

Technical Applications of Microelectrode Array and Patch Clamp Recordings on Human Induced Pluripotent Stem Cell-Derived Cardiomyocytes

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Citation

Zhao, S.R., Mondéjar-Parreño, G., Li, D., Shen, M., Wu, J.C. Technical Applications of Microelectrode Array and Patch Clamp Recordings on Human Induced Pluripotent Stem Cell-Derived Cardiomyocytes. *J. Vis. Exp.* (186), e64265, doi:10.3791/64265 (2022).

Date Published

August 4, 2022

DOI

10.3791/64265

URL

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Materials

Name	Company	Catalog Number	Comments
35 mm glass bottom dish with 20 mm micro-well #1.5 cover glass	Cellvis	D35-20-1.5-N	Patch clamp
50x B27 supplements	Life Technologies	17504-044	hiPSC-CM culture medium
6-well culture plate	E & K Scientific	EK-27160	hiPSC-CM culture
96-well flat clear bottom black polystyrene TC-treated microplates	Corning	3603	Contraction motion measurement
Accutase	Sigma-Aldrich	A6964	Enzymatic dissociation
Axion's Integrated Studio (AxIS)	Axion Biosystems		navigator software
Borosilicate glass capillaries	Harvard Apparatus	BF 100-50-10,	Patch clamp
CaCl ₂ 1 M in H ₂ O	Sigma-Aldrich	21115	Tyrode's solution
Cell counting chamber slides	ThermoFisher Scientific	C10228	Cell counting
CytoView 48-well MEA plates	Axion Biosystems	M768-tMEA-48B	MEA
DMEM/F12	Gibco/Life Technologies	12634028	Extracellular matrix medium
DPBS, no calcium, no magnesium	Fisher Scientific	14-190-250	
EGTA	Sigma-Aldrich	E3889	Intracellular pipette solution
EPC 10 USB patch clamp amplifier	Warner Instruments	89-5000	Patch clamp
Fura-2, AM, cell permeant	ThermoFisher Scientific	F1221	Ca ²⁺ transient measurement
Glucose	Sigma-Aldrich	G8270	Tyrode's solution
HEPES	Sigma-Aldrich	H3375	Tyrode's solution
hiPSCs	Stanford Cardiovascular Institute iPSC Biobank		
KCl	Sigma-Aldrich	529552	Tyrode's solution
KnockOut Serum Replacement	ThermoFisher Scientific	10828-028	hiPSC-CM seeding medium
KOH 8 M	Sigma-Aldrich	P4494	Intracellular pipette solution

Lambda DG 4	Sutter Instrument Company		Ca ²⁺ transient measurement; ultra-high-speed wavelength switching light source
Luna-FL automated fluorescence cell counter	WISBIOMED	LB-L20001	Cell counting
Maestro Pro MEA system	Axion Biosystems		MEA
Matrigel Growth Factor Reduced (GFR) Basement Membrane Matrix	Corning	356231	Extracellular matrix medium
MgATP	Sigma-Aldrich	A9187	Intracellular pipette solution
MgCl ₂	Sigma-Aldrich	M8266	Tyrode's solution
NaCl	Sigma-Aldrich	S9888	Tyrode's solution
NaOH 10 M	Sigma-Aldrich	72068	Tyrode's solution
NIS Elements AR			
Pluronic F-127 (20% Solution in DMSO)	ThermoFisher Scientific	P3000MP	Ca ²⁺ transient measurement
RPMI 1640 medium	Life Technologies	11875-119	hiPSC-CM culture medium
Sony SI8000 Cell Motion Imaging System	Sony Biotechnology		Contraction motion measurement
Sutter Micropipette puller	Sutter Instruments	P-97	Patch clamp
Trypan blue stain	Life Technologies	T10282	Cell counting