

Materials List for

# Dual-Dye Optical Mapping of Hearts from *RyR2<sup>R2474S</sup>* Knock-In Mice of Catecholaminergic Polymorphic Ventricular Tachycardia

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## Materials

Name	Company	Catalog Number	Comments
0.2 µm syringe filter	Medical equipment factory of Shanghai Medical Instruments Co., Ltd., Shanghai, China	N/A	To filter solution
15 mL centrifuge tube	Guangzhou Jet Bio-Filtration Co., Ltd. China	CFT011150	
1 mL Pasteur pipette	Beijing Labgic Technology Co., Ltd. China	00900026	
1 mL Syringe	B. Braun Medical Inc.	YZB/GER-5474-2014	
200 µL PCR tube	Sangon Biotech Co., Ltd. Shanghai. China	F611541-0010	Aliquote the stock solutions to avoid repeated freezing and thawing
50 mL centrifuge tube	Guangzhou Jet Bio-Filtration Co., Ltd. China	CFT011500	Store Tyrode's solution at 4 °C for follow-up heart isolation
585/40 nm filter	Chroma Technology	N/A	Filter for calcium signal
630 nm long-pass filter	Chroma Technology	G15604AJ	Filter for voltage signal
Avertin (2,2,2-tribromoethanol)	Sigma-Aldrich Poole, Dorset, United Kingdom	T48402-100G	To minimize suffering and pain reflex
Blebbistatin	Tocris Bioscience, Minneapolis, MN, United States	SLBV5564	Excitation-contraction uncoupler to eliminate motion artifact during mapping
CaCl <sub>2</sub>	Sigma-Aldrich, St. Louis, MO, United States	SLBK1794V	For Tyrode's solution
Custom-made thermostatic bath	MappingLab, United Kingdom	TBC-2.1	To keep temperature of perfusion solution
Dimethyl sulfoxide (DMSO)	Sigma-Aldrich	(RNBT7442)	Solvent for dyes
Dumont forceps	Medical equipment factory of Shanghai Medical Instruments Co.,Ltd.,Shanghai, China	YAF030	
ElectroMap software	University of Birmingham	N/A	Quantification of electrical parameters
EMCCD camera	Evolve 512 Delta, Photometrics, Tucson, AZ, United States	A18G150001	Acquire images for optical signals
ET525/36 sputter coated filter	Chroma Technology	319106	Excitation filter

Glucose	Sigma-Aldrich, St. Louis, MO, United States	SLBT4811V	For Tyrode's solution
Heparin Sodium	Chengdu Haitong Pharmaceutical Co., Ltd., Chengdu, China	(H51021209)	To prevent blood clots in the coronary artery
Iris forceps	Medical equipment factory of Shanghai Medical Instruments Co.,Ltd.,Shanghai, China	YAA010	
Isoproterenol	MedChemExpress, Carlsbad, CA, United States	HY-B0468/CS-2582	
KCl	Sigma-Aldrich, St. Louis, MO, United States	SLBS5003	For Tyrode's solution
MacroLED	Cairn Research, Faversham, United Kingdom	7355/7356	The excitation light of fluorescence probes
MacroLED light source	Cairn Research, Faversham, United Kingdom	7352	Control the LEDs
Mayo scissors	Medical equipment factory of Shanghai Medical Instruments Co.,Ltd.,Shanghai, China	YBC010	
MetaMorph	Molecular Devices	N/A	Optical signals sampling
MgCl <sub>2</sub>	Sigma-Aldrich, St. Louis, MO, United States	BCBS6841V	For Tyrode's solution
MICRO3-1401	Cambridge Electronic Design limited, United Kingdom	M5337	Connect the electrical stimulator and Spike2 software
MyoPacer EP field stimulator	Ion Optix Co, Milton, MA, United States	S006152	Electric stimulator
NaCl	Sigma-Aldrich, St. Louis, MO, United States	SLBS2340V	For Tyrode's solution
NaH <sub>2</sub> PO <sub>4</sub>	Sigma-Aldrich, St. Louis, MO, United States	BCBW9042	For Tyrode's solution
NaHCO <sub>3</sub>	Sigma-Aldrich, St. Louis, MO, United States	SLBX3605	For Tyrode's solution
NeuroLog System	Digitimer	NL905-229	For ECG amplifier
OmapScope5	MappingLab, United Kingdom	N/A	Calcium alternans and arrhythmia analysis
Ophthalmic scissors	Huaian Teshen Medical Instruments Co., Ltd., Jiang Su, China	T4-3904	
OptoSplit	Cairn Research, Faversham, United Kingdom	6970	Split the emission light for detecting Ca <sup>2+</sup> and V <sub>m</sub> simultaneously
Peristaltic pump	Longer Precision Pump Co., Ltd., Baoding, China,	BT100-2J	To pump the solution
Petri dish	BIOFIL	TCD010060	
Pluronic F127	Invitrogen, Carlsbad, CA, United States	1899021	To enhance the loading with Rhod2AM
RH237	Thermo Fisher Scientific, Waltham, MA, United States	1971387	Voltage-sensitive dye
Rhod-2 AM	Invitrogen, Carlsbad, CA, United States	1890519	Calcium indicator
Silica gel tube	Longer Precision Pump Co., Ltd., Baoding, China,	96402-16	Connect with the peristaltic pump
Silk suture	Yuankang Medical Instrument Co., Ltd.,Yangzhou, China	20172650032	To fix the aorta
Spike2	Cambridge Electronic Design limited, United Kingdom	N/A	To record and analyze ECG data

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Stimulation electrode	MappingLab, United Kingdom	SE1600-35-2020	
T510lpxr	Chroma Technology	312461	For light source
T565lpxr	Chroma Technology	321343	For light source