

TABLE OF CONTENTS

MINIREVIEW

- | | | |
|---|----------------------|-----------|
| Diversity, Physiology, and Niche Differentiation of Ammonia-Oxidizing Archaea | Roland Hatzenpichler | 7501–7510 |
|---|----------------------|-----------|

BIOTECHNOLOGY

- | | | |
|---|---|-----------|
| Recovery of Phenotypes Obtained by Adaptive Evolution through Inverse Metabolic Engineering | Kuk-Ki Hong and Jens Nielsen | 7579–7586 |
| <i>Escherichia coli</i> Nissle 1917 Targets and Restrains Mouse B16 Melanoma and 4T1 Breast Tumors through Expression of Azurin Protein | Yunlei Zhang, Youming Zhang, Liqui Xia, Xiangli Zhang, Xuezhong Ding, Fu Yan, and Feng Wu | 7603–7610 |
| Enzymatic Glycosylation of Nonbenzoquinone Geldanamycin Analogs via <i>Bacillus</i> UDP-Glycosyltransferase | Cheng-Zhu Wu, Jae-Hyuk Jang, Mihee Woo, Jong Seog Ahn, Joong Su Kim, and Young-Soo Hong | 7680–7686 |
| High-Salinity Growth Conditions Promote Tat-Independent Secretion of Tat Substrates in <i>Bacillus subtilis</i> | René van der Ploeg, Carmine G. Monteferrante, Sjouke Piersma, James P. Barnett, Thijs R. H. M. Kouwen, Colin Robinson, and Jan Maarten van Dijl | 7733–7744 |
| Degradation of the Twin-Arginine Translocation Substrate YwbN by Extracytoplasmic Proteases of <i>Bacillus subtilis</i> | Laxmi Krishnappa, Carmine G. Monteferrante, and Jan Maarten van Dijl | 7801–7804 |

ENVIRONMENTAL MICROBIOLOGY

- | | | |
|---|--|-----------|
| Sugarcane Growth Promotion by the Endophytic Bacterium <i>Pantoea agglomerans</i> 33.1 | M. C. Quecine, W. L. Araújo, P. B. Rossetto, A. Ferreira, S. Tsui, P. T. Lacava, M. Mondin, J. L. Azevedo, and A. A. Pizzirani-Kleiner | 7511–7518 |
| Abiotic Factors Shape Microbial Diversity in Sonoran Desert Soils | David R. Andrew, Robert R. Fitak, Adrian Munguia-Vega, Adriana Racolta, Vincent G. Martinson, and Katerina Dontsova | 7527–7537 |
| Bioaugmentation of Syntrophic Acetate-Oxidizing Culture in Biogas Reactors Exposed to Increasing Levels of Ammonia | Maria Westerholm, Lotta Levén, and Anna Schnürer | 7619–7625 |
| Changes in the Gut Microbiome of the Sea Lamprey during Metamorphosis | Amanda Tetlock, Christopher K. Yost, John Stavrinos, and Richard G. Manzon | 7638–7644 |
| Genetic Linkage of Soil Carbon Pools and Microbial Functions in Subtropical Freshwater Wetlands in Response to Experimental Warming | Hang Wang, Zhili He, Zhenmei Lu, Jizhong Zhou, Joy D. Van Nostrand, Xinhua Xu, and Zhijian Zhang | 7652–7661 |

ENZYMOLGY AND PROTEIN ENGINEERING

- | | | |
|---|--|-----------|
| Structure-Based Engineering of Methionine Residues in the Catalytic Cores of Alkaline Amylase from <i>Alkalimonas amylolytica</i> for Improved Oxidative Stability | Haiquan Yang, Long Liu, Mingxing Wang, Jianghua Li, Nam Sun Wang, Guocheng Du, and Jian Chen | 7519–7526 |
| Functional Analysis of Family GH36 α -Galactosidases from <i>Ruminococcus gnavus</i> E1: Insights into the Metabolism of a Plant Oligosaccharide by a Human Gut Symbiont | M. Cervera-Tison, L. E. Tailford, C. Fuell, L. Bruel, G. Sulzenbacher, B. Henrissat, J. G. Berrin, M. Fons, T. Giardina, and N. Juge | 7720–7732 |

