

# APPLIED AND ENVIRONMENTAL MICROBIOLOGY

Volume 73

May 2007

No. 10

## GENETICS AND MOLECULAR BIOLOGY

- Characterization of Genetically Matched Isolates of *Campylobacter jejuni* Reveals that Mutations in Genes Involved in Flagellar Biosynthesis Alter the Organism's Virulence Potential** Preeti Malik-Kale, Brian H. Raphael, Craig T. Parker, Lynn A. Joens, John D. Klena, Beatriz Quiñones, Amy M. Keech, and Michael E. Konkel 3123–3136
- Development of a Genetic System for the Chemolithoautotrophic Bacterium *Thiobacillus denitrificans*** Tracy E. Letain, Staci R. Kane, Tina C. Legler, Edmund P. Salazar, Peter G. Agron, and Harry R. Beller 3265–3271
- Functional Expression of Human Dihydroorotate Dehydrogenase (DHODH) in *pyr4* Mutants of *Ustilago maydis* Allows Target Validation of DHODH Inhibitors In Vivo** Elke Zameitat, Gerald Freymark, Cornelia D. Dietz, Monika Löffler, and Michael Bölker 3371–3379

## ENZYMOLGY AND PROTEIN ENGINEERING

- Processivity, Substrate Binding, and Mechanism of Cellulose Hydrolysis by *Thermobifida fusca* Cel9A** Yongchao Li, Diana C. Irwin, and David B. Wilson 3165–3172
- Elucidation of the *ipso*-Substitution Mechanism for Side-Chain Cleavage of  $\alpha$ -Quaternary 4-Nonylphenols and 4-*t*-Butoxyphenol in *Sphingobium xenophagum* Bayram** Frédéric L. P. Gabriel, Maïke Cyris, Niels Jonkers, Walter Giger, Klaus Guenther, and Hans-Peter E. Kohler 3320–3326

## PHYSIOLOGY AND BIOTECHNOLOGY

- Enhancement of 1,4-Dihydroxy-2-Naphthoic Acid Production by *Propionibacterium freudenreichii* ET-3 Fed-Batch Culture** Keisuke Furuichi, Yoshio Katakura, Kazuaki Ninomiya, and Suteaki Shioya 3137–3143
- Increased Production of Xylanase by Expression of a Truncated Version of the *xyn11A* Gene from *Nonomuraea flexuosa* in *Trichoderma reesei*** Marja Paloheimo, Arja Mäntylä, Jarno Kallio, Terhi Puranen, and Pirkko Suominen 3215–3224
- S-Layer-Mediated Display of the Immunoglobulin G-Binding Domain of Streptococcal Protein G on the Surface of *Caulobacter crescentus*: Development of an Immunoactive Reagent** John F. Nomellini, Gillian Duncan, Irene R. Dorocicz, and John Smit 3245–3253
- Continuous Synthesis and Excretion of the Compatible Solute Ectoine by a Transgenic, Nonhalophilic Bacterium** Torsten Schubert, Thomas Maskow, Dirk Benndorf, Hauke Harms, and Uta Breuer 3343–3347
- Tight Modulation of *Escherichia coli* Bacterial Biofilm Formation through Controlled Expression of Adhesion Factors** Sandra Da Re, Benjamin Le Quéré, Jean-Marc Ghigo, and Christophe Beloin 3391–3403

## MYCOLOGY

- A Homologue of the *Aspergillus velvet* Gene Regulates both Cephalosporin C Biosynthesis and Hyphal Fragmentation in *Acremonium chrysogenum*** Jacqueline Dreyer, Heiko Eichhorn, Ernst Friedlin, Hubert Kürnsteiner, and Ulrich Kück 3412–3422

## PUBLIC HEALTH MICROBIOLOGY

- Shiga Toxin Gene Loss and Transfer In Vitro and In Vivo during Enterohemorrhagic *Escherichia coli* O26 Infection in Humans** Martina Bielaszewska, Rita Prager, Robin Köck, Alexander Mellmann, Wenlan Zhang, Helmut Tschäpe, Phillip I. Tarr, and Helge Karch 3144–3150

