
- Skin	✓		✓	✓
フォーマットおよび型番：				
- 6ウェル用インサート[1]	IIC06-200	IIC06-302	IIC06-002	IIC06-502
- 12ウェル用インサート[2]	IIC12-200	IIC12-302	IIC12-002	IIC12-502
- 24ウェル用インサート[2]	IIC24-200	IIC24-302	IIC24-002	IIC24-502
- 24ウェル HTSインサート	WPC24-200	WPC24-302	WPC24-002	WPC24-502
- 96ウェル HTSインサート	WPC96-200	WPC96-302	WPC96-002	WPC96-502

[1]インサート6個入/プレート

[2]インサート12個入/プレート

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)
PLGA-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)
PLGA	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)

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