Continued on following page

Iterative Combinatorial Mutagenesis as an Effective Strategy for Generation of Deacetoxycephalosporin C Synthase with Improved Activity toward Penicillin G	Junjie Ji, Keqiang Fan, Xiuyun Tian, Xia Zhang, Yuxiu Zhang, and Keqian Yang	7809–7812
EVOLUTIONARY AND GENOMIC MICROBIOLOGY		
Genomic and Transcriptomic Studies of an RDX (Hexahydro-1,3,5-Trinitro-1,3,5-Triazine)-Degrading Actinobacterium	Hao-Ping Chen, Song-Hua Zhu, Israël Casabon, Steven J. Hallam, Fiona H. Crocker, William W. Mohn, Karl J. Indest, and Lindsay D. Eltis	7798–7800
FOOD MICROBIOLOGY		
Coselection of Cadmium and Benzalkonium Chloride Resistance in Conjugative Transfers from Nonpathogenic <i>Listeria</i> spp. to Other <i>Listeriae</i>	S. Katharios-Lanwermeier, M. Rakic-Martinez, D. Elhanafi, S. Ratani, J. M. Tiedje, and S. Kathariou	7549–7556
Effect of Grape Seed Extract on Human Norovirus GII.4 and Murine Norovirus 1 in Viral Suspensions, on Stainless Steel Discs, and in Lettuce Wash Water	Dan Li, Leen Baert, Dongsheng Zhang, Ming Xia, Weiming Zhong, Els Van Coillie, Xi Jiang, and Mieke Uyttendaele	7572–7578
Survival and Germination of <i>Bacillus cereus</i> Spores without Outgrowth or Enterotoxin Production during <i>In Vitro</i> Simulation of Gastrointestinal Transit	Siele Ceuppens, Mieke Uyttendaele, Katrien Drieskens, Marc Heyndrickx, Andreja Rajkovic, Nico Boon, and Tom Van de Wiele	7698–7705
Heat Resistance and Salt Hypersensitivity in <i>Lactococcus lactis</i> Due to Spontaneous Mutation of <i>llmg_1816</i> (<i>gdpP</i>) Induced by High-Temperature Growth	William M. Smith, Thi Huong Pham, Lin Lei, Junchao Dou, Aijaz H. Soomro, Scott A. Beatson, Gary A. Dykes, and Mark S. Turner	7753–7759
GENETICS AND MOLECULAR BIOLOGY		
Evidence of <i>In Vivo</i> Prophage Induction during <i>Clostridium difficile</i> Infection	Mathieu Meessen-Pinard, Ognjen Sekulovic, and Louis-Charles Fortier	7662–7670
GEOMICROBIOLOGY		
Stable Carbon Isotope Fractionation by Methylophilic Methanogenic Archaea	Jörn Penger, Ralf Conrad, and Martin Blaser	7596–7602
INVERTEBRATE MICROBIOLOGY		
OmpA-Mediated Biofilm Formation Is Essential for the Commensal Bacterium <i>Sodalis glossinidius</i> To Colonize the Tsetse Fly Gut	Michele A. Maltz, Brian L. Weiss, Michelle O'Neill, Yineng Wu, and Serap Aksoy	7760–7768
The Tsetse Fly Obligate Mutualist <i>Wigglesworthia morsitans</i> Alters Gene Expression and Population Density via Exogenous Nutrient Provisioning	Anna K. Snyder, Colin McLain, and Rita V. M. Rio	7792–7797
METHODS		
Detection of Botulinum Neurotoxin Serotype A, B, and F Proteolytic Activity in Complex Matrices with Picomolar to Femtomolar Sensitivity	F. Mark Dunning, Daniel R. Ruge, Timothy M. Piazza, Larry H. Stanker, Füsün N. Zeytin, and Ward C. Tucker	7687–7697
Peptide-Guided Surface-Enhanced Raman Scattering Probes for Localized Cell Composition Analysis	Ahmad I. M. Athamneh and Ryan S. Senger	7805–7808
MICROBIAL ECOLOGY		
Effect of Rainfall-Induced Soil Geochemistry Dynamics on Grassland Soil Microbial Communities	Karelyn Cruz-Martínez, Anna Rosling, Yang Zhang, Mingzhou Song, Gary L. Andersen, and Jillian F. Banfield	7587–7595
Next-Generation Sequencing of Microbial Communities in the Athabasca River and Its Tributaries in Relation to Oil Sands Mining Activities	Etienne Yergeau, John R. Lawrence, Sylvie Sanschagrin, Marley J. Waiser, Darren R. Korber, and Charles W. Greer	7626–7637

