

Materials List for:

Design and Use of a Low Cost, Automated Morbidostat for Adaptive Evolution of Bacteria Under Antibiotic Drug Selection

Po C. Liu¹, Yi T. Lee¹, Chun Y. Wang¹, Ya-Tang Yang¹

¹Electrical Engineering, National Tsing Hua University

Correspondence to: Ya-Tang Yang at ytyang@ee.nthu.edu.tw

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Materials

Name	Company	Catalog Number	Comments
Environmental Shaker Incubator	BioSan	ES-20	
Arduino Leonardo board	Arduino	Leonardo	
680 Ohm Carbon Resistor	Digikey		Bias resistor for LED
100k Ohm Carbon resistor	Digikey		Bias resistor for phototransistor
940 nm light emitting diode	Bright LED Electronic	BIR-BM13E4G-2	Optical density measurement
940 nm phototransistor	Kodenshi	ST-2L2B	Optical density measurement
Darlington pair IC Toshiba	Mouser	ULN2803APG	this IC drives micropumps and magnetic stirring unit
5 V DC brushless fan	ADDA	AD0405LX-G70	spec: 5 V supply voltage and 80 mA; available www.jameco.com
Piezoelectric micropump	CurieJet	PS15I-FT-5L	Pressure> 3 kPa; Flow rate>5 ml/min
Tygon 3350 Tuning	Saint Gobain	ABW00001	ID: 1/32" OD: 3/32" L:50'
Magnetic Stir bar	COWIE		tapered shape dim: 10 mm x 4 mm
Glass scintillation 20 ml vial	DGS		Pyrex glass 28 mm (diameter) x 61 mm (height)
Culture vial holder			Custom made from Polyformaldehyde
Silicone	Dow Corning	Sylgald 184	used to seal the glass vial
Medium bottle	VWR	66022-065	
Difco M9 minimal salt 5x	BD		Medium
Cadamo Acid	BD		Medium
glucose	Sigma		
Agar Bacteriological	Oxoid		for agar plate
Luria Bertani medium			
Inverted microscope	Leica Microsystems	Leica DMI-LED	used for microfluidic measurement Use 40X objective NA = 0.55
Microscope Incubator	Live Cell Instrument	CU-109	used for microfluidic measurement
Solenoidal valves	Pneumadyne	S10MM-31-12-3	Normally open 1.3 Watt 12 Vdc
USB interface card	Hobby Engineering	USBIO24-R Digital I/O Module	for microfluidics measurement
Air compressor	Rocker Scientific	ROCKER 440	Pressure source for microfluidics; Max. Pressure 80 psi
Male luer-lock fittings to 1/8" barb	ValuePlastics.com	MTLL230-1	used for microfluidic control
1/8" barb to 10-32 threaded port	ValuePlastics.com	B-1	used for microfluidic control
Female luer-lock fittings to 10-32 threaded port	ValuePlastics.com	KFTL-1	used for microfluidic control

NPN darlington transistor 500 mA, 40 V (2N6427)	DigiKey.com	2N6427GOS-ND	used for microfluidic control
10 kOhm, carbon film resistor, 0.25 W	DigiKey.com	P10KBACT-ND	used for microfluidic control
Tantalum capacitor, 10 μ F, 25 V, 10%	DigiKey.com	478-1841-ND	used for microfluidic control
Andor CCD camera	Andor	Zyla 4.2 Plus SCMOS	used for microfluidic on chip imaging
ELISA plate reader			
two component Silicone	Momentive	RTV 615	used for microfluidic chip fabrication
SU-8 photoresist	Micrchem	SU8 2015	used for microfluidic chip fabrication
AZ4620 photoresist	Clariant	AZ 4620	used for microfluidic chip fabrication
Plasma cleaner	Harrick Plasma	PDC 32G	used for microfluidic chip fabrication
20 Gauge Syringe Needle	BD		used for microfluidic chip fabrication
Labcycler	Sensoquest	Labcycler	PCR
DNA polymerase	Toyobo	KDO Plus	PCR amplification
Trimethoprim	Sigma		
Plate reader	Biotek	Synergy H1 hybrid	antibiotic resistance measurement