

## TABLE OF CONTENTS

### MINIREVIEW

- Culture-Independent Approaches for Studying Viruses from Hypersaline Environments** Fernando Santos, Pablo Yarza, Víctor Parro, Inmaculada Meseguer, Ramon Rosselló-Móra, and Josefa Antón 1635–1643

### BIODEGRADATION

- SulE, a Sulfonylurea Herbicide De-Esterification Esterase from *Hanschlegelia zhihuaiae* S113** Bao-Jian Hang, Qing Hong, Xiang-Ting Xie, Xing Huang, Cheng-Hong Wang, Jian He, and Shun-Peng Li 1962–1968

### BIOTECHNOLOGY

- Large Crystal Toxin Formation in Chromosomally Engineered *Bacillus thuringiensis* subsp. *aizawai* Due to  $\sigma^E$  Accumulation** Wasin Buasri and Watanalai Panbanged 1682–1691
- Detection and Differentiation of Avian Mycoplasmas by Surface-Enhanced Raman Spectroscopy Based on a Silver Nanorod Array** Suzanne L. Hennigan, Jeremy D. Driskell, Naola Ferguson-Noel, Richard A. Dluhy, Yiping Zhao, Ralph A. Tripp, and Duncan C. Krause 1930–1935
- Identification of the Herboxidiene Biosynthetic Gene Cluster in *Streptomyces chromofuscus* ATCC 49982** Lei Shao, Jiachen Zi, Jia Zeng, and Jixun Zhan 2034–2038

### ENVIRONMENTAL MICROBIOLOGY

- Detection of *Coxiella burnetii* DNA on Small-Ruminant Farms during a Q Fever Outbreak in the Netherlands** A. de Bruin, R. Q. J. van der Plaats, L. de Heer, R. Paauwe, B. Schimmer, P. Vellema, B. J. van Rotterdam, and Y. T. H. P. van Duynhoven 1652–1657
- Aerosol Susceptibility of Influenza Virus to UV-C Light** James J. McDevitt, Stephen N. Rudnick, and Lewis J. Radonovich 1666–1669
- Swimming Behavior of Selected Species of *Archaea*** Bastian Herzog and Reinhard Wirth 1670–1674
- Wide Variation in Antibiotic Resistance Proteins Identified by Functional Metagenomic Screening of a Soil DNA Library** Kelly M. McGarvey, Konstantin Queitsch, and Stanley Fields 1708–1714
- Membrane Lipid Peroxidation in Copper Alloy-Mediated Contact Killing of *Escherichia coli*** Robert Hong, Tae Y. Kang, Corinne A. Michels, and Nidhi Gadura 1776–1784
- Comparison of Gull Feces-Specific Assays Targeting the 16S rRNA Genes of *Catelicoccus marimammalium* and *Streptococcus* spp.** Hodon Ryu, John F. Griffith, Izhar U. H. Khan, Stephen Hill, Thomas A. Edge, Carlos Toledo-Hernandez, Joel Gonzalez-Nieves, and Jorge Santo Domingo 1909–1916
- Characterization of Airborne Bacteria at an Underground Subway Station** Marius Dybwad, Per Einar Granum, Per Bruheim, and Janet Martha Blatny 1917–1929
- Characterization of the Proteomic Profiles of the Brown Tide Alga *Aureoumbra lagunensis* under Phosphate- and Nitrogen-Limiting Conditions and of Its Phosphate Limitation-Specific Protein with Alkaline Phosphatase Activity** Ming-Ming Sun, Jin Sun, Jian-Wen Qiu, Hongmei Jing, and Hongbin Liu 2025–2033
- Wide Distribution of Closely Related, Antibiotic-Producing *Arthrobacter* Strains throughout the Arctic Ocean** Matthias Wietz, Maria Månsson, Jeff S. Bowman, Nikolaj Blom, Yin Ng, and Lone Gram 2039–2042

