

# Design and Development of a Model to Study the Effect of Supplemental Oxygen on the Cystic Fibrosis Airway Microbiome

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## Materials

Name	Company	Catalog Number	Comments
BME Vitamins (100x) Solution	MilliporeSigma	B6891	Concentrated solution of supplemental vitamins.
Crimper, 30 mm	DWK Life Sciences	224307	Crimper for attaching aluminum seals to serum bottles.
D-(+)-Glucose	MilliporeSigma	G7021	Solid glucose powder (dextrorotatory isomer).
Diaphragm Pump ME 2 NT	VACUUBRAND	20730003	Vacuum pump for vacuum filtration.
Egg Yolk Emulsion	HiMedia	FD045	Sterile emulsion of 30% egg yolk in saline.
Ferritin, Cationized from Horse Spleen	MilliporeSigma	F7879	Ferritin (iron-storage protein) solution.
FIREBOY plus Safety Bunsen Burner	Integra Biosciences	144000	Bunsen burner with user interface and safety features.
Hydrion pH Paper (1.0–14.0)	Micro Essential Laboratory	94	pH testing paper for the range of 1.0–14.0.
Hydrion pH Paper (4.0–9.0)	Micro Essential Laboratory	55	pH testing paper for the range of 4.0–9.0.
Hydrion pH Paper (6.0–8.0)	Micro Essential Laboratory	345	pH testing paper for the range of 6.0–8.0.
Hypodermic Needle-Pro EDGE Safety Device, 18 G	Smiths Medical	401815	18 G needles with safety caps.
In-Line Pressure Gauge	MilliporeSigma	20469	Gas pressure gauge for monitoring bottle pressure.
Innova 42 Incubated Shaker	Eppendorf	2231000756	Combination incubator/orbital shaker.
Luer-Lok Syringe with Attached Needle	Becton Dickinson	309580	Combination 3 mL syringe and 18 G needle.

Luer Valve Assortment	World Precision Instruments	14011	Valves for gas flow tubing.
LSE Orbital Shaker	ThermoFisher Scientific	6780-NP	Orbital shaker to agitate media during filtration.
Magnesium Sulfate Heptahydrate	MilliporeSigma	M2773	Solid epsom salt (magnesium sulfate heptahydrate).
Medical Air Single Stage Regulator with Flowmeter	Western Enterprises	M1-346-15FM	Air flow rate regulator with 15 L/min meter.
MEM Amino Acids (50x) Solution	MilliporeSigma	M5550	Concentrated solution of essential amino acids.
MEM Non-Essential Amino Acids (100x) Solution	MilliporeSigma	M7145	Concentrated solution of non-essential amino acids.
Millex-GP Filter, 0.22 µm	MilliporeSigma	SLMP25SS	0.22 µm polyethersulfone membrane sterile syringe filter.
Milli-Q Academic	MilliporeSigma	ZMQS60E01	Milli-Q sterile water filtration system.
MiniOX 3000 Oxygen Monitor	MSA	814365	Gas flow oxygen percentage monitor.
MOPS Buffer (1 M, pH 9.0)	Boston BioProducts	BBM-90	MOPS buffer for adjusting media pH.
Mucin from Porcine Stomach	MilliporeSigma	M2378	Mucin (glycosylated gel-forming protein) powder.
Natural Polypropylene Barbed Fitting Kit	Harvard Apparatus	72-1413	Connectors for gas flow tubing.
Nextera XT DNA Library Preparation Kit	Illumina	FC-131-1096	Library preparation for identification during sequencing.
NovaSeq 6000 Sequencing System	Illumina	770-2016-025-N	Shotgun sequencing platform for generating sample reads.
Oxygen Single Stage Regulator with Flowmeter	Western Enterprises	M1-540-15FM	Oxygen flow rate regulator with 15 L/min meter.
Oxygen Tubing with 2 Standard Connectors	SunMed	2001-01	Tubing for connecting gas system components.
Phosphate buffered saline, 10x, pH 7.4	Molecular Biologicals International	MRGF-6235	Concentrated phosphate-buffered saline solution.
PC 420 Hot Plate/Stirrer	Marshall Scientific	CO-PC420	Combination hot plate/stirrer.
Potassium Chloride	MilliporeSigma	P9541	Solid potassium chloride salt.
PTFE Disposable Stir Bars	ThermoFisher Scientific	14-513-95	Disposable magnetic stir bars.
PTFE Thread Seal Teflon Tape	VWR	470042-938	Teflon tape for reinforcing gas system connections.
Q-Gard 2 Purification Cartridge	MilliporeSigma	QGARD00D2	Purification cartridge for Milli-Q system.
Reusable Media Storage Bottles	ThermoFisher Scientific	06-423A	Bottles for mixing and storing culture media.
Rubber Stopper, 30 mm, Gray Bromobutyl	DWK Life Sciences	224100-331	Rubber stoppers for serum bottles.
Serum Bottle with Molded Graduations, 500 mL	DWK Life Sciences	223952	Glass serum bottles for sealed culturing.
Small Bore Extension Set	Braun Medical	471960	Tubing extension with luer lock connectors.
Sodium Chloride	MilliporeSigma	S3014	Solid sodium chloride salt.
Spike-in Control I (High Microbial Load)	ZymoBIOMICS	D6320	Spike-in microbes (I. halotolerans and A. halotolerans) for absolute microbial load calculations
Stericup Quick Release Sterile Vacuum Filtration System	MilliporeSigma	S2GPU02RE	250 mL 0.22 µm vacuum filtration chamber.
Super Sani-Cloth Germicidal Disposable Wipes	Professional Disposables International	H04082	Disposable germicidal wipes for sterilization.
Trace Metals Mixture, 1000x	ThermoFisher Scientific	NC0112668	Concentrated solution of physiological trace metals.

Unlined Aluminum Seal, 30 mm	DWK Life Sciences	224187-01	Aluminum seals crimped over top of rubber stoppers.
USP Medical Grade Air Tank	Airgas	AI USP200	Compressed air tank for input to sparging system.
USP Medical Grade Oxygen Tank	Airgas	OX USP200	Compressed oxygen tank for input to sparging system.