

JOURNAL OF BACTERIOLOGY

Volume 188

April 2006

No. 8

GENOMICS AND PROTEOMICS

- A Database of Bacterial Lipoproteins (DOLOP) with Functional Assignments to Predicted Lipoproteins** M. Madan Babu, M. Leena Priya, A. Tamil Selvan, Martin Madera, Julian Gough, L. Aravind, and K. Sankaran 2761–2773
- DNA Microarray and Proteomic Analyses of the RpoS Regulon in *Geobacter sulfurreducens*** Cinthia Núñez, Abraham Esteve-Núñez, Carol Giometti, Sandra Tollaksen, Tripti Khare, Winston Lin, Derek R. Lovley, and Barbara A. Methé 2792–2800
- Comparative Genomics of NAD Biosynthesis in Cyanobacteria** Svetlana Y. Gerdes, Oleg V. Kurnasov, Konstantin Shatalin, Boris Polanuyer, Roman Sloutsky, Veronika Vonstein, Ross Overbeek, and Andrei L. Osterman 3012–3023

MOLECULAR BIOLOGY OF PATHOGENS

- Assembly of the Type III Secretion Apparatus of Enteropathogenic *Escherichia coli*** Tomoaki Ogino, Ryuta Ohno, Kachiko Sekiya, Asaomi Kuwae, Takeshi Matsuzawa, Takashi Nonaka, Hiroyuki Fukuda, Shinobu Imajoh-Ohmi, and Akio Abe 2801–2811
- Transcriptional Heat Shock Response in the Smallest Known Self-Replicating Cell, *Mycoplasma genitalium*** Oxana Musatovova, Subramanian Dhandayuthapani, and Joel B. Baseman 2845–2855
- The *ppuI-rsaL-ppuR* Quorum-Sensing System Regulates Biofilm Formation of *Pseudomonas putida* PCL1445 by Controlling Biosynthesis of the Cyclic Lipopeptides Putisolvins I and II** Jean-Frédéric Dubern, Ben J. J. Lugtenberg, and Guido V. Bloemberg 2898–2906
- Transcription of the Contiguous *sigB*, *dtxR*, and *galE* Genes in *Corynebacterium diphtheriae*: Evidence for Multiple Transcripts and Regulation by Environmental Factors** Diana Marra Oram, Andrew D. Jacobson, and Randall K. Holmes 2959–2973
- Influence of BrpA on Critical Virulence Attributes of *Streptococcus mutans*** Zezhang T. Wen, Henry V. Baker, and Robert A. Burne 2983–2992
- EspF of Enteropathogenic *Escherichia coli* Binds Sorting Nexin 9** Oliver Marchès, Miranda Batchelor, Robert K. Shaw, Amit Patel, Nicola Cummings, Takeshi Nagai, Chihiro Sasakawa, Sven R. Carlsson, Richard Lundmark, Celine Cougoule, Emmanuelle Caron, Stuart Knutton, Ian Connerton, and Gad Frankel 3110–3115
- Differential Biofilm Formation and Motility Associated with Lipopolysaccharide/Exopolysaccharide-Coupled Biosynthetic Genes in *Stenotrophomonas maltophilia*** Tzu-Pi Huang, Eileen B. Somers, and Amy C. Lee Wong 3116–3120
- Identification of Nudix Hydrolase Family Members with an Antimutator Role in *Mycobacterium tuberculosis* and *Mycobacterium smegmatis*** T. Dos Vultos, J. Blázquez, J. Rauzier, I. Matic, and B. Gicquel 3159–3161

Continued on following page

BACTERIOPHAGES, TRANSPOSONS, AND PLASMIDS

- Differences in Resolution of *mwr*-Containing Plasmid Dimers Mediated by the *Klebsiella pneumoniae* and *Escherichia coli* XerC Recombinases: Potential Implications in Dissemination of Antibiotic Resistance Genes 2812–2820
Duyen Bui, Judianne Ramiscal, Sonia Trigueros, Jason S. Newmark, Albert Do, David J. Sherratt, and Marcelo E. Tolmasky
- A Novel FtsZ-Like Protein Is Involved in Replication of the Anthrax Toxin-Encoding pXO1 Plasmid in *Bacillus anthracis* 2829–2835
Eowyn Tinsley and Saleem A. Khan
- Detailed Genomic Analysis of the W β and γ Phages Infecting *Bacillus anthracis*: Implications for Evolution of Environmental Fitness and Antibiotic Resistance 3037–3051
Raymond Schuch and Vincent A. Fischetti

SIGNAL TRANSDUCTION

- A Novel Three-Protein Two-Component System Provides a Regulatory Twist on an Established Circuit To Modulate Expression of the *cbb₁* Region of *Rhodopseudomonas palustris* CGA010 2780–2791
Simona Romagnoli and F. Robert Tabita
- Transcriptional Control of the Mycobacterial *embCAB* Operon by PknH through a Regulatory Protein, EmbR, In Vivo 2936–2944
Kirti Sharma, Meetu Gupta, Monika Pathak, Nidhi Gupta, Anil Koul, Smilona Sarangi, Renu Baweja, and Yogendra Singh

