

Materials List for:

Au-Interaction of Slp1 Polymers and Monolayer from *Lysinibacillus sphaericus* JG-B53 - QCM-D, ICP-MS and AFM as Tools for Biomolecule-metal Studies

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Materials

Name	Company	Catalog Number	Comments
equipment and software			
Bioreactor, Steam In Place 70L Pilot System	Applikon Biotechnology, Netherlands	Z6X	Including dO ₂ , pH sensors of Applikon Biotechnology and BioXpert software V2
Noninvasive Biomass Monitor BugEye 2100	BugLab, Concord (CA), USA	Z9X	---
Spectrometer Ultrospec 1000	Amersham Pharmacia Biotech, Great Britain	80-2109-10	Company now GE Healthcare Life Sciences
MiniStar micro centrifuge	VWR, Germany	521-2844	For centrifugation of cultivation samples
Research system microscope BX-61	Olympus Germany LLC, Germany	037006	Microscope in combination with imaging software
Cell [^] P (version 3.1)	Olympus Soft Imaging Solutions LLC, Münster, Germany	---	together with microscope
Powerfuge Pilot Separation System Serie 9010-S	Carr Centritech, Florida, USA	9010PLT	For biomasse harvesting
T18 basic Ultra Turrax	IKA Labortechnik, Germany	431-2601	For flagella removal and sample homogenization
Sorvall Evolution RC Superspeed Centrifuge	Thermo Fisher Scientific, USA	728411	Used within protein isolation
Mobile high shear fluid processor, M-110EH-30 Pilot	Microfluidics, Massachusetts, USA	M110EH30K	Used for cell rupture
Alpha 1-4 LSC Freeze dryer	Martin Christ Freeze dryers LLC, Osterode, Germany	102041	---
UV-VIS spectrophotometry (NanoDrop 2000c)	Thermo Fisher Scientific, USA	91-ND-2000C-L	For determination of protein concentration
Mini-PROTEAN vertical electrophoresis chamber	Bio-Rad Laboratories GmbH, Munich, Germany	165-3322	For SDS-PAGE
VersaDoc Imaging System 3000	Bio-Rad Laboratories GmbH, Munich, Germany	1708030	Used for imaging of SDS-PAGE gels
ICP-MS Elan 9000	PerkinElmer, Waltham (MA), USA	N8120536	For determination of metal concentration
Zetasizer Nano ZS	Malvern Instruments, Worcestershire United Kingdom	ZEN3600	For determination of nanoparticle size
Q-Sense E4 device	Q-Sense AB, Gothenburg, Sweden	QS-E4	ordered via LOT quantum design (software included with E4 platform)
Q-Soft 401 (data recording)	Q-Sense AB, Gothenburg, Sweden		