Continued on following page

<b>Prevalence of <i>Campylobacter</i> spp. in Cattle in Finland and Antimicrobial Susceptibilities of Bovine <i>Campylobacter jejuni</i> Strains</b>	Marjaana Hakkinen, Helmi Heiska, and Marja-Liisa Hänninen	3232–3238
<b>VanA-Type Enterococci from Humans, Animals, and Food: Species Distribution, Population Structure, Tn1546 Typing and Location, and Virulence Determinants</b>	F. Biavasco, G. Foglia, C. Paoletti, G. Zandri, G. Magi, E. Guaglianone, A. Sundsfjord, C. Pruzzo, G. Donelli, and B. Facinelli	3307–3319
<b>Characterization of Nontoxic and Toxin-Producing Strains of <i>Alexandrium minutum</i> (Dinophyceae) in Irish Coastal Waters</b>	Nicolas Touzet, Jose M. Franco, and Robin Raine	3333–3342
<b>Cocoid Form of <i>Helicobacter pylori</i> as a Morphological Manifestation of Cell Adaptation to the Environment</b>	N. F. Azevedo, C. Almeida, L. Cerqueira, S. Dias, C. W. Keevil, and M. J. Vieira	3423–3427
<b>Monochloramine Inactivation of Bacterial Select Agents</b>	Laura J. Rose, Eugene W. Rice, Lisa Hodges, Alicia Peterson, and Matthew J. Arduino	3437–3439
<b>ENVIRONMENTAL MICROBIOLOGY</b>		
<b>Irradiation Sensitivity of Planktonic and Biofilm-Associated <i>Escherichia coli</i> O157:H7 Isolates Is Influenced by Culture Conditions</b>	Brendan A. Niemira	3239–3244
<b>High-Frequency Phage-Mediated Gene Transfer among <i>Escherichia coli</i> Cells, Determined at the Single-Cell Level</b>	Takehiko Kenzaka, Katsuji Tani, Akiko Sakotani, Nobuyasu Yamaguchi, and Masao Nasu	3291–3299
<b>Effect of Bovine Manure on Fecal Coliform Attachment to Soil and Soil Particles of Different Sizes</b>	Andrey K. Guber, Yakov A. Pachepsky, Daniel R. Shelton, and Olivia Yu	3363–3370
<b>MICROBIAL ECOLOGY</b>		
<b>Effects of Specific Inhibitors on Anammox and Denitrification in Marine Sediments</b>	Marlene Mark Jensen, Bo Thamdrup, and Tage Dalsgaard	3151–3158
<b>Phylogenetic Diversity and Cosymbiosis in the Bioluminescent Symbioses of “<i>Photobacterium mandapamensis</i>”</b>	Allison J. Kaeding, Jennifer C. Ast, Meghan M. Pearce, Henryk Urbanczyk, Seishi Kimura, Hiromitsu Endo, Masaru Nakamura, and Paul V. Dunlap	3173–3182
<b>Inhibition of Quorum Sensing in <i>Pseudomonas aeruginosa</i> by N-Acyl Cyclopentylamides</b>	Takenori Ishida, Tsukasa Ikeda, Noboru Takiguchi, Akio Kuroda, Hisao Ohtake, and Junichi Kato	3183–3188
<b>Stable Isotope Probing with <sup>15</sup>N Achieved by Disentangling the Effects of Genome G+C Content and Isotope Enrichment on DNA Density</b>	Daniel H. Buckley, Varisa Huangyutitham, Shi-Fang Hsu, and Tyrrell A. Nelson	3189–3195
<b>Stable Isotope Probing with <sup>15</sup>N<sub>2</sub> Reveals Novel Noncultivated Diazotrophs in Soil</b>	Daniel H. Buckley, Varisa Huangyutitham, Shi-Fang Hsu, and Tyrrell A. Nelson	3196–3204
<b>Diversification of Lupine <i>Bradyrhizobium</i> Strains: Evidence from Nodulation Gene Trees</b>	Tomasz Stępkowski, Colin E. Hughes, Ian J. Law, Łukasz Markiewicz, Dorota Gurda, Agnieszka Chlebicka, and Lionel Moulin	3254–3264
<b>Phylogenetic Diversity of Gram-Positive Bacteria Cultured from Marine Sediments</b>	Erin A. Gontang, William Fenical, and Paul R. Jensen	3272–3282
<b>Diversity and Abundance of Aerobic and Anaerobic Methane Oxidizers at the Haakon Mosby Mud Volcano, Barents Sea</b>	Tina Lösekann, Katrin Knittel, Thierry Nadalig, Bernhard Fuchs, Helge Niemann, Antje Boetius, and Rudolf Amann	3348–3362