<b>Generation of a Monoclonal Antibody against <i>Mycoplasma</i> spp. following Accidental Contamination during Production of a Monoclonal Antibody against <i>Lawsonia intracellularis</i></b>	Jeong-Min Hwang, Ji-Hye Lee, and Jung-Yong Yeh	2046–2048
<b>Human-Associated Extended-Spectrum <math>\beta</math>-Lactamase in the Antarctic</b>	Jorge Hernández, Johan Stedt, Jonas Bonnedahl, Ylva Molin, Mírva Drobní, Nancy Calisto-Ulloa, Claudio Gomez-Fuentes, M. Soledad Astorga-España, Daniel González-Acuña, Jonas Waldenström, Maria Blomqvist, and Björn Olsen	2056–2058
<b>Effects of UV-B Radiation on the Structural and Physiological Diversity of Bacterioneuston and Bacterioplankton</b>	Ana L. Santos, Vanessa Oliveira, Inês Baptista, Isabel Henriques, Newton C. M. Gomes, Adelaide Almeida, António Correia, and Angela Cunha	2066–2069
<b>ENZYMOLGY AND PROTEIN ENGINEERING</b>		
<b><i>Rhodococcus</i> sp. Strain CR-53 LipR, the First Member of a New Bacterial Lipase Family (Family X) Displaying an Unusual Y-Type Oxyanion Hole, Similar to the <i>Candida antarctica</i> Lipase Clan</b>	Arnau Bassegoda, F. I. Javier Pastor, and Pilar Diaz	1724–1732
<b>Design of Chimeric Levansucrases with Improved Transglycosylation Activity</b>	Clarita Olvera, Sara Centeno-Leija, Paulina Ruiz-Leyva, and Agustín López-Munguía	1820–1825
<b>Characterization of <i>Halomonas</i> sp. Strain H11 <math>\alpha</math>-Glucosidase Activated by Monovalent Cations and Its Application for Efficient Synthesis of <math>\alpha</math>-D-Glucosylglycerol</b>	Teruyo Ojima, Wataru Saburi, Takeshi Yamamoto, and Toshiaki Kudo	1836–1845
<b>Orally Administered Thermostable <i>N</i>-Acyl Homoserine Lactonase from <i>Bacillus</i> sp. Strain AI96 Attenuates <i>Aeromonas hydrophila</i> Infection in Zebrafish</b>	Yanan Cao, Suxu He, Zhigang Zhou, Meichao Zhang, Wei Mao, Huitu Zhang, and Bin Yao	1899–1908
<b>Characterization of Two Bacterial Hydroxynitrile Lyases with High Similarity to Cupin Superfamily Proteins</b>	Zahid Hussain, Romana Wiedner, Kerstin Steiner, Tanja Hajek, Manuela Avi, Bianca Hecher, Angela Sessitsch, and Helmut Schwab	2053–2055
<b>EVOLUTIONARY AND GENOMIC MICROBIOLOGY</b>		
<b>Characterization of the ELPhiS Prophage from <i>Salmonella enterica</i> Serovar Enteritidis Strain LK5</b>	L. Farris Hanna, T. David Matthews, Elizabeth A. Dinsdale, David Hasty, and Robert A. Edwards	1785–1793
<b>FSL J1-208, a Virulent Uncommon Phylogenetic Lineage IV <i>Listeria monocytogenes</i> Strain with a Small Chromosome Size and a Putative Virulence Plasmid Carrying Internalin-Like Genes</b>	Henk C. den Bakker, Barbara M. Bowen, Lorraine D. Rodriguez-Rivera, and Martin Wiedmann	1876–1889
<b>FOOD MICROBIOLOGY</b>		
<b>Development and Validation of a Predictive Model for the Growth of <i>Vibrio vulnificus</i> in Postharvest Shellstock Oysters</b>	Ligia DaSilva, Salina Parveen, Angelo DePaola, John Bowers, Kathy Brohawn, and Mark L. Tamplin	1675–1681
<b>Comparison of the Prevalences and Antimicrobial Resistances of <i>Escherichia coli</i> Isolates from Different Retail Meats in the United States, 2002 to 2008</b>	S. Zhao, K. Blickenstaff, S. Bodeis-Jones, S. A. Gaines, E. Tong, and P. F. McDermott	1701–1707
<b>Influence of Anaerobiosis and Low Temperature on <i>Bacillus cereus</i> Growth, Metabolism, and Membrane Properties</b>	Benoît de Sarrau, Thierry Clavel, Caroline Clerté, Frédéric Carlin, Christian Giniès, and Christophe Nguyen-the	1715–1723

