

# Investigation of Microbial Cooperation *via* Imaging Mass Spectrometry Analysis of Bacterial Colonies Grown on Agar and in Tissue During Infection

 Jonathan T. Specker<sup>1</sup>, Alexander B. Smith<sup>2</sup>, Orlaith Keenan<sup>2</sup>, Joseph P. Zackular<sup>2,3</sup>, Boone M. Prentice<sup>1</sup>
<sup>1</sup>Department of Chemistry, University of Florida <sup>2</sup>Division of Protective Immunity, Children's Hospital of Philadelphia <sup>3</sup>Department of Pathology and Laboratory Medicine, Perelman School of Medicine, University of Pennsylvania

## Corresponding Author

Boone M. Prentice

booneprentice@chem.ufl.edu

## Citation

 Specker, J.T., Smith, A.B., Keenan, O., Zackular, J.P., Prentice, B.M. Investigation of Microbial Cooperation *via* Imaging Mass Spectrometry Analysis of Bacterial Colonies Grown on Agar and in Tissue During Infection. *J. Vis. Exp.* (189), e64200, doi:10.3791/64200 (2022).

## Date Published

November 18, 2022

## DOI

10.3791/64200

## URL

jove.com/video/64200

## Materials

Name	Company	Catalog Number	Comments
0.2 µm Titan3 nylon syringe filters	Thermo Scientific	42225-NN	
1,5-diaminonaphthalene MALDI matrix	Sigma Aldrich	2243-62-1	
20 mL Henke Ject luer lock syringes	Henke Sass Wolf	4200.000V0	
275i series convection vacuum gauge	Kurt J. Lesker company	KJL275807LL	
7T solariX FTICR mass spectrometer equipped with a Smartbeam II Nd:YAG MALDI laser system (2 kHz, 355 nm)	Bruker Daltonics		
Acetic acid solution, suitable for HPLC	Sigma Aldrich	64-19-7	
Acetonitrile, suitable for HPLC, gradient grade, ≥99.9%	Sigma Aldrich	75-05-8	
Ammonium hydroxide solution, 28% NH <sub>3</sub> in H <sub>2</sub> O, ≥99.99% trace metals basis	Sigma Aldrich	1336-21-6	
Autoclavable biohazard bags: 55 gal	Grainger	45TV10	
Biohazard specimen transport bags (8 x 8 in.)	Fisher Scientific	01-800-07	
Brain heart infusion broth	BD Biosciences	90003-040	
C57BL/6 male mice	Jackson Laboratories		
CanoScan 9000F Mark II photo and document scanner	Canon		
CM 3050S research cryomicrotome	Leica Biosystems		
Desiccator cabinet	Sigma Aldrich	Z268135	
Diamond tip scribe, Electron Microscopy Sciences	Fisher Scientific	50-254-51	

Drierite desiccant pellets	Drierite	21005	
Ethanol, 200 Proof	Decon Labs	2701	
flexImaging software	Bruker Daltonics		
ftmsControl software	Bruker Daltonics		
Glass vacuum trap	Sigma Aldrich	Z549460	
HTX M5 TM robotic sprayer	HTX Technologies		
Indium Tin Oxide (ITO)-coated microscope slides	Delta Technologies	CG-81IN-S115	
In-line HEPA filter to vacuum pump	LABCONCO	7386500	
Methanol, HPLC Grade	Fisher Chemical	67-56-1	
MTP slide-adaptor II	Bruker Daltonics	235380	
Optimal cutting temperature (OCT) compound	Fischer Scientific	23-730-571	
Peridox RTU Sporicide, Disinfectant and Cleaner	CONTEC	CR85335	
PTFE (Teflon) printed slides, Electron Microscopy Sciences	VWR	100488-874	
Rotary vane vacuum pump RV8	Edwards	A65401903	
Tissue-Tek Accu-Edge Disposable High Profile Microtome Blades	Electron Microscopy Sciences	63068-HP	
Transparent vacuum tubing	Cole Palmer	EW-06414-30	
Ultragrade 19 vacuum pump oil	Edwards	H11025011	
Variable voltage transformer	Powerstat		
Water, suitable for HPLC	Sigma Aldrich	7732-18-5	
Wide-mouth dewar flask	Sigma Aldrich	Z120790	