Terrestrial Runoff Controls the Bacterial Community Composition of Biofilms along a Water Quality Gradient in the Great Barrier Reef	Verena Witt, Christian Wild, and Sven Uthicke	7786–7791
Proteorhodopsin-Like Genes Present in Thermoacidophilic High-Mountain Microbial Communities	Laura C. Bohorquez, Carlos A. Ruiz-Pérez, and Maria Mercedes Zambrano	7813–7817
MYCOLOGY		
Deletion of the <i>Aspergillus flavus</i> Orthologue of <i>A. nidulans</i> <i>fluG</i> Reduces Conidiation and Promotes Production of Sclerotia but Does Not Abolish Aflatoxin Biosynthesis	Perng-Kuang Chang, Leslie L. Scharfenstein, Brian Mack, and Kenneth C. Ehrlich	7557–7563
PHYSIOLOGY		
Substrate Specificity of Thiamine Pyrophosphate-Dependent 2-Oxo-Acid Decarboxylases in <i>Saccharomyces cerevisiae</i>	Gabriele Romagnoli, Marijke A. H. Luttk, Peter Kötter, Jack T. Pronk, and Jean-Marc Daran	7538–7548
Interspecies Electron Transfer via Hydrogen and Formate Rather than Direct Electrical Connections in Cocultures of <i>Pelobacter carbinolicus</i> and <i>Geobacter sulfurreducens</i>	Amelia-Elena Rotaru, Pravin M. Shrestha, Fanghua Liu, Toshiyuki Ueki, Kelly Nevin, Zarath M. Summers, and Derek R. Lovley	7645–7651
Versatility in Corrinoid Salvaging and Remodeling Pathways Supports Corrinoid-Dependent Metabolism in <i>Dehalococcoides mccartyi</i>	Shan Yi, Erica C. Seth, Yu-Jie Men, Sally P. Stabler, Robert H. Allen, Lisa Alvarez-Cohen, and Michiko E. Taga	7745–7752
PUBLIC HEALTH MICROBIOLOGY		
Differences in the Fecal Concentrations and Genetic Diversities of <i>Campylobacter jejuni</i> Populations among Individual Cows in Two Dairy Herds	Delphine Rapp, Colleen M. Ross, Eve J. Pleydell, and Richard W. Muirhead	7564–7571
Prevalence and Population Structure of <i>Vibrio vulnificus</i> on Fishes from the Northern Gulf of Mexico	Zhen Tao, Andrea M. Larsen, Stephen A. Bullard, Anita C. Wright, and Covadonga R. Arias	7611–7618
Contribution of Spores to the Ability of <i>Clostridium difficile</i> To Adhere to Surfaces	Lovleen Tina Joshi, Daniel S. Phillips, Catrin F. Williams, Abdullah Alyousef, and Les Baillie	7671–7679
RcsB Contributes to the Distinct Stress Fitness among <i>Escherichia coli</i> O157:H7 Curli Variants of the 1993 Hamburger-Associated Outbreak Strains	Michelle Q. Carter, Craig T. Parker, Jacqueline W. Louie, Steven Huynh, Clifton K. Fagerquist, and Robert E. Mandrell	7706–7719
Residual Viral and Bacterial Contamination of Surfaces after Cleaning and Disinfection	Era Tuladhar, Wilma C. Hazeleger, Marion Koopmans, Marcel H. Zwietering, Rijkelt R. Beumer, and Erwin Duizer	7769–7775
Mechanisms for Photoinactivation of <i>Enterococcus faecalis</i> in Seawater	Lauren M. Sassoubre, Kara L. Nelson, and Alexandria B. Boehm	7776–7785
ERRATUM		
Distance-Decay Relationships Partially Determine Diversity Patterns of Phyllosphere Bacteria on <i>Tamarix</i> Trees across the Sonoran Desert	Omri M. Finkel, Adrien Y. Burch, Tal Elad, Susan M. Huse, Steven E. Lindow, Anton F. Post, and Shimshon Belkin	7818