

Materials List for:

Transplantation of Induced Pluripotent Stem Cell-derived Mesoangioblast-like Myogenic Progenitors in Mouse Models of Muscle Regeneration

Mattia F. M. Gerli¹, Sara M. Maffioletti^{*}, Queensta Millet¹, Francesco Saverio Tedesco^{1,2}

¹Department of Cell and Developmental Biology, University College London

²Division of Regenerative Medicine, Stem Cells and Gene Therapy, San Raffaele Hospital

^{*}These authors contributed equally

Correspondence to: Francesco Saverio Tedesco at f.s.tedesco@ucl.ac.uk

URL: <https://www.jove.com/video/50532>

DOI: [doi:10.3791/50532](https://doi.org/10.3791/50532)

Materials

Name	Company	Catalog Number	Comments
REAGENTS			
MegaCell DMEM	Sigma	M3942	
DMEM	Sigma	D5671	
IMDM	Sigma	I3390	
Horse serum	Euroclone	ECS0090L	
Foetal Bovine Serum	Lonza	DE14801F	
PBS Calcium/Magnesium free	Lonza	BE17-516F	
L-Glutamine	Sigma	G7513	
Penicilline/Streptomycin	Sigma	P0781	
2-Mercaptoethanol	Gibco	31350-010	
ITS (Insulin-Transferrin-Selenium)	Gibco	51500-056	
Nonessential amino acid solution	Sigma	M7145	
Fer-In-Sol	Mead Johnson		
Ferlxit	Aventis		
Oleic Acid	Sigma	01257-10 mg	
Linoleic Acid	Sigma	L5900-10 mg	
Human bFGF	Gibco	AA 10-155	
Grow factors-reduced Matrigel	Becton Dickinson	356230	
Trypsin	Sigma	T3924	
Sodium heparin	Mayne Pharma		
Trypan blue solution	Sigma	T8154	HARMFUL
Patent blue dye	Sigma	19, 821-8	
EDTA	Sigma	E-4884	
Paraformaldehyde	TAAB	P001	HARMFUL
Tamoxifen	Sigma	T5648	
4-OH Tamoxifen	Sigma	H7904	
pLv-CMV-MyoD-ER(T)	Addgene	26809	
Cardiotoxin	Sigma	C9759	HARMFUL
Povidone iodine			
Tragachant gum	MP Biomedicals	104792	
Isopenthan	VWR	24,872,323	
Tissue-tek OCT	Sakura	4583	

Sucrose	VWR	27,480,294	
Polarized glass slides	Thermo	J1800AMNZ	
Eosin Y	Sigma	E4382	
Hematoxylin	Sigma	HHS32	
Masson's trichrome	Bio-Optica	04-010802	
Mouse anti Myosin Heavy Chain antibody	DSHB	MF20	
Mouse anti Lamin A/C antibody	Novocastra	NLC-LAM-A/C	
Hoechst 33342	Sigma Fluka	B2261	
Rabbit anti Laminin antibody	Sigma	L9393	

MATERIALS AND EQUIPMENT

Adsorbable antibacterial suture 4-0	Ethicon	vcp310h	
30 G Needle syringe	BD	324826	
Treadmill	Columbus instrument		
Steromicroscope	Nikon	SMZ800	
Inverted microscope	Leica	DMIL LED	
Isoflurane unit	Harvad Apparatus		
Fiber optics	Euromecs (Holland)	EK1	
Heating pad	Vet Tech	C17A1	
Scalpels	Swann-Morton	11REF050	
Surgical forceps	Fine Scientific Tools		5/45
High temperature cauteriser	Bovie Medical	AA01	

MEDIA COMPOSITION

Media composition is detailed below.

HIDEMs growth medium:

- MegaCell Dulbecco's Modified Eagle Medium (MegaCell DMEM)
- 5% fetal bovine serum (FBS)
- 2 mM glutamine
- 0.1 mM β -mercaptoethanol
- 1% nonessential amino acids
- 5 ng/ml human basic fibroblast growth factor (bFGF)
- 100 IU/ml penicillin
- 100 mg/ml streptomycin

Alternatively, if some of the above reagents are not available, HIDEMs can be grown in:

- Iscove's Modified Dulbecco's Medium (IMDM)
- 10% FBS
- 2 mM glutamine
- 0.1 mM β -mercaptoethanol
- 1% Nonessential amino acids (NEAA)
- 1% ITS (insulin/transferrin/selenium)
- 5 ng/ml human bFGF
- 100 IU/ml penicillin
- 100 mg/ml streptomycin
- 0.5 μ M oleic and linoleic acids
- 1.5 μ M Fe^{2+} (Fer-In-Sol)
- 0.12 μ M Fe^{3+} (Ferlxit)

MIDEMs growth medium:

- DMEM
- 20% FBS
- 2 mM glutamine
- 5 ng/ml human bFGF
- 100 IU/ml penicillin
- 100 mg/ml streptomycin

Differentiation medium:

- DMEM

- 2% Horse Serum (HS)
- 100 IU/ml penicillin
- 100 mg/ml streptomycin
- 2 mM glutamine

Table 1. List of Reagents, Materials, Equipment, and Media.