

Materials List for:

Preparation of Mesh-Shaped Engineered Cardiac Tissues Derived from Human iPS Cells for In Vivo Myocardial Repair

Takeichiro Nakane^{1,2,6}, Mosha Abulaiti^{1,2}, Yuko Sasaki¹, William J. Kowalski³, Bradley B. Keller^{4,5,7}, Hidetoshi Masumoto^{1,2}

¹Clinical Translational Research Program, RIKEN Center for Biosystems Dynamics Research

²Department of Cardiovascular Surgery, Graduate School of Medicine, Kyoto University

³Laboratory of Stem Cell and Neuro-Vascular Biology, Cell and Developmental Biology Center, National Institutes of Health

⁴Kosair Charities Pediatric Heart Research Program, Cardiovascular Innovation Institute, University of Louisville

⁵Department of Pediatrics, School of Medicine, University of Louisville

⁶Department of Cardiovascular Surgery, Mitsubishi Kyoto Hospital

⁷Cincinnati Children's Heart Institute

Correspondence to: Hidetoshi Masumoto at hidetoshi.masumoto@riken.jp

URL: <https://www.jove.com/video/61246>

DOI: [doi:10.3791/61246](https://doi.org/10.3791/61246)

Materials

Name	Company	Catalog Number	Comments
Materials			
Cell Culture Dishes 100x20 mm style	Falcon/ Thomas scientific	9380C51	
Multiwell Plates For Cell Culture 6well 50/CS	Falcon / Thomas scientific	6902A01	
Sylgard 184 Silicone Elastomer Kit	Dow Corning	761036	
Reagents			
Accumax	Innovative Cell Technologies	AM-105	
BMP4, recombinant (10µg)	R&D	RSD-314-BP-010	
Collagen, Type I solution from rat tail	Sigma	C3867	
Growth factor-reduced Matrigel	Corning	356231	
Human VEGF (165) IS, premium grade	Miltenyi	130-109-385	
Pluronic F-127, 0.2 µm filtered (10% Solution in Water)	Molecular Probes	P-6866	
Recombinant human bFGF	WAKO	060-04543	
Recombinant Human/Mouse/Rat ActivinA (50µg)	R&D	338-AC-050	
rh Wnt-3a (10µg)	R&D	5036-WN	
Versene solution	Gibco	15040066	
Culture medium and supplements			
10x MEM	Invitrogen	11430	
2 Mercapto Ethanol	SIGMA	M6250	
B27 supplement minus insulin	Gibco	A1895601	
DMEM, high glucose	Gibco	11965084	
Fetal Bovine Serum (500ml)	Any		
Fetal Bovine Serum (500ml)	Any		
L-Glutamine	Gibco	25030081	
NaHCO3	Any		

PBS 1x	Gibco	10010-031	
Penicillin-Streptomycin (5000 U/mL)	Gibco	15070-063	
RPMI1640 medium	Gibco	21870092	
αMEM	Invitrogen	11900024	
Flowcytometry			
anti-TRA-1-60, FITC, Clone: TRA-1-60, BD Biosciences	BD / Fisher	560380	
anti-Troponin T, Cardiac Isoform Ab-1, Clone: 13-11, Thermo Scientific Lab Vision	Fisher	MS-295-P0	
BD FACS Clean Solution	BD	340345	
BD FACFlow Sheath Fluid	BD	342003	
BD FACSRinse Solution	BD	340346	
EDTA	Any		
Falcon Tube with Cell Strainer Cap (Case of 500)	Corning	352235	
Fetal Bovine Serum (500ml)	Any		
LIVE/DEAD Fixable Aqua Dead Cell Stain Kit, for 405 nm excitation	Molecular Probes	L34957	
PDGFRb; anti-CD140b, R-PE, Clone: 28D4, BD Biosciences	BD / Fisher	558821	
Saponin	Sigma-Aldrich	47306-50G-F	
VEcad-FITC; anti-CD144, FITC, Clone: 55-7H1, BD Biosciences	BD / Fisher	560411	
Zenon Alexa Fluor 488 Mouse IgG1 Labeling Kit	Molecular Probes	Z25002	