

Materials List for:

Large-area Scanning Probe Nanolithography Facilitated by Automated Alignment and Its Application to Substrate Fabrication for Cell Culture Studies

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Materials

Name	Company	Catalog Number	Comments
Equipment			
FlexAFM mounted on a motorised 5-axis (XYZ $\Theta\Phi$) translation and goniometer stage	NanoSurf	P40008	
AFM control software	NanoSurf	C3000	
Engraving pen	Sigma-Aldrich	Z225568	
Plasma Cleaner	Harrick plasma	PDC-32G-2	
PlasmaFlo	Harrick plasma	PDC-FMG-2	
Economy Dry Oxygen Service Pump	Harrick plasma	PDC-OPE-2	
Tube Rotator	Stuart	SB3	
Vacuum Desiccator	Thermo Fisher Scientific	5311-0250	
Milli-Q Water Purification System	Merck Millipore	ZRXQ015WW	
Modular Humidity Generator	proUmid	MHG32	
Proline Plus Pipette 100-1000 μ L	Sartorius	728070	
Silicon masters	NIL Technology	custom-made	
Upright snapshot fluorescence microscope	Olympus	BX51	
Microscope objectives	Olympus	10x and 60x UPlan FLN ∞ -/FN 26.5	
Upright bright field microscope	Leica	DM 2500M	
Ultrasonicator	Ultrawave Ltd.	U95	
Spreadsheet for recording and interpreting automated alignment results	Microsoft	Excel	
Reagent			
2-propanol	Sigma-Aldrich	34863	FLAMMABLE
Microscope Sildes, Clear, Ground	Thermo Fisher Scientific	451000	
(7–8% vinylmethylsiloxane)-dimethylsiloxane copolymer, trimethylsiloxy-terminated	Gelest	VDT-731	
1,3,5,7-tetramethyl-1,3,5,7-tetravinylcyclotetrasiloxane	Gelest	SIT7900.0	

Platinum(0)-1,3-divinyl-1,1,3,3-tetramethyldisiloxane complex solution	Sigma-Aldrich	479527	HARMFUL, TOXIC
(25–35% methylhydrosiloxane)-dimethylsiloxane copolymer, trimethylsiloxane-terminated	Gelest	HMS-301	
Weigh Boat 100 mL	Scientific Laboratory Supplies	BALI828	
Pasteur pipette	Appleton Woods	KS230	
Petri dish	SARSTEDT	82.1473	
Razor blade	Thermo Fisher Scientific	ST10-031T	
Adhesive Carbon Tape	Agar scientific	AGG3939	
16-Mercaptohexadecanoic acid	Sigma-Aldrich	448303-1G	HARMFUL, TOXIC
Ethanol	Sigma-Aldrich	34852	FLAMMABLE
Gold coated microscope slide	Sigma-Aldrich	643203	Once opened gold will remain reactive to thiols for at least 1 month
Thiourea	Sigma-Aldrich	T8656	HARMFUL, TOXIC
Iron(III) nitrate nonahydrate	Sigma-Aldrich	529303	HARMFUL, TOXIC
Hydrochloric acid	Sigma-Aldrich	84415	HARMFUL, TOXIC
(11-Mercaptoundecyl)hexa(ethylene glycol)	Sigma-Aldrich	675105	HARMFUL, TOXIC
Fibronectin from human plasma	Sigma-Aldrich	F0895	
Cobalt(II) nitrate hexahydrate	Sigma-Aldrich	203106	HARMFUL, TOXIC
Dulbecco's Phosphate Buffered Saline	Sigma-Aldrich	D8537	
MSCGM Mesenchymal Stem Cell Growth Medium	Lonza UK	PT-3001	
Human Mesenchymal Stem Cells	Lonza UK	PT-2501	
Trypsin-EDTA	Sigma-Aldrich	T4174	
Heraeus Multifuge X1 Centrifuge	Thermo Fisher Scientific	75004210	
CELLSTAR Centrifuge Tubes	Greiner Bio-One	188261	
Paraformaldehyde	Fisher Scientific	P/0840/53	HARMFUL, TOXIC
Alexa Fluor 488 Phalloidin	Thermo Fisher Scientific	A12379	
Triton X-100	Sigma-Aldrich	T8787	"Detergent" in manuscript
VECTASHIELD Antifade Mounting Medium with DAPI	Vector Laboratories	H-1200	
Rabbit anti-fibronectin antibody	Abcam	ab2413	
Goat anti-Rabbit IgG (H+L) Secondary Antibody, Alexa Fluor 594	Thermo Fisher Scientific	R37117	
Bovine Serum Albumin	Sigma-Aldrich	A3912	
12-well plate	Thermo Fisher Scientific	10253041	
T75 tissue culture flask	Thermo Fisher Scientific	10790113	
cantilever	BudgetSensor	ContAI-G	