MICROBIAL COMMUNITIES AND INTERACTIONS

- CsgD-Independent Pathway for Cellulose Production and Biofilm Formation in *Escherichia coli* 3073–3087
Sandra Da Re and Jean-Marc Ghigo
- Effects of Phosphorelay Perturbations on Architecture, Sporulation, and Spore Resistance in Biofilms of *Bacillus subtilis* 3099–3109
Jan-Willem Veening, Oscar P. Kuipers, Stanley Brul, Klaas J. Hellingwerf, and Remco Kort

GENE REGULATION

- Comparison of OG1RF and an Isogenic *fsrB* Deletion Mutant by Transcriptional Analysis: the Fsr System of *Enterococcus faecalis* Is More than the Activator of Gelatinase and Serine Protease 2875–2884
Agathe Bourgogne, Susan G. Hilsenbeck, Gary M. Dunny, and Barbara E. Murray
- The DtxR Regulon of *Corynebacterium glutamicum* 2907–2918
Julia Wennerhold and Michael Bott
- Functional Domains of the *Bacillus subtilis* Transcription Factor AraR and Identification of Amino Acids Important for Nucleoprotein Complex Assembly and Effector Binding 3024–3036
Irina Saraiva Franco, Luís Jaime Mota, Cláudio Manuel Soares, and Isabel de Sá-Nogueira
- Upregulated Transcription of Plasmid and Chromosomal Ribulose Monophosphate Pathway Genes Is Critical for Methanol Assimilation Rate and Methanol Tolerance in the Methylophilic Bacterium *Bacillus methanolicus* 3063–3072
Øyvind M. Jakobsen, Aline Benichou, Michael C. Flickinger, Svein Valla, Trond E. Ellingsen, and Trygve Brautaset
- Mechanism of *hilA* Repression by 1,2-Propanediol Consists of Two Distinct Pathways, One Dependent on and the Other Independent of Catabolic Production of Propionate, in *Salmonella enterica* Serovar Typhimurium 3121–3125
Shu-ichi Nakayama and Haruo Watanabe
- Sigma L Is Important for Cold Shock Adaptation of *Bacillus subtilis* 3130–3133
Frank Wiegeshoff, Carsten L. Beckering, Michel Debarbouille, and Mohamed A. Marahiel

MICROBIAL CELL BIOLOGY

- Morphology of Isolated Gli349, a Leg Protein Responsible for *Mycoplasma mobile* Gliding via Glass Binding, Revealed by Rotary Shadowing Electron Microscopy** Jun Adan-Kubo, Atsuko Uenoyama, Toshiaki Arata, and Makoto Miyata 2821–2828
- Green Fluorescent Chimeras Indicate Nonpolar Localization of Pullulanase Secretion Components PulL and PulM** Nienke Buddelmeijer, Olivera Francetic, and Anthony P. Pugsley 2928–2935
- Role of MinD-Membrane Association in Min Protein Interactions** Aziz Taghbalout, Luyan Ma, and Lawrence Rothfield 2993–3001
- Differential and Dynamic Localization of Topoisomerases in *Bacillus subtilis*** Serkalem Tadesse and Peter L. Graumann 3002–3011

PLANT MICROBIOLOGY

- The *Erwinia chrysanthemi* 3937 PhoQ Sensor Kinase Regulates Several Virulence Determinants** Balakrishnan Venkatesh, Lavanya Babujee, Hui Liu, Pete Hedley, Takashi Fujikawa, Paul Birch, Ian Toth, and Shinji Tsuyumu 3088–3098
- BacA-Mediated Bleomycin Sensitivity in *Sinorhizobium meliloti* Is Independent of the Unusual Lipid A Modification** Gail P. Ferguson, An Jansen, Victoria L. Marlow, and Graham C. Walker 3143–3148

GENETICS AND MOLECULAR BIOLOGY

- The Riboflavin Transporter RibU in *Lactococcus lactis*: Molecular Characterization of Gene Expression and the Transport Mechanism** Catherine M. Burgess, Dirk Jan Slotboom, Eric R. Geertsma, Ria H. Duurkens, Bert Poolman, and Douwe van Sinderen 2752–2760
- DNA Replication during Aggregation Phase Is Essential for *Myxococcus xanthus* Development** Linfong Tzeng, Terri N. Ellis, and Mitchell Singer 2774–2779
- Genetic Analysis of the Mode of Interplay between an ATPase Subunit and Membrane Subunits of the Lipoprotein-Releasing ATP-Binding Cassette Transporter LolCDE** Yasuko Ito, Hitomi Matsuzawa, Shin-ichi Matsuyama, Shin-ichiro Narita, and Hajime Tokuda 2856–2864
- Transcriptional Analysis of Long-Term Adaptation of *Yersinia enterocolitica* to Low-Temperature Growth** Geraldine Bresolin, Klaus Neuhaus, Siegfried Scherer, and Thilo M. Fuchs 2945–2958
- Structural Alterations of the Cysteine Desulfurase IscS of *Salmonella enterica* Serovar Typhimurium Reveal Substrate Specificity of IscS in tRNA Thiolation** Hans K. Lundgren and Glenn R. Björk 3052–3062
- An Allele of *gyrA* Prevents *Salmonella enterica* Serovar Typhimurium from Using Succinate as a Carbon Source** George E. Schmitz and Diana M. Downs 3126–3129
- Independent Regulation of MucD, an HtrA-Like Protease in *Pseudomonas aeruginosa*, and the Role of Its Proteolytic Motif in Alginate Gene Regulation** Lynn F. Wood and Dennis E. Ohman 3134–3137
- Characterization of a Gene Encoding an Acetylase Required for Pyoverdine Synthesis in *Pseudomonas aeruginosa*** Iain L. Lamont, Lois W. Martin, Talia Sims, Amy Scott, and Mary Wallace 3149–3152

