

Materials List for:

Porous Silicon Microparticles for Delivery of siRNA Therapeutics

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Materials

Name	Company	Catalog Number	Comments
Polyethylenimine (PEI), branched	Sigma-Aldrich	408727	Average molecular weight ~25,000 Da
L-Arginine	Sigma-Aldrich	A5006	Reagent grade, ≥98%
Boc-Asp-OH	Sigma-Aldrich	408-468	99%
Hydrogen peroxide solution	Sigma-Aldrich	216763	30 wt. % in H ₂ O
Sulfuric acid	Sigma-Aldrich	339741	100.00%
Isopropyl alcohol	Sigma-Aldrich	W292907	≥99.7%
Ethanol	Sigma-Aldrich	459844	≥99.5%
<i>N</i> -(3-Dimethylaminopropyl)- <i>N</i> '-ethylcarbodiimide hydrochloride (EDC)	Sigma-Aldrich	03449	≥99%
Albumin from bovine serum	Sigma-Aldrich	A7030-10G	Blocking agent
Ataxia-telangiectasia mutated siRNA	Sigma-Aldrich		Designed in-house
Tris Acetate-EDTA buffer	Sigma-Aldrich	T9650	For DNA agarose gel electrophoresis
Penicillin-Streptomycin	Sigma-Aldrich	P4333	
Fetal Bovine Serum	Sigma-Aldrich	F2442	
TWEEN 20	Sigma-Aldrich	P1379	Polyethylene glycol sorbitan monolaurate
2-Mercaptoethanol	Sigma Aldrich	M6250	For Western blot
Sodium dodecyl sulfate	Sigma-Aldrich	L3771	
Sodium phosphate monobasic	Sigma-Aldrich	71496	For making phosphate buffer
Sodium phosphate dibasic	Sigma-Aldrich	71640	For making phosphate buffer
Anti-Mouse IgG	Sigma-Aldrich	A4416	Secondary antibody (anti-mouse) for Western blot
<i>N</i> -Hydroxysuccinimide (NHS)	Sigma-Aldrich	130672	98%
CELLSTAR 96W Microplate Tissue Culture Treated Clear w/ Lid	Greiner Bio-One	655182	96-well plate
10x Tris-Glycine Liquid	Li-Cor	928-40010	Transfer buffer for Western blot
Paraformaldehyde solution 4% in PBS	Santa Cruz	Sc-281692	Fixation of cells

CellTiter 96 AQueous Non-Radioactive Cell Proliferation Assay (MTS)	Promega	G5421	Proliferation assay
Phosphate buffered saline	Fisher Scientific	BP399-500	10x Solution
Corning cellgro Dulbecco's Modification of Eagle's (Mod.)	Fisher Scientific	MT-15-017-CM	Cell culture media, 1x solution
Triton X-100	Fisher Scientific	AC21568-2500	Octyl phenol ethoxylate, permeabilization agent
Cover glass	Fisher Scientific	12-530C	
Methanol	Fisher Scientific	A412-1	For Western blot transfer buffer
Plastic Cuvettes	Fisher Scientific	14-377-010	For size measurements using Zetasizer Nano ZS
Molecular BioProducts RNase AWAY Surface Decontaminant	Fisher Scientific	14-754-34	Spray for removing RNase contamination
Agarose	Fisher Scientific	BP165-25	Low melting point, for running RNA samples
ProLong Gold Antifade Reagent with DAPI	Invitrogen	P36935	Antifade reagent with DAPI, nucleus detection
Alexa Fluor 488 Phalloidin	Invitrogen	A12379	Dissolve 300 units in 1.5 ml methanol, detection of filamentous actin
SYBR Safe DNA Gel Stain	Invitrogen	S33102	Visualization of RNA
Negative Control siRNA	Qiagen	1022076	Control siRNA
AllStars Neg. siRNA AF 555	Qiagen	1027294	Fluorescent control siRNA
Cell scraper	Celltreat	229310	
BioLite Multidishes and Microwell Plates	Thermo Scientific	130184	6-well plate
Pierce LDS Sample Loading Buffer (4x)	Thermo Scientific	84788	Sample loading buffer for Western blot
Pierce BCS Protein Assay Kit	Thermo Scientific	23227	Protein quantification assay
Halt Protease Inhibitor Single-Use Cocktails (100x)	Thermo Scientific	78430	Protease inhibitor cocktail, use at 1x
M-PER Mammalian Protein Extraction Reagent	Thermo Scientific	78501	Protein extraction reagent
Sorvall Legend Micro 21R	Thermo Scientific	75002440	Centrifuge
Beta Actin Antibody	Thermo Scientific	MA1-91399	β -actin primary antibody (from mouse) for western blot
6x TriTrack DNA Loading Dye	Thermo Scientific	R1161	DNA loading dye
Nuclease-Free Water	Life Technologies	AM9938	
Non-Fat Dry Milk	Lab Scientific	M0841	For Western blot
2-well BD Falcon culture slides	BD Biosciences	354102	2-well culture slides
Amersham ECL Western blot detection reagent	GE Healthcare Life Sciences	RPN2106	Western blot detection reagent
BA Membranes	GE Healthcare Life Sciences	10402096	Nitrocellulose membrane for Western blot
ATM (D2E2) Rabbit mAb	Cell Signaling	2873S	ATM primary antibody (from rabbit) for Western blot
Anti-rabbit IgG, HRP-linked Antibody	Cell Signaling	7074	Secondary antibody (anti-rabbit) for Western blot
Folded capillary cells	Malvern	DTS 1061	For zeta potential measurements using Zetasizer Nano ZS
MDA-MB-231 cell line	ATCC	HTB-26	Mammary Gland/Breast

12% Mini-PROTEAN TGX Gel	Bio-rad	456-1043	For Western blot
Biorad PowerPac HC	Bio-rad	164-5052	Power supply for electrophoresis
10x Tris/Glycine/SDS Buffer	Bio-rad	161-0732	Running buffer for Western blot
Wide Mini-Sub Cell GT Cell	Bio-rad	170-4405	Electrophoresis equipment for DNA agarose gel
Mini-PROTEAN Tetra cell	Bio-rad	165-8000	Electrophoresis equipment for Western blot
ChemiDoc XRS+ System with Image Lab Software	Bio-rad	170-8265	Image acquisition and analysis software for gels and blots
4" (10 cm) dia., 5 x 7 mm diced Silicon Wafer	Ted Pella	16007	Silicon wafer for scanning electron microscopy and atomic force microscopy
Thermomixer R	Eppendorf	22670107	Shaker
Isoton II diluent	Beckman Coulter	8546719	Isoton diluent
Multisizer 4 Coulter Counter	Beckman Coulter	A63076	Particle counting analyzer
Non-functionalized porous silicon particles	Microelectronics Research Center, University of Texas at Austin		Dicoidal shape. 2.6 μm (diameter) x 0.7 μm (height), provided in isopropyl alcohol
Zetasizer Nano ZS	Malvern		Particle analyzer system for size and zeta potential
Scanning Electron Microscope	FEI		Particle size and shape
Atomic Force Microscope	Bruker		Particle size and shape
Fluo View TM 1000 Confocal Microscope	Olympus		Visualization of fixed and live cells