

# JOURNAL OF BACTERIOLOGY

Volume 131

Contents for September 1977

Number 3

## Morphology and Ultrastructure

- Relationship Between Cell Coiling and Motility of Spirochetes in Viscous Environments. E. P. GREENBERG AND E. CANALE-PAROLA\* ..... 960

## Genetics and Molecular Biology

- Killer Double-Stranded Ribonucleic Acid Synthesis in Cell Division Cycle Mutants of *Saccharomyces cerevisiae*. CHANNA SHALITIN\* AND IRITH WEISER ..... 735
- Genetic Characterization of an *Escherichia coli* Mutant Altered in the Structure of Murein Lipoprotein. DANIEL W. YEM AND HENRY C. WU\* ..... 759
- Inhibition and Facilitation of Transfer Among *Pseudomonas aeruginosa* R Plasmids. HITOSHI SAGAI, SHIZUKO IYOBE,\* AND SUSUMU MITSUHASHI ..... 765
- Isolation, Genetic Analysis, and Characterization of *Escherichia coli* Mutants with Defects in the *lacY* Gene. ANN C. HOBSON, DJIM GHO, AND BENNO MÜLLER-HILL\* ..... 830
- Isolation and Characterization of Specialized Lambda Transducing Bacteriophage Carrying the *metBJF* Methionine Gene Cluster. JAMES R. JOHNSON, RONALD C. GREENE,\* AND JUDY HEILIG KRUEGER ..... 795
- Genetic Analysis of *Escherichia coli* K-12 Region I Flagellar Mutants. Y. KOMEDA, M. SILVERMAN, AND M. SIMON\* ..... 801
- Major Proteins of the *Escherichia coli* Outer Cell Envelope Membrane as Bacteriophage Receptors. DIPAK B. DATTA, BERNHARD ARDEN, AND ULF HENNING\* ..... 821
- Specific Alteration of the 30S Ribosomal Subunits of *Bacillus subtilis* During Sporulation. SIBAJYOTI GUHA AND JEKISIEL SZULMAJSTER\* ..... 866
- Ribosomal Suppressors and Antisuppressors in *Podospora anserina*: Resistance to Cycloheximide. E. COPPIN-RAYNAL ..... 876
- Origin and Direction of Replication of the Drug Resistance Plasmid R100.1 and of a Resistance Transfer Factor Derivative in Synchronized Cultures. L. SILVER,\* M. CHANDLER, E. BOY DE LA TOUR, AND L. CARO ..... 929
- Heteroduplex Analysis of *traΔ F'* Plasmids and the Mechanism of Their Formation. MARK S. GUYER,\* NORMAN DAVIDSON, AND ALVIN J. CLARK ..... 970
- Alteration of the *Bacillus subtilis* Glutamine Synthetase Results in Overproduction of the Enzyme. D. R. DEAN, J. A. HOCH, AND A. I. ARONSON\* ..... 981
- Relationship Between Messenger Ribonucleic Acid and Enzyme Levels Specified by the Leucine Operon of *Escherichia coli* K-12. MICHELLE GALL DAVIS AND JOSEPH M. CALVO\* ..... 997
- Induction of Colicin E1 Synthesis in Recombination-Defective Mutants in Both RecBC and RecF Pathways. ATSUSHI NAKAZAWA\* AND NOBUO SUZUKI .... 1011
- Selective Plasmid Transduction in *Bacillus pumilus*. MICHAEL G. BRAMUCCI AND PAUL S. LOVETT\* ..... 1029
- Fine-Structure Mapping of the *firA* Gene, a Locus Involved in the Phenotypic Expression of Rifampin Resistance in *Escherichia coli*. RICHARD LATHE ... 1033

## Physiology and Metabolism

- Nitrogen Regulation of Arginase in *Neurospora crassa*. GERARDO VACA AND JAIME MORA\* ..... 719
- Zeatin Ribonucleosides in the Transfer Ribonucleic Acid of *Rhizobium leguminosarum*, *Agrobacterium tumefaciens*, *Corynebacterium fascians*, and *Erwinia amylovora*. JOSEPH D. CHERAYIL AND MARIE N. LIPSETT\* ..... 741

