

# **5th Annual Rapid Detection for Food Safety Conference 2018**

Held at the 4th Annual Biodefense World Summit 2018

Bethesda, Maryland, USA  
27 - 29 June 2018

ISBN: 978-1-5108-6839-7

**Printed from e-media with permission by:**

Curran Associates, Inc.  
57 Morehouse Lane  
Red Hook, NY 12571



**Some format issues inherent in the e-media version may also appear in this print version.**

Copyright© (2018) by Cambridge EnerTech  
All rights reserved.

Printed by Curran Associates, Inc. (2018)

For permission requests, please contact Cambridge EnerTech  
at the address below.

Cambridge EnerTech  
Cambridge Innovation institute  
250 First Avenue  
Suite 300  
Needham, MA 02494  
USA

Phone: 781-972-5400  
Fax: 781-972-5425

[ce@cambridgeenertech.com](mailto:ce@cambridgeenertech.com)

**Additional copies of this publication are available from:**

Curran Associates, Inc.  
57 Morehouse Lane  
Red Hook, NY 12571 USA  
Phone: 845-758-0400  
Fax: 845-758-2633  
Email: [curran@proceedings.com](mailto:curran@proceedings.com)  
Web: [www.proceedings.com](http://www.proceedings.com)

# TABLE OF CONTENTS

## PRESENTATIONS

<b>Colorimetric and Electrochemical Bacteria Detection Using Printed Paper- and Transparency-Based Analytic Devices.....</b>	1
<i>Bledar Bisha</i>	
<b>Sampling: The Forgotten Part of Microbiological Testing.....</b>	15
<i>Robert L. Buchanan</i>	
<b>A Cost Effective Method for Surveillance of Influeza Viruses A, B, C and D in Swine Oral Fluids Using a Newly Developed Multiplex rRT-PCR .....</b>	41
<i>Johnny Callahan, Rolf Rauh, William Nelson, Feng Li</i>	
<b>Genome Scale Identification of Essential Genes in <i>Salmonella Tennessee</i> Required for Infection in Macrophages - Linking Biomarkers of Relevance to Food Safety Risk .....</b>	51
<i>Seamus Fanning</i>	
<b>Rapid Methods: Where They Come From and How They've Impacted Food Testing.....</b>	70
<i>Peter Feng</i>	
<b>Rapid Detection of <i>Salmonella</i> in Large Volume Samples Using a Flow-Through, Enzyme-Amplified Immunoelectrochemical Biosensor.....</b>	80
<i>Andrew Gehring, Joseph Capobianco, Joe Lee, Cheryl Armstrong</i>	
<b>Generation of VBNC Pathogens While Maintaining Infectivity During Food Processing .....</b>	96
<i>Bill Keevil</i>	
<b>A Protein Version of CRISPR/Cas9 and RNAi/RISC: Host Protein Substrates of Group IV Viruses.....</b>	114
<i>Patricia M. Legler, Juan Marugan, Xin Hu, Andres Garcia, Adam Rolt, Pamela Glass, Elaine Morazzani, Mark Olson, Veronica Soloveva</i>	
<b>Microbial Contamination in Surface Water - Challenges and Scope .....</b>	130
<i>Pramod Pandey</i>	
<b>Use of IFN-Expressing Vectors in Control of Ebola Virus Disease in Swine .....</b>	143
<i>C. Senthilkumaran, G. Smith, C. Embury-Hyatt, B. Collignon, T. De Los Santos, H. M. Weingartl</i>	

## POSTERS

<b>Chem-Bio Protection as a Service - Integrated Detection, Collection and Identification .....</b>	159
<i>Ron Adkins</i>	
<b>Ultra-Rapid Sample-to-Answer for Fieldable Genomic Sequencing-Based Detection of Unknown Biothreats .....</b>	160
<i>Mark A. Karavis, Timothy M. Reed, Samir V. Deshpande, Pierce A. Roth, R. Cory Bernhards</i>	
<b>Bubble-Based Underwater Chemical Sensing.....</b>	162
<i>Alexander B. Lee, David L. Hu, Thomas L. Spencer</i>	
<b>Biomimetic Nose for Airborne Chemical Detection.....</b>	163
<i>Alexander B. Lee, David L. Hu, Thomas L. Spencer</i>	
<b>Detection of <i>Escherichia coli</i> Using Engineered Bacteriophages and Cellulose Particles.....</b>	164
<i>Troy Hinkley, Sam R. Nugen, Joey N. Talbert, Sangita Singh</i>	
<b>Bacterial Plant Disease Management Using Bacteriophages .....</b>	165
<i>Tina Naglic, Matjaž Peterka, Magda Tušek Žnidaric, Maja Ravnikar, Tanja Drešo, Špela Alic</i>	
<b>Radiation Induced Damage of Arrayed Single Cells with Identical Identity .....</b>	166
<i>Qingxuan Li, Ming Su</i>	
<b>Rapid, Point of Use, Universal Microbe Detection.....</b>	167
<i>Roger A. Nassar</i>	
<b>EMERGE - A European Laboratory Network for the Detection of Highly Pathogenic Infectious Agents .....</b>	168
<i>Sandra Appelt, Daniela Jacob, Antonino Di Caro, Carla Nisii, Barbara Bartolini, Anna Rohleider, Giuseppe Ippolito, Roland Grunow</i>	
<b>Rapid Electrochemical Detection of CRISPR/Cas9 Components Using Anti-CRISPR Protein (AcrIIA4) as Capture Ligand .....</b>	170
<i>Robert K. Johnston, Kyle Seamon, Edwin A. Saada, Jerilyn A. Timlin, Jason C. Harper</i>	
<b>Offline Next Generation Metagenomics Sequence Analysis.....</b>	171
<i>Samir V. Deshpande, Keith Beigel, Mary M. Wade, Timothy Reed</i>	

<b>Biosurveillance of Infectious Diseases at U.S. Ports of Entry.....</b>	172
<i>Luther Lindler, Alena James</i>	
<b>Multiplex Detection of Protozoan, Bacterial and Viral Pathogens in Human Blood Using Laser-Induced Breakdown Spectroscopy .....</b>	173
<i>Rosalie Multari, Ann Nelson, David Cremers, Steve Young, Zohreh Karimi, Robert Duncan, Carolyn Fisher</i>	
<b>Targeted Resequencing to Monitor Genetic Drift of Filovirus Species and Guide Medical Countermeasures in Remote Affected Areas.....</b>	175
<i>Irina Tipper, Carolyn Fisher, Moussa Kourou, Krishnamurthy Konduru, Robert Duncan, Bryan Lanning</i>	
<b>Novel Platform (wEB) to Study Flu Virus Evolution and Predict Vaccine.....</b>	176
<i>Veljko Veljkovic, Slobodan Paessler, Elizabeth J. Mateer</i>	
<b>Freeze-Thaw Reduces Sensitivity for Targeted Sequencing on Low Viral Load Samples .....</b>	177
<i>Abhinaya Srikantha, Michael K. McCrackena, Christian Funga, Mark Sanborna, Irina Maljkovic Berrya, Richard G. Jarman, Wiriya Rutvisuttinunta, Tao Li</i>	
<b>Author Index</b>	