

Tumor Spheroid Fabrication and Encapsulation in Polyethylene Glycol Hydrogels for Studying Spheroid-Matrix Interactions

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Materials

Name	Company	Catalog Number	Comments
70% Ethanol	Fisher Scientific	LC22210-4	
15 mL Conicals	FALCON	352097	
24-Well Plate Ultra Low Attachment plates	Fisher Scientific	07-200-602	
35 mm Petri Dish	Amazon	706011	
4-arm poly(ethylene glycol)-acrylate (4-arm PEG-Ac; 10 kDa)	Laysan Bio	ACRL-PEG-ACRL-10K-5g	
50 mL Conicals	Fisher Scientific	3181345107	
6-well AggreWell 400	StemCell Technologies, Vancouver, Canada	34421	Square pyramidal microwells
anti-adherence rinsing solution	StemCell Technologies, Vancouver, Canada	Cat #: 07010	
Aspartic Acid-Arginine-Cysteine-Glycine-Valine-Proline-Methionine-Serine-Methionine-Arginine-Glycine-Cysteine-Arginine- Aspartic Acid (DRCG-VPMSMR-GCRD) peptide	Genic Bio, Shanghai, China	n/a	Custom synthesis
Chemical Fume Hood	KEWAUNEE	99151	
Corning Matrigel Basement Membrane Matrix, LDEV Free	Corning	356234	Basement membrane matrix
Detergent - Triton-X	Sigma Aldrich	T8787	Nonionic surfactant
Dimethyl sulfoxide (DMSO)	Fisher Scientific	BP231-100	
Disposable Pipettes (1 mL, 2 mL, 5 mL, 10 mL, 25 mL, 50 mL)	Fisher Scientific	1 mL: 13-678-11B, 2mL: 05214038, 5mL(FALCON): 357529, 10mL: 13-678-11E, 25mL: 13-678-11, 50mL: 13-678-11F	
Fetal Bovine Serum	HyClone	SH30073-03	
Formaldehyde 37% Solution	Sigma Aldrich	F1635	
Glass Plates	Slumpys	GBS4100SFSL	
Glass Transfer Pipettes	Fisher Scientific	5 3/4": 1367820A, 9":136786B	

Glycine-Arginine-Cysteine-Aspartic Acid-Arginine-Glycine-Aspartic Acid-Serine (GRCD-RGDS) peptide	Genic Bio, Shanghai, China	n/a	Custom synthesis
Hemocytometer	Bright-Line	383684	
Hydrophobic solution - Repel Silane	GE Healthcare Bio-Sciences	17-1332-01	
Incubator	NUAIRE	NU-8500	
Inverted Microscope (Axiovert 25)	Zeiss	663526	
Invitrogen DiOC16(3) (3,3'-Dihexadecyloxycarbocyanine Perchlorate)	Fisher Scientific	D1125	
Leica Confocal SP8	Leica Microsystems Inc.		
Light and Fluorescent Microscope (Axiovert 200M)	Zeiss	3820005619	
Micro centrifuge tubes	Fisher Scientific	2 mL: 02681258	
Microscope Software	Zeiss	AxioVision Rel. 4.8.2	
Nestin Alexa Fluor 594	Santa Cruz Biotechnology	sc-23927	
Parafilm	PARAFILM	PM992	
PBS (1x), pH 7.4	HyClone	SH30256.01	
Penicillin Streptomycin	MP Biomedicals	1670046	
Pipette Aid	Drummond Scientific Co.	P-76864	
Pipette Tips (1–200 µL, 101–1000 µL)	Fisher Scientific	2707509	
Plastic Standard Disposable Transfer Pipettes	Fisher Scientific	13-711-9D	
Plastic Weigh Boats (100 mL)	Amazon	mdo-azoc-1030	
poly(ethylene glycol)-dithiol (PEG-diSH; 3.4 kDa)	Laysan Bio	SH-PEG-SH-3400-5g	
Polydimethylsiloxane (PDMS) [Slygard 182 Elastomer Kit]	Elsworth Adhesives	3097358-1004	Polydimethylsiloxane
Powder Free Examination Gloves	Quest	92897	
Propidium iodide, 1 mg/mL aqueous soln.	Fisher Scientific	AAJ66584AB	
RPMI-1640 Medium (1x)	HyClone	SH30027-02	
Silicone spacers - Silicone sheet, 0.5 mm thick/13 cm x 18 cm	Grace Bio-Labs	JTR-S-0.5	
SOX2 Alexa Fluor 488	Santa Cruz Biotechnology	sc-365823	
Tissue Culture Hood	NUAIRE	NU-425-600	
Triethanolamine, ≥99.0% (GC)	Sigma Aldrich	90279	
U-87 MG human glioblastoma cells	American Type Culture Collection	HTB-14	