

Materials List for:

Spontaneous Formation and Rearrangement of Artificial Lipid Nanotube Networks As a Bottom-Up Model for Endoplasmic Reticulum

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Materials

Name	Company	Catalog Number	Comments
Pear-shape flask 10 mL	Lenz Laborglasinstrumente	3.0314.13	In which the lipid mixture is prepared
Hamilton 5 mL glass syringe (P/N)	Hamilton	P/N81520	For transfer of the chloroform to beaker
Custom large hub needle Gauge 22 S	Hamilton	7748-18	Removable needle for syringe specified in row 3
Hamilton 250 µL glass syringe	Hamilton	7639-01	Used for transfer of lipids in chloroform to the flask
Large hub Gauge 22 S	Hamilton	7780-03	Removable needle for syringe specified in row 5
Hamilton 50 µL glass syringe	Hamilton	7637-01	Used for transfer of fluorophore-conjugated lipids to the flask
Small hub Gauge 22 S	Hamilton	7770-01	Removable needle for syringe specified in row 7
Chloroform anhydrous (≥99%)	Sigma-Aldrich	288306	Used to complete the lipid mixture to a total of 300 µL
Soy L-α Phosphatidyl choline lipid (Soy PC)	Avanti Polar Lipids Inc	441601	phospholipid species contributing to 69% of the total composition/mixture
1,2-dioleoyl-sn-glycero-3-phosphoethanolamine (DOPE)	Avanti Polar Lipids Inc	850725	phospholipid species contributing to 30% of the lipid composition/mixture
L-α Phosphatidyl inositol lipid (Soy PI)	Avanti Polar Lipids Inc	840044	alterative phospholipid species contributing to 30% of the lipid composition/mixture (from the original article Bilal and Gözen, Biomaterials Science, 2017)
Texas Red 1,2-dihexadecanoyl-sn-glycero-3-phosphoethanolamine, triethylammonium salt (Texas Red DHPE)	Invitrogen (Thermo Fisher Scientific)	T1395MP	Fluorescent-lipid conjugate, 1% of the lipid composition/mixture
Digital Dry Baths/Block Heaters	Thermo Fischer	88870006	To warm glycerol in order to decrease its viscosity
Glycerol for molecular biology (≥99%)	Sigma Life Science	G5516	For lipid preparation
PBS buffer (pH=7.8); ingredients below in rows 17-21			Used to prepare the lipid suspension
TRIZMA base, primary standard and buffer (≥99%)	Sigma Life Science	T1503	Used to prepare PBS buffer

Potassium phosphate tribasic, reagent grade ($\geq 98\%$) (K_3PO_4)	Sigma-Aldrich	P5629	PBS buffer ingredient
Magnesium sulfate heptahydrate, BioUltra ($\geq 99.5\%$) KT ($MgSO_4 \cdot 7H_2O$)	Sigma Life Science	63138	PBS buffer ingredient
Potassium phosphate monobasic, anhydrous, free flowing, Redi-Dri, ACS (KH_2PO_4)	Sigma-Aldrich	795488	PBS buffer ingredient
Ethylenediaminetetraacetic acid disodium salt dihydrate ACS reagent, 99.0-101.0% (Na_2EDTA)	Sigma-Aldrich	E4884	PBS and Chelator-HEPES buffer ingredient
Ultrasonic cleaner USC-TH	VWR	142-0084	Ultrasonication of rehydrated lipids
Rotary evaporator - Büchi rotary evaporator Model R-200	Sigma	Z626797	For evaporation of chloroform
Pressure meter - Vacuum regulator IRV-100	SMC	IRV10/20	For controlling the pressure value during lipid dehydration
HEPES-buffer (pH=7.8); ingredients below in rows 26-27			Used for rehydration of lipids. Content: 10 mM HEPES with 100 m NaCl diluted in ultrapure deionized water
HEPES $\geq 99.5\%$ (titration)	Sigma Life Science	H3375	HEPES-buffer ingredient
Sodium chloride for molecular biology, DNase, RNase, and protease, none detected, $\geq 98\%$ (titration) (NaCl)	Sigma Life Science	S3014	HEPES-buffer ingredient
Calcium-HEPES buffer (pH=7.8); effective ingredient below in row 29			Used for spreading of lipids. Content: 10 mM HEPES, 100 mM NaCl, 4 mM $CaCl_2$ diluted in ultrapure deionized water
Calcium chloride anhydrous, BioReagent, suitable for insect cell culture, suitable for plant cell culture, $\geq 96.0\%$ ($CaCl_2$)	Sigma Life Science	C5670	To prepare Calcium-HEPES buffer
Chelator-HEPES buffer (pH=7.8); effective ingredient below in row 31			Used to promote the formation of tubular networks. Content: 10 mM HEPES, 100 mM NaCl, 10 mM EDTA and 7 mM BAPTA diluted in ultrapure deionized water
1,2-Bis(2-aminophenoxy)ethane-N,N,N',N'-tetraacetic acid tetrasodium salt $\geq 95\%$ (HPLC) (BAPTA-Na4)	Sigma Life Science	14513	Chelator-HEPES buffer ingredient
Sodium Hydroxide	Sigma	30620	Basic solution used to adjust the pH of the buffers
pH meter accumet™ AE150 pH	Fisher Scientific	1544693	Used to measure the pH of all buffers
Glass petri dish	VWR	HECH41042012	6 cm, used for making the PDMS sheet
Potassium hydroxide ACS reagent, $\geq 85\%$, pellets (KOH)	Sigma-Aldrich	221473	To make the KOH solution for cleaning glass petri dish for the fabrication of the PDMS sheet
Isopropanol prima ren 99.5%	Antibac AS	600079	KOH solution ingredient
Heating and drying oven - venticell	MMM Medcenter Einrichtungen GmbH	MC000714	For drying of the glass petri dish after silanization and to cure PDMS
Dichlorodimethylsilane $\geq 99.5\%$	Sigma-Aldrich	440272	Used for silanization of glass petri dish in which PDMS sheet is prepared

Vacuum pump	Cole-Parmer	EW-79202-05	Connected to desiccator
Sylgard 184 silicone elastomer curing agent	Dow corning	24236-10	Kit to make PDMS solution
Sylgard 184 Silicone elastomer base			
Disposable scalpel	Swann-Morton	11798343	Used to cut the PDMS
Cover slips	Menzel -Gläser	MEZ102460	24x60 mm. Used to deposit thin film of Al ₂ O ₃
Atomic layer deposition system	Beneq	TFS200 (model number)	Atomic Layer deposition system used to deposit thin film of Al ₂ O ₃ in microscope cover glass
Ellipsometer	J.A. Woollan Co.	Alpha-SE (model name)	System used to characterize the thickness of the film deposited on glass surface
Laser scanning confocal microscope	Leica Microsystems	Leica TCS SP8 X	Microscope used for visualization of the experiment
Objective 40x, 1.3 NA	Leica Microsystems	1550635	Used for visualization of the experiment
White light laser source	Leica Microsystems	Leica TCS SP8 X	For excitation of the membrane fluorophore