

Materials List for:

Electrophysiological Analysis of human Pluripotent Stem Cell-derived Cardiomyocytes (hPSC-CMs) Using Multi-electrode Arrays (MEAs)

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Materials

Name	Company	Catalog Number	Comments
Biological safety cabinet/laminar flow-hood	Cleanair		
MEA2100 <i>in vitro</i> recording system	Multi Channel Systems		
CO ₂ cell-culture incubator	Sanyo	MCO-15A	
Centrifuge	Hitachi	himac-CT6EL	
Leica stereomicroscope	Leica Microsystems	MS5	
Handheld pipetman (P-10 (10 µL), P-200 (200 µL), P-1000 (1,000 µL))	Gilson International		
Filter tips (10 µL, 200µL, 1,000µL)	Corning	4807 (10 µL), 4810 (200µL), 4809 (1000µL)	
Disposable bottle top filter (0.22 µm pore size)	Millipore	SCGVU02RE	
Sterile plastic pipette	Greiner Bio-One	606180 (5 mL), 607180 (10 mL), 760180 (25 mL)	
Tweezers	Dumont		
Autoclavable Petri dishes	VWR/ Duran Group	391-0860	
MEA chip	Multi Channel Systems	MEA200/30iR-Ti-gr	
Phosphate-buffered Saline (PBS) calcium, magnesium	Thermo Fisher Scientific	14040-091	
Phosphate-Buffered Saline (PBS) no calcium, no magnesium	Thermo Fisher Scientific	14190-169	
Human recombinant fibronectin	Tebu-Bio	J64560	
Custom-made polytetrafluoroethylene (PTFE) MEA rings	LUMC: department of Instrument Development		
Dissociation enzyme - TrypLE Select 1x	Thermo Fisher Scientific	12563-029	
Tergazyme enzyme detergent	Sigma-Aldrich	Z273287-1EA	
Distilled Water	Thermo Fisher Scientific	15230-089	
Name	Company	Catalog Number	Comments
<i>Reagents for LI-BPEL medium</i>			
Iscove's Modified Dulbecco's Medium (IMDM)	Thermo Fisher Scientific	21056-023	
F12 nutrient mixture (Ham)	Thermo Fisher Scientific	31765-027	
Ascorbic Acid 2-phosphate	Sigma-Aldrich	A8960	
Glutamax	Thermo Fisher Scientific	35050-038	
Penicillin/Streptomycin	Thermo Fisher Scientific	15070-063	

Phenol Red	Sigma-Aldrich	P3532	
Protein-free Hybridoma Medium-II (PFHMI)	Thermo Fisher Scientific	12040-077	
Bovine Serum Albumin (BSA)	Bovogen Biologicals Australia	BSAS05	
Poly(Vinyl Alcohol) (PVA)	Sigma-Aldrich	P8136	
Chemically-defined Lipid Concentrate (CDLC)	Thermo Fisher Scientific	11905-031	
Insulin-Transferrin-Selenium-Ethanolamine (ITS-X) 100x	Thermo Fisher Scientific	51599-056	
α -Monothioglycerol	Sigma-Aldrich	M6145	
Name	Company	Software version	Comments
MC_Rack	Multi Channel Systems	4.6.2	Alternatively, data can be recorded using Cardio2D or MC_Experimenter (MultiChannel Systems)
TCX Control	Multi Channel Systems	1.3.4	
MEA Select	Multi Channel Systems	1.3.0	
MC_Data Tool	Multi Channel Systems	2.6.15	Alternatively, Multi Channel Data Manager (MultiChannel Systems) can be used when custom data export is required (HDF5, EDF, etc.)
Clampfit	Molecular Devices	7.0.0	Used in step 10.1 for analyzing, graphing, and formatting of all of data. To use Clampfit, download and install the electrophysiology data acquisition and pClam (latest version, 10.7.0), available on the Molecular Devices Website. Once complete, launch the software Clampfit. Alternatively, data can be analysed using Cardio2D (MultiChannel Systems) or MatLab custom code.