Transcriptional Responses of <i>Escherichia coli</i> K-12 and O157:H7 Associated with Lettuce Leaves	Ryan C. Fink, Elaine P. Black, Zhe Hou, Masayuki Sugawara, Michael J. Sadowsky, and Francisco Diez-Gonzalez	1752–1764
Contribution of Surface $\beta$ -Glucan Polysaccharide to Physicochemical and Immunomodulatory Properties of <i>Propionibacterium freudenreichii</i>	Stéphanie-Marie Deutsch, Sandrine Parayre, Antoine Bouchoux, Fanny Guyomarc'h, Joëlle Dewulf, Marguerite Dols-Lafargue, François Baglinière, Fabien J. Cousin, Hélène Falentin, Gwénaél Jan, and Benoît Foligné	1765–1775
The Composition of Camembert Cheese-Ripening Cultures Modulates both Mycelial Growth and Appearance	Marie-Hélène Lessard, Gaétan Bélanger, Daniel St-Gelais, and Steve Labrie	1813–1819
Identification and Characterization of Psychrotolerant Sporeformers Associated with Fluid Milk Production and Processing	Reid A. Ivy, Matthew L. Ranieri, Nicole H. Martin, Henk C. den Bakker, Bruno M. Xavier, Martin Wiedmann, and Kathryn J. Boor	1853–1864
Biodiversity in Oscypek, a Traditional Polish Cheese, Determined by Culture-Dependent and -Independent Approaches	Ángel Alegría, Paweł Szczesny, Baltasar Mayo, Jacek Bardowski, and Magdalena Kowalczyk	1890–1898
Evidence of Two Functionally Distinct Ornithine Decarboxylation Systems in Lactic Acid Bacteria	Andrea Romano, Hein Trip, Aline Lonvaud-Funel, Juke S. Lolkema, and Patrick M. Lucas	1953–1961
<i>Candida zemplinina</i> Can Reduce Acetic Acid Produced by <i>Saccharomyces cerevisiae</i> in Sweet Wine Fermentations	Kalliopi Rantsiou, Paola Dolci, Simone Giacosa, Fabrizio Torchio, Rosanna Tofalo, Sandra Torriani, Giovanna Suzzi, Luca Rolle, and Luca Coccolin	1987–1994
A Novel Restriction-Modification System Is Responsible for Temperature-Dependent Phage Resistance in <i>Listeria monocytogenes</i> ECII	Jae-Won Kim, Vikrant Dutta, Driss Elhanafi, Sangmi Lee, Jason A. Osborne, and Sophia Kathariou	1995–2004
Prevalence, Characterization, and Antimicrobial Resistance of <i>Listeria monocytogenes</i> Isolates from Bovine Hides and Carcasses	Kinga Wieczorek, Katarzyna Dmowska, and Jacek Osek	2043–2045
Use of High Hydrostatic Pressure To Inactivate <i>Escherichia coli</i> O157:H7 and <i>Salmonella enterica</i> Internalized within and Adhered to Preharvest Contaminated Green Onions	Hudaa Neetoo, Yingjian Lu, Changqing Wu, and Haiqiang Chen	2063–2065
<b>GENETICS AND MOLECULAR BIOLOGY</b>		
Phenotypic Switching in <i>Pseudomonas brassicacearum</i> Involves GacS- and GacA-Dependent Rsm Small RNAs	David Lalaoua, Sylvain Fochesato, Lisa Sanchez, Philippe Schmitt-Kopplin, Dieter Haas, Thierry Heulin, and Wafa Achouak	1658–1665
Fine-Tuned Transcriptional Regulation of Malate Operons in <i>Enterococcus faecalis</i>	Pablo Mortera, Martín Espariz, Cristian Suárez, Guillermo Repizo, Josef Deutscher, Sergio Alarcón, Víctor Blancato, and Christian Magni	1936–1945
Identification of the Haloarchaeal Phasin (PhaP) That Functions in Polyhydroxyalkanoate Accumulation and Granule Formation in <i>Haloferax mediterranei</i>	Shuangfeng Cai, Lei Cai, Hailong Liu, Xiaoqing Liu, Jing Han, Jian Zhou, and Hua Xiang	1946–1952
Development of a Modified Gentamicin Resistance Cassette for Genetic Manipulation of the Oral Spirochete <i>Treponema denticola</i>	Jiang Bian, J. Christopher Fenno, and Chunhao Li	2059–2062

## INVERTEBRATE MICROBIOLOGY

The 60-Kilodalton Protein Encoded by *orf2* in the *cry19A* Operon of *Bacillus thuringiensis* subsp. *jegathesan* Functions Like a C-Terminal Crystallization Domain

J. Eleazar Barboza-Corona, Hyun-Woo Park, Dennis K. Bideshi, and Brian A. Federici 2005–2012

## METHODS

Site-Specific Recombination Strategies for Engineering Actinomycete Genomes

Simone Herrmann, Theresa Siegl, Marta Luzhetska, Lutz Petzke, Caroline Jilg, Elisabeth Welle, Annette Erb, Peter F. Leadlay, Andreas Bechthold, and Andriy Luzhetskyy 1804–1812

Development of a Markerless Gene Replacement System for *Acidithiobacillus ferrooxidans* and Construction of a *pfkB* Mutant

Huiyan Wang, Xiangmei Liu, Shuangshuang Liu, Yangyang Yu, Jianqun Lin, Jianqiang Lin, Xin Pang, and Jian Zhao 1826–1835

## MICROBIAL ECOLOGY

Response of Fatty Acid Synthesis Genes to the Binding of Human Salivary Amylase by *Streptococcus gordonii*