PHYSIOLOGY AND METABOLISM

- Conserving a Volatile Metabolite: a Role for Carboxysome-Like Organelles in *Salmonella enterica*** Joseph T. Penrod and John R. Roth 2865–2874
- Functional Analysis of *luxS* in *Staphylococcus aureus* Reveals a Role in Metabolism but Not Quorum Sensing** Neil Doherty, Matthew T. G. Holden, Saara N. Qazi, Paul Williams, and Klaus Winzer 2885–2897

Aerobic Benzoyl-Coenzyme A (CoA) Catabolic Pathway in *Azoarcus evansii*: Conversion of Ring Cleavage Product by 3,4-Dehydroadipyl-CoA Semialdehyde Dehydrogenase

Johannes Gescher, Wael Ismail, Ellen Ölgeschläger, Wolfgang Eisenreich, Jürgen Wörth, and Georg Fuchs 2919–2927

Levels of Glycine Betaine in Growing Cells and Spores of *Bacillus* Species and Lack of Effect of Glycine Betaine on Dormant Spore Resistance

Charles A. Loshon, Paul G. Wahome, Mark W. Maciejewski, and Peter Setlow 3153–3158

ENZYMES AND PROTEINS

***Desulfovibrio gigas* Flavodiiron Protein Affords Protection against Nitrosative Stress In Vivo**

Rute Rodrigues, João B. Vicente, Rute Félix, Solange Oliveira, Miguel Teixeira, and Claudina Rodrigues-Pousada 2745–2751

Identification of Lactaldehyde Dehydrogenase in *Methanocaldococcus jannaschii* and Its Involvement in Production of Lactate for F₄₂₀ Biosynthesis

Laura L. Grochowski, Huimin Xu, and Robert H. White 2836–2844

Acetylornithine Transcarbamylase: a Novel Enzyme in Arginine Biosynthesis

Hiroki Morizono, Juan Cabrera-Luque, Dashuang Shi, Rene Gallegos, Saori Yamaguchi, Xiaolin Yu, Norma M. Allewell, Michael H. Malamy, and Mendel Tuchman 2974–2982

Two Putative *c*-Type Multiheme Cytochromes Required for the Expression of OmcB, an Outer Membrane Protein Essential for Optimal Fe(III) Reduction in *Geobacter sulfurreducens*

Byoung-Chan Kim, Xinlei Qian, Ching Leang, Maddalena V. Coppi, and Derek R. Lovley 3138–3142

ERRATA

Global Phylogeny of *Mycobacterium tuberculosis* Based on Single Nucleotide Polymorphism (SNP) Analysis: Insights into Tuberculosis Evolution, Phylogenetic Accuracy of Other DNA Fingerprinting Systems, and Recommendations for a Minimal Standard SNP Set

I. Filliol, A. S. Motiwala, M. Cavatore, W. Qi, M. H. Hazbón, M. Bobadilla del Valle, J. Fyfe, L. García-García, N. Rastogi, C. Sola, T. Zozio, M. I. Guerrero, C. I. León, J. Crabtree, S. Angiuoli, K. D. Eisenach, R. Durmaz, M. L. Joloba, A. Rendón, J. Sifuentes-Osornio, A. Ponce de León, M. D. Cave, R. Fleischmann, T. S. Wittam, and D. Alland 3162–3163

ParABS Systems of the Four Replicons of *Burkholderia cenocepacia*: New Chromosome Centromeres Confer Partition Specificity

Nelly Dubarry, Franck Pasta, and David Lane 3164

The *Brucella abortus xthA-1* Gene Product Participates in Base Excision Repair and Resistance to Oxidative Killing but Is Not Required for Wild-Type Virulence in the Mouse Model

Michael L. Hornback and R. Martin Roop II 3165

Polar Flagellum Biogenesis in *Aeromonas hydrophila*

Rocío Canals, Silvia Ramirez, Silvia Vilches, Gavin Horsburgh, Jonathan G. Shaw, Juan M. Tomás, and Susana Merino 3166

Analysis of the Lateral Flagellar Gene System of *Aeromonas hydrophila* AH-3

Rocío Canals, Maria Altarriba, Silvia Vilches, Gavin Horsburgh, Jonathan G. Shaw, Juan M. Tomás, and Susana Merino 3167