Q-Tools 3 (data evaluation and modelling)	Q-Sense AB, Gothenburg, Sweden		
QCM-D flow modules QFM 401	Q-Sense AB, Gothenburg, Sweden	QS-QFM401	ordered via LOT quantum design
Qsx 303 SiO ₂ piezoelectric AT-cut quartz sensors	Q-Sense AB, Gothenburg, Sweden	QS-QSX303	ordered via LOT quantum design
Ozone cleaning chamber	Bioforce Nanoscience, Ames (IA), USA	QS-ESA006	ordered via LOT quantum design
Atomic Force Microscope MFP-3D Bio AFM	Asylum Research, Santa Barbara (CA), USA	MFP-3DBio	AFM measurements and imaging software
Asylum Research AFM Software AR Version 120804+1223	Asylum Research, Santa Barbara (CA), USA	---	imaging software included in Cat. No. MFP-3DBio
Igor Version Pro 6.3.2.3 Software	WaveMetrics, Inc., USA	---	imaging software included in Cat. No. MFP-3DBio
BioHeater	Asylum Research, Santa Barbara (CA), USA	Bioheater	Sample heater for AFM measurements
Biolever mini cantilever, BL-AC40TS-C2	Olympus Germany LLC, Germany	BL-AC40TS-C2	Preferred cantilever for AFM measurements
WSxM 5.0 Develop 6.5 (2013)	Nanotec Electronica S.L., Spain	freeware	Software for AFM analysis
Name	Company	Catalog Number	Comments
Detergents and other equipment			
acidic acid, 100 %, p.A.	CARL ROTH GmbH+CO.KG	3738.5	Danger, flammable and corrosive liquid and vapour. Causes severe skin burns and eye damage.
Antifoam 204	Sigma-Aldrich Co. LLC.	A6426	For foam suppression
bromophenol blue, sodium salt	Sigma-Aldrich Co. LLC.	B5525	---
Coomassie Brilliant Blue R (C ₄₅ H ₄₄ N ₃ NaO ₇ S ₂)	CARL ROTH GmbH+CO.KG	3862.1	---
Deoxyribonuclease II from porcine spleen	Sigma-Aldrich Co. LLC.	D4138	Typ IV, 2,000 - 6,000 Kunitz units/mg protein
Ethanol, 95%	VWR, Germany	20827.467	Danger, flammable
glycerine, p.A.	CARL ROTH GmbH+CO.KG	3783.1	---
Guanidine hydrochloride (GuHCl)	CARL ROTH GmbH+CO.KG	0037.1	---
Hellmanex III	Hellma GmbH & Co. KG	9-307-011-4-507	---
Hydrochloric acid (HCl) (37%)	CARL ROTH GmbH+CO.KG	4625.2	Danger; Corrosive, used for pH adjustment
Lysozyme from chicken egg white	Sigma-Aldrich Co. LLC.	L6876	Lyophilized powder, protein = 90 %, = 40,000 units/mg protein (Sigma)
Magnetic stirrer with heating, MR 3000K	Heidolph Instruments GmbH & Co.KG, Germany	504.10100.00	Standard stirrer within experiment
NB-Media DM180	Mast Diagnostica GmbH	121800	---
Nitric acid (HNO ₃)	CARL ROTH GmbH+CO.KG	HN50.1	Danger; Oxidizing, Corrosing
PageRuler Unstained Protein Ladder	ThermoScientific-Pierce	26614	---
Poly(sodium 4-styrenesulfonat) (PSS)	Sigma-Aldrich Co. LLC.	243051	Average Mw ~70,000
Polyethylenimine (PEI), branched	Sigma-Aldrich Co. LLC.	408727	Warning; Harmful, Irritant, Dangerous for the environment; average Mw ~25,000
Potassium carbonate anhydrous (K ₂ CO ₃)	Sigma-Aldrich Co. LLC.	60108	Warning; Harmful
Ribonuclease A from bovine pancreas	Sigma-Aldrich Co. LLC.	R5503	Type I-AS, 50 - 100 Kunitz units/mg protein

Sodium azide (NaN ₃)	Merck KGaA	106688	Danger; very toxic and Dangerous for the environment
Sodium chloride (NaCl)	CARL ROTH GmbH+CO.KG	3957.2	---
Sodium dodecyl sulfate (SDS)	Sigma-Aldrich Co. LLC.	L-5750	Danger; toxic
Sodium hydroxide (NaOH)	CARL ROTH GmbH+CO.KG	6771.1	Danger; Corrosive, used for pH regulation within cultivation and pH adjustment
Spectra/Por 6, Dialysis membrane, MWCO 50,000	CARL ROTH GmbH+CO.KG	1893.1	---
Sulfuric acid (H ₂ SO ₄)	CARL ROTH GmbH+CO.KG	HN52.2	Danger; Corrosive, used for pH regulation within cultivation
Tannic acid (C ₇₆ H ₅₂ O ₄₆)	Sigma-Aldrich Co. LLC.	16201	---
TRIS HCl (C ₄ H ₁₁ NO ₃ HCl)	CARL ROTH GmbH+CO.KG	9090.2	---
Triton X-100	CARL ROTH GmbH+CO.KG	3051.3	Warning; Harmful, Dangerous for the environment
VIVASPIN 500, 50,000 MWCO Ultrafiltration tubes	Sartorius AG	VS0132	---
β-mercaptoethanol	Sigma-Aldrich Co. LLC.	M6250	Danger, toxic