Anna E. Nikitkova, Elaine M. Haase, M. Margaret Vickerman, Steven R. Gill, and Frank A. Scannapieco 1865–1875

Seasonal and Successional Influences on Bacterial Community Composition Exceed That of Protozoan Grazing in River Biofilms

Jennifer K. Wey, Klaus Jürgens, and Markus Weitere 2013–2024

## PHYSIOLOGY

Hyperthermophilic *Thermotoga* Species Differ with Respect to Specific Carbohydrate Transporters and Glycoside Hydrolases

Andrew D. Frock, Steven R. Gray, and Robert M. Kelly 1978–1986

## PLANT MICROBIOLOGY

Role for *Rhizobium rhizogenes* K84 Cell Envelope Polysaccharides in Surface Interactions

Ana M. Abarca-Grau, Lindsey P. Burbank, Héctor D. de Paz, Juan C. Crespo-Rivas, Ester Marco-Noales, María M. López, Jose M. Vinardell, Susanne B. von Bodman, and Ramón Penyalver 1644–1651

New Betaproteobacterial *Rhizobium* Strains Able To Efficiently Nodulate *Parapiptadenia rigida* (Benth.) Brenan

Cecilia Taulé, María Zabaleta, Cintia Mareque, Raúl Platero, Lucía Sanjurjo, Margarita Sicardi, Lillian Frioni, Federico Battistoni, and Elena Fabiano 1692–1700

## PUBLIC HEALTH MICROBIOLOGY

Occurrence and Persistence of Bacterial Pathogens and Indicator Organisms in Beach Sand along the California Coast

Kevan M. Yamahara, Lauren M. Sassoubre, Kelly D. Goodwin, and Alexandria B. Boehm 1733–1745

Fulminant Cryptosporidiosis after Near-Drowning: a Human *Cryptosporidium parvum* Strain Implicated in Invasive Gastrointestinal Adenocarcinoma and Cholangiocarcinoma in an Experimental Model

Gabriela Certad, Sadia Benamrouz, Karine Guyot, Anthony Mouray, Thierry Chassat, Nicolas Flament, Laurence Delhaes, Valerie Coiteux, Baptiste Delaire, Marleen Praet, Claude Cuvelier, Pierre Gosset, Eduardo De-Cas, and Colette Creusy 1746–1751

Association of Pandemic *Vibrio parahaemolyticus* O3:K6 Present in the Coastal Environment of Northwest Mexico with Cases of Recurrent Diarrhea between 2004 and 2010

Jorge Velazquez-Roman, Nidia León-Sicaños, Héctor Flores-Villaseñor, Santiago Villafañá-Rauda, and Adrian Canizalez-Roman 1794–1803

<b>Marked Genomic Diversity of Norovirus Genogroup I Strains in a Waterborne Outbreak</b>	Nancy P. Nenonen, Charles Hannoun, Charlotte U. Larsson, and Tomas Bergström	1846–1852
<b>Criteria for Selection of Surrogates Used To Study the Fate and Control of Pathogens in the Environment</b>	Ryan G. Sinclair, Joan B. Rose, Syed A. Hashsham, Charles P. Gerba, and Charles N. Haas	1969–1977
<b>Conserved Mechanisms of <i>Mycobacterium marinum</i> Pathogenesis within the Environmental Amoeba <i>Acanthamoeba castellanii</i></b>	George M. Kennedy, J. Hiroshi Morisaki, and Patricia A. DiGiuseppe Champion	2049–2052
<b>Counting <i>Legionella</i> Cells within Single Amoeba Host Cells</b>	Helen Y. Buse and Nicholas J. Ashbolt	2070–2072
<b>ERRATUM</b>		
<b>Acaricide Treatment Affects Viral Dynamics in <i>Varroa destructor</i>-Infested Honey Bee Colonies via both Host Physiology and Mite Control</b>	Barbara Locke, Eva Forsgren, Ingemar Fries, and Joachim R. de Miranda	2073

*Cover photograph* (Copyright © 2012, American Society for Microbiology. All Rights Reserved.): Scanning electron micrograph of superimposed back-scattered and secondary electron signals of *Methanocaldococcus villosus*, the fastest-moving organism on Earth based on speed measured in relative units of bodies per second (bps). It swims at nearly 500 bps; by comparison, a cheetah hunts at ca. 20 bps. In a systematic study of the swimming behavior of various *Archaea* species, it was found that not only are two species of *Methanocaldococcus* the fastest organisms on earth, but some *Archaea* exhibit two modes of swimming: a very rapid movement in more or less a straight line, and a slower, zigzag movement when in close proximity to a surface. Photo courtesy of Gerhard Wanner, University of Munich. (See related article on page 1670.)