

Materials List for:

# Generation of Scaffold-free, Three-dimensional Insulin Expressing Pancreatoids from Mouse Pancreatic Progenitors *In Vitro*

Marissa A. Scavuzzo<sup>1</sup>, Jessica Teaw<sup>2,3,4</sup>, Diane Yang<sup>2,3,4</sup>, Malgorzata Borowiak<sup>1,2,3,4,5</sup>

<sup>1</sup>Program in Developmental Biology, Baylor College of Medicine

<sup>2</sup>Center for Cell and Gene Therapy, Texas Children's Hospital, and Houston Methodist Hospital, Baylor College of Medicine

<sup>3</sup>Molecular and Cellular Biology Department, Baylor College of Medicine

<sup>4</sup>Stem Cell and Regenerative Medicine Center, Baylor College of Medicine

<sup>5</sup>McNair Medical Institute, Baylor College of Medicine

Correspondence to: Malgorzata Borowiak at [borowiak@bcm.edu](mailto:borowiak@bcm.edu)

URL: <https://www.jove.com/video/57599>

DOI: [doi:10.3791/57599](https://doi.org/10.3791/57599)

## Materials

Name	Company	Catalog Number	Comments
2-Mercaptoethanol	Sigma-Aldrich	M6250	
Aspirator Tube Assemblies for Calibrated Microcapillary Pipettes	Sigma-Aldrich	A5177	
Barnstead NanoPure Nuclease-free water	ThermoFisher	D119	
Borosilicate Capillary Tubes	Sutter Instruments	GB1007515	O.D. 1mm, I.D. 0.75mm, 1.5cm length
CaCl <sub>2</sub>	Sigma-Aldrich	C5080	
Cell-Repellent 96-Well Microplate	Greiner Bio-One	650970	U-bottom
Centrifuge 5424 R	Eppendorf	5401000013	
Chloroform	Sigma-Aldrich	233306	
Chromogranin-A antibody	Abcam	ab15160	
Compact, Modular Stereo Microscope M60	Leica		
Countess Automated Cell Counter	Invitrogen	C10310	
Countess Cell Counter Slides	Invitrogen	C10312	
CryoStar NX70	ThermoFisher	957000L	
D-(+)-Glucose	Sigma-Aldrich	G7528	
DAPI (4',6-Diamidine-2'-phenylindole-dihydrochloride)	Roche	10 236 276 001	Powder
DBA antibody	Vector Lab	RL-1032	
Dispase II, Powder	Gibco	17105041	
DMEM/F-12, HEPES	Gibco	11330032	
Dnase I	Invitrogen	18068-015	
Dumont #5 Forceps	Fine Science Tools	11251-10	0.05 x 0.02 mm; Titanium; Biology tip
EGF (Epidermal growth factor)	Sigma-Aldrich	E9644	
Ethanol, 200 Proof	Decon Laboratories	2716	
Forma Steri Cycle CO <sub>2</sub> Incubators	ThermoFisher	370	
Fluoromount-G	Southern Biotech	OB10001	
Heparin sodium salt from porcine intestinal mucosa	Sigma-Aldrich	H3149-10KU	
INSM1 Antibody	Santa Cruz BioTechnology	sc-271408	Polyclonal Mouse IgG

Isopropanol	Fisher	a4164	
Isothesia Isoflurane, USP	Henry Schein	11695-6776-2	
Insulin Antibody	Dako	A056401	Polyclonal Guinea Pig
KAPA SYBR FAST Universal	KAPA Biosystems	KK4618	
KCI	KaryoMax	10575090	
KnockOut Serum Replacement	Invitrogen	10828028	
Leica TCS SPE High-Resolution Spectral Confocal	Leica		
MgCl <sub>2</sub>	Sigma-Aldrich	442615	
Mouse C-Peptide ELISA	ALPCO	80-CPTMS-E01	
Mouse Ultrasensitive Insulin ELISA	ALPCO	80-INSMSU-E01	
MX35 Microtome Blades	ThermoFisher	3052835	
NaCl	Sigma-Aldrich	S7653	
NaHCO <sub>3</sub>	Sigma-Aldrich	S3817	
NaH <sub>2</sub> PO <sub>4</sub>	Sigma-Aldrich		
Normal Donkey Serum	Jackson Immuno Research	017-000-121	
Paraformaldehyde	Sigma-Aldrich	158127	
PBS 1X	Corning	21-040-CV	
Pdx1 antibody	DSHB	F6A11	Monoclonal Mouse MIgG1
Peel-A-Way Disposable Embedding Molds	VWR	15160-157	
Penicillin-Streptomycin Solution	Corning	MT30002CI	
PMA (Phorbol 12-Myristate 13-Acetate)	Sigma-Aldrich	P1585	
Protein LoBind Microcentrifuge Tubes	Eppendorf	22431081	1.5mL Capacity
Recombinant Human FGF-10 Protein	R&D Systems	345-FG	
Recombinant Human FGF-Acidic	Peptotech	100-17A	
Recombinant Human R-Spondin I Protein	R&D Systems	4546-RS	
BenchRocker 2D	Benchmark	BR2000	
Sucrose 500g	Sigma-Aldrich	S0389	
SuperFrost Plus Microscope Slides	Fisher Scientific	12-550-15	
Super Pap Pen	Electron Microscopy Sciences	71310	
Thermomixer R	Eppendorf	05-412-401	
Tissue Tek O.C.T. Compound	Sakura	4583	
Triton X-100	Sigma-Aldrich	T8787	
TRIzol Reagent	Invitrogen	15596018	
TryPLE Express	Invitrogen	12604039	(1x), no Phenol Red
Trypan Blue Stain	Invitrogen	15250061	For cell counting slides
Trypsin-EDTA (0.05%)	Corning	25-052-CI	
Trypsin-EDTA (0.25%)	Gibco	25200072	Phenol Red
Ultra-Low Attachment 24-Well Plate	Corning	3473	
Ultra-Low Attachment Spheroid Plate 96-Well	Corning	4520	
Vimentin Antibody	EMD Millipore	AB5733	Polyclonal Chicken IgY

Vortex Genie	BioExpres	S-7350-1	
Y-27632 Dihydrochloride	R&D Systems	1254	Also known as ROCK inhibitor
Zeiss 710 Confocal Microscope	Zeiss		