

Materials List for

# Fabrication of Engineered Vascular Flaps Using 3D Printing Technologies

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jove.com/video/63920

## Materials

Name	Company	Catalog Number	Comments
1,4-Dioxane	Biosolve Chemical	42405	
27 G x 0.5" blunt tip dispensing needles	CML supply	901-27-050	
3cc amber syringe barrel & piston set	Nordson EFD	7012085	Amber syringes used to block light and prevent premature crosslinking
5-0 AssuCryl PGA absorbable suture	Assut Sutures		Absorbable sutures used for skin wound closure
6-0 polypropylene sutures	Assut Sutures	9351	
Acland clamps	S&T	B-1V	
Adventitia scissors	S&T	SAS-15	
Angled no.3 jeweler's forceps	S&T	JFAL-3-18	
BioAssemblyBot 400 3D Bioprinter	Advanced Solutions		a 6-axis 3D bioprinter
Bovine albumin serum Probumin	Millipore	82-045-1	
Buprenorphine	vetmarket	B15100	
BVOH filament	Verbatim	55903	a water-soluble 1.75 mm diameter filament
Clamp applying forceps	S&T	CAF-4	
Dental pulp stem cells	Lonza	PT-5025	
Dietrich bulldog clamps	Fine Science Tools (FST)	18039-45	
di-Sodium hydrogen phosphate (Na <sub>2</sub> HPO <sub>4</sub> )	Carlo Erba Reagents	480141	
Dissection scissors	S&T	18039-45	
DMEM, High Glucose, No Phenol Red	Sartorius	01-053-1A	
Duratears	Alcon	DJ03	
ECM media + bullet kit	Sciencell	#1001	
Ethanol 96%	Gadot-Group	64-17-5	
GlutaMAX	Gibco	35050061	glutamine substitute
Goat anti-mouse Cy3 antibody	Jackson	115-166-072	
Heparin Sodium 5,000 I.U./mL	Panpharma	-	

Human adipose microvascular cells	Sciencell	#7200	
Human fibronectin	Sigma	F0895-5MG	A stock concentration of 1 mg/mL
Isoflurane, USP Terrell	Piramal Critical Care	NDC 66794-011-25	
LifeSupport	Advanced Biomatrix	5244	a gelatin support slurry for FRESH 3D bioprinting
Lithium phenyl-2,4,6-trimethylbenzoylphosphinate (LAP)	Sigma-Aldrich	900889	
Low-glucose DMEM	Biological Industries	01-050-1A	
MICROMAN E M1000E, 100-1,000 $\mu$ L	Gilson	FD10006	
Mouse anti-SMA antibody	Dako	M0851	
NEAA	Gibco	11140068	
Needle holder	Fine Science Tools (FST)	12500-12	
Paraformaldehyde solution 4% in PBS	ChemCruz	SC-281692	
Penicillin-Streptomycin-Nystatin Solution	Biological Industries	03-032-1B	
Phosphate buffered saline (PBS)	Sigma	P5368-10PAK	
Poly(ethylene oxide), M.W. 250,000 to 400,000	Acros Organics	178602500	
Poly(L-lactic acid), IV 5.0 dl/g (PLLA)	Polysciencse, Inc.	18582-10	
Polyimide tubing, ID: 0.0249", OD: 0.0273"	Cole-Parmer	95820-05	A thin-walled tube used to fabricate cuffs for microsurgical anastomoses
Prusa I3 MK2.5 3D Printer	Prusa Research	<a href="http://www.prusa3d.com/">http://www.prusa3d.com/</a>	a popular commercial 3D printer
Resomer RG 503 H, Poly(D,L-lactide-co-glycolide) (PLGA)	Evonik Industries	719870	
rhCollIMA	CollPlant	<a href="https://collplant.com/">https://collplant.com/</a>	generously provided by CollPlant (Rehovot, Israel)
round-handled needle holder	S&T	B-15-8	
Scalpel handle - #3	Fine Science Tools (FST)	10003-12	
small fine straight scissors	Fine Science Tools (FST)	14090-09	
Sodium Chloride	Biosolve Chemical	19030591	
Sodium Phosphate dibasic (NaH <sub>2</sub> PO <sub>4</sub> )	Riedel-de Haen	4276	
Solidworks	Dassault Systems		CAD software
Straight no.3 jeweler's forceps	S&T	JF-3-18	
Straight serrated forceps	Fine Science Tools (FST)	11050-10	
Surgical Scalpel Blade No.15	Swann-Morton Limited	305	
Triton-X 100	BioLab LTD	57836	
TSIM	Advanced Solutions		3D slicing and design software for the BioAssembly Bot
Vessel dilator	S&T	D-5a.1	
Zeiss Tivato 700 surgical microscope	Zeiss		