Continued on following page

Continued from preceding page

Myxospore Coat Synthesis in <i>Myxococcus xanthus</i> : Enzymes Associated with Uridine 5'-Diphosphate <i>N</i> -Acetylgalactosamine Formation During Myxospore Development. D. FILER, S. H. KINDLER, AND E. ROSENBERG*	745
Myxospore Coat Synthesis in <i>Myxococcus xanthus</i> : In Vivo Incorporation of Acetate and Glycine. D. FILER, D. WHITE, S. H. KINDLER, AND E. ROSENBERG*	751
Induction of the Acetamidase of <i>Aspergillus nidulans</i> by Acetate Metabolism. M. J. HYNES	770
Modulation of Deoxyribonucleic Acid Polymerase III Level During the Life Cycle of <i>Bacillus subtilis</i> . GIOVANNI CIARROCCI, CARMEN ATTOLINI,* FABIO COBIANCHI, SILVANO RIVA, AND ARTURO FALASCHI	776
Sodium Ion-Stimulated $\alpha$ -[1- <sup>14</sup> C]aminoisobutyric Acid Uptake in Alkalophilic <i>Bacillus</i> Species. MAKIO KITADA* AND KOKI HORIKOSHI	784
Metabolism of 6-Aminonicotinic Acid in <i>Escherichia coli</i> . JOHN R. COBB, SUSAN C. PEARCY, AND R. K. GHOLSON*	789
Tetrapyrrole Utilization by <i>Bacteroides ruminicola</i> . DARRALYN R. MCCALL AND DANIEL R. CALDWELL*	809
Intracellular Localization of the Superoxide Dismutases of <i>Escherichia coli</i> : a Reevaluation. LARRY BRITTON AND IRWIN FRIDOVICH*	815
Allantoin Transport in <i>Saccharomyces cerevisiae</i> . ROBERTA SUMRADA AND TERRANCE G. COOPER*	839
Glutamate Transport Driven by an Electrochemical Gradient of Sodium Ions in <i>Escherichia coli</i> . TOMOFUSA TSUCHIYA,* SYED M. HASAN, AND JANE RAVEN	848
Cyclic Adenosine 3',5'-Monophosphate Regulation of Membrane Energetics in <i>Escherichia coli</i> . STEVEN S. DILLS AND WALTER J. DOBROGOSZ*	854
<i>myo</i> -Inositol Transport System in <i>Pseudomonas putida</i> . GUIDO REBER, MONIQUE BELET, AND JACQUES DESHUSSES*	872
Regulation of the <i>Neurospora crassa</i> Assimilatory Nitrate Reductase. PAUL A. KETCHUM,* DEBORAH D. ZEEB, AND MARTHA S. OWENS	884
In Vitro Production of Bacitracin by Proteolysis of Vegetative <i>Bacillus licheniformis</i> Cell Protein. LJUBIŠA VITKOVIĆ AND HAROLD L. SADOFF*	897
Peptide Transport in Yeast: Utilization of Leucine- and Lysine-Containing Peptides by <i>Saccharomyces cerevisiae</i> . ROBERT MARDER, JEFFREY M. BECKER, AND FRED NAIDER*	906
Component from the Cell Surface of the Hydrocarbon-Utilizing Yeast <i>Candida tropicalis</i> with Possible Relation to Hydrocarbon Transport. O. KÄPPELI* AND A. FIECHTER	917
Hydrogenase Activity and the H <sub>2</sub> -Fumarate Electron Transport System in <i>Bacteroides fragilis</i> . MARTHA A. HARRIS AND C. ADINARYAYANA REDDY*	922
Effect of Carbon Source and the Role of Cyclic Adenosine 3',5'-Monophosphate on the <i>Caulobacter</i> Cell Cycle. NURITH KURN, LUCILLE SHAPRIO,* AND NINA AGABIAN	951
Antibody to the D-Alanine Carboxypeptidase of <i>Bacillus subtilis</i> Does Not Cross-React with Other Penicillin-Binding Proteins. CHRISTINE E. BUCHANAN,* JUDY HSIA, AND JACK L. STROMINGER.	1008
Inhibition of Thiamine Transport in <i>Saccharomyces cerevisiae</i> by Thiamine Disulfides. AKIO IWASHIMA,* YASUO WAKABAYASHI, AND YOSHITSUGU NOSE	1013
Variation in Guanosine 5',3'-Tetraphosphate Levels in <i>Chromatium</i> . GRETCHEN KLAUSSMANN AND MARGARET MIOVIĆ*	1018
Propionate-Induced Synthesis of Odd-Chain-Length Fatty Acids by <i>Escherichia coli</i> . L. O. INGRAM,* L. S. CHEVALIER, E. J. GABBAY, K. D. LEY, AND K. WINTERS.	1023

Continued on following page

Continued from preceding page

- Kinase Replacement by a Dehydrogenase for *Escherichia coli* Glycerol Utilization. E. J. ST. MARTIN, W. B. FREEDBERG, AND E. C. C. LIN\* ..... 1026

#### Enzymology

- Purification and Properties of Beta-Lactamase from *Proteus morganii*. YOSHIKI FUJII-KURIYAMA,\* MITSUYO YAMAMOTO, AND SHINICHI SUGAWARA ..... 726
- Purification of the Extracellular Protease of *Bacillus licheniformis* and Its Inhibition by Bacitracin. LJUBIŠA VITKOVIĆ AND H. L. SADOFF\* ..... 891
- Threonyl-Transfer Ribonucleic Acid Synthetase from *Escherichia coli*: Subunit Structure and Genetic Analysis of the Structural Gene by Means of a Mutated Enzyme and of a Specialized Transducing Lambda Bacteriophage. H. HENNECKE, A. BÖCK, J. THOMALE, AND G. NASS\* ..... 943
- Mycoplasma Phosphoenolpyruvate-Dependent Sugar Phosphotransferase System: Purification and Characterization of Enzyme I. ABUL H. JAFFOR ULLAH AND VICENT P. CIRILLO\* ..... 988
- Comparison of Two Dioxygenases from *Pseudomonas putida*. YAO-LING T. LEE AND STANELY DAGLEY\* ..... 1016
- Characterization of Antiserum Directed Against Form II Ribulose 1,5-Bisphosphate Carboxylase from *Rhodospseudomonas sphaeroides*. JANET L. GIBSON AND F. ROBERT TABITA\* ..... 1020

#### Erratum

- Synthesis of R-Plasmid-Coded  $\beta$ -Lactamase in Minicells and in an In Vitro System. JUNE N. GRINDLEY, RICHARD BLUMBERG, AND DAI NAKADA ..... 1037

\* Asterisk refers to person to whom inquiries regarding the paper should be addressed.