<b>Identification of Unconventional Intestinal Pathogenic <i>Escherichia coli</i> Isolates Expressing Intermediate Virulence Factor Profiles by Using a Novel Single-Step Multiplex PCR</b>	Daniel Müller, Lilo Greune, Gerhard Heusipp, Helge Karch, Angelika Fruth, Helmut Tschäpe, and M. Alexander Schmidt	3380–3390
<b>GEOMICROBIOLOGY</b>		
<b>Second Acyl Homoserine Lactone Production System in the Extreme Acidophile <i>Acidithiobacillus ferrooxidans</i></b>	Mariella Rivas, Michael Seeger, Eugenia Jedlicki, and David S. Holmes	3225–3231
<b>Effect of Exogenous Reductant on Growth and Iron Mobilization from Ferrihydrite by the <i>Pseudomonas mendocina ymp</i> Strain</b>	Suraj Dhungana, Charles R. Anthony III, and Larry E. Hersman	3428–3430
<b>FOOD MICROBIOLOGY</b>		
<b>Proteomic Approach for Characterization of Hop-Inducible Proteins in <i>Lactobacillus brevis</i></b>	Jürgen Behr, Lars Israel, Michael G. Gänzle, and Rudi F. Vogel	3300–3306
<b>INVERTEBRATE MICROBIOLOGY</b>		
<b>Cloning, Functional Characterization, and Mode of Action of a Novel Insecticidal Pore-Forming Toxin, Sphaericolysin, Produced by <i>Bacillus sphaericus</i></b>	Hisashi Nishiwaki, Kenta Nakashima, Chiharu Ishida, Tadayuki Kawamura, and Kazuhiko Matsuda	3404–3411
<b>METHODS</b>		
<b>Assessment and Interpretation of Bacterial Viability by Using the LIVE/DEAD BacLight Kit in Combination with Flow Cytometry</b>	Michael Berney, Frederik Hammes, Franziska Bosshard, Hans-Ulrich Weilenmann, and Thomas Egli	3283–3290
<b>High-Resolution DNA Melt Curve Analysis of the Clustered, Regularly Interspaced Short-Palindromic-Repeat Locus of <i>Campylobacter jejuni</i></b>	Erin P. Price, Helen Smith, Flavia Huygens, and Philip M. Giffard	3431–3436
<b>Differentiation of <i>Bacillus anthracis</i>, <i>B. cereus</i>, and <i>B. thuringiensis</i> by Using Pulsed-Field Gel Electrophoresis</b>	Wenwan Zhong, Yulin Shou, Thomas M. Yoshida, and Babetta L. Marrone	3446–3449
<b>BIODEGRADATION</b>		
<b>Characterization of Cultures Enriched from Acidic Polycyclic Aromatic Hydrocarbon-Contaminated Soil for Growth on Pyrene at Low pH</b>	Maarten Uyttebroek, Steven Vermeir, Pierre Wattiau, Annemie Ryngaert, and Dirk Springael	3159–3164
<b>Identification of Novel Genes Involved in Long-Chain <i>n</i>-Alkane Degradation by <i>Acinetobacter</i> sp. Strain DSM 17874</b>	Mimmi Throne-Holst, Alexander Wentzel, Trond E. Ellingsen, Hans-Kristian Kotlar, and Sergey B. Zotchev	3327–3332
<b>EVOLUTIONARY AND GENOMIC MICROBIOLOGY</b>		
<b>Targeted Access to the Genomes of Low-Abundance Organisms in Complex Microbial Communities</b>	Mircea Podar, Carl B. Abulencia, Marion Walcher, Don Hutchison, Karsten Zengler, Joseph A. Garcia, Trevin Holland, David Cotton, Loren Hauser, and Martin Keller	3205–3214
<b>Global Transcriptional Response of <i>Nitrosomonas europaea</i> to Chloroform and Chloromethane</b>	Barbara O. Gvakharia, Elizabeth A. Permina, Mikhail S. Gelfand, Peter J. Bottomley, Luis A. Sayavedra-Soto, and Daniel J. Arp	3440–3445