



Abstracts of the Annual Meeting of the

American Society for Microbiology

1983

83rd Annual Meeting

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American Society for Microbiology

1983



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FUTURE MEETINGS

Annual Meeting of the Society:

1984: St. Louis, Mo., 4–9 March

Abstract forms for the submission of papers will be mailed with the August and September 1983 issues of the *ASM News*.

Interscience Conference on Antimicrobial Agents and Chemotherapy:

1983: Las Vegas, Nev., 24–26 October

Abstract forms and the preliminary program will be mailed with the March 1983 issue of the *ASM News*.

THE AMERICAN SOCIETY FOR MICROBIOLOGY LECTURESHIP

The American Society for Microbiology Lectureship was established by ASM in 1971 to honor a distinguished microbiologist selected to deliver the keynote address at the Opening Session of the society's Annual Meeting. The appointment of the lecturer is made by the president of ASM upon the recommendation of the Annual Meeting Program Committee. Participation in divisional symposia at the Annual Meeting by the person selected is encouraged. The lecture is funded by the Office of Naval Research.

1983 Lecturer

MARGARITA SALAS

Centro de Biología Molecular, Universidad Autónoma de Madrid, Madrid, Spain

Initiation of Bacteriophage ϕ 29 DNA Replication Primed by the 5'-Linked Protein

Past Lecturers

1971: Norbert Pfennig, Institute for Microbiology, Göttingen, Germany

1972: J. W. M. la Rivière, Technological University, Delft, The Netherlands

1973: William Hayes, University of Edinburgh, Edinburgh, Scotland

1974: René Dubos, Rockefeller University, New York, N.Y.

1975: Naomi Datta, Royal Postgraduate Medical School, London, England

1976: Roger Stanier, Institut Pasteur, Paris, France

1977: Louis Siminovitch, University of Toronto, Toronto, Ontario, Canada

1978: Otto Westphal, Max Planck Institut für Immunobiologie, Freiburg, Germany

1979: Renato Dulbecco, The Salk Institute for Biological Studies, San Diego, Calif.

1980: Baruch S. Blumberg, Institute for Cancer Research, Philadelphia, Pa.

1981: Stanley N. Cohen, Stanford University Medical Center, Stanford, Calif.

1982: Jean Lindenman, University of Zurich, Zurich, Switzerland

THE NEW BRUNSWICK SCIENTIFIC COMPANY LECTURESHIP

In 1965, the New Brunswick Scientific Company instituted sponsorship of a lectureship series in conjunction with the ASM Annual Meeting. The lectureship provides an honorarium and travel expenses; selection of the lecturer is made by the ASM Honors Committee. By design, lectures in this series are likely to emphasize interdisciplinary, controversial, or philosophical aspects of subjects of general scientific interest.

New Brunswick Scientific Company Lecturer for 1983

C. D. COX

University of Massachusetts, Amherst

Research Funding: A Microbiologist's Perspective

Past Lecturers

1965: J. G. Harrar, The Rockefeller Foundation, New York, N.Y.

1966: Lord Adrian, Trinity College, Cambridge, England

1967: Norman Cousins, *Saturday Review*, New York, N.Y.

1968: Lord Ritchie-Calder, University of Edinburgh, Edinburgh, Scotland

1969: George W. Beadle, Institute for Biomedical Research, Chicago, Ill.

1970: Norris Cotton, U.S. Senator, New Hampshire

1971: Mary I. Bunting, Radcliffe College, Cambridge, Mass.

1972: Emilio Q. Daddario, Gulf & Western Precision Engineering Company, Manchester, Conn.

1973: Philip Handler, National Academy of Sciences, Washington, D.C.

1974: Max Tishler, Wesleyan University, Middletown, Conn.

1975: No lecture given

1976: Dewitt Stetten, National Institutes of Health, Bethesda, Md.

1977: Philip H. Abelson, American Association for the Advancement of Science, Washington, D.C.

1978: Gerard Piel, *Scientific American*, New York, N.Y.

1979: Daniel S. Greenberg, *Science and Government Report*, Washington, D.C.

1980: Bruce Ames, Department of Biochemistry, University of California, Berkeley

1981: Charles McC. Mathias, U.S. Senator, Maryland

1982: G. A. Keyworth, Office of Science and Technology, Executive Office of the President of the United States, Washington, D.C.

THE ELI LILLY AND COMPANY RESEARCH AWARD IN MICROBIOLOGY AND IMMUNOLOGY

The purpose of the Eli Lilly and Company Research Award in Microbiology and Immunology is stimulation of fundamental research in microbiology and immunology in the United States and Canada by recognition of outstanding accomplishment by individuals on the threshold of their careers. The original suggestion of such an award was made by Karl F. Meyer to Eli Lilly, president of the company, in 1933. In brief, microbiologists nominated must have done outstanding research that displays merit in microbiology or immunology (special consideration is given to independence of thought and originality shown in the research). The nominee must be less than 40 years old on 30 April of the year of award. Selections are made by an award committee representing ASM, the American Association of Immunologists, and the American Society for Experimental Pathology.

1983 Award Recipient

IRA HERSKOWITZ

University of California, San Francisco

Determination of Yeast Cell Type by Mobile Cassettes

Past Recipients

1936: Harry Eagle
1937: Frank L. Horsfall, Jr.
1938: Jerome T. Syverton
1939: John G. Kidd
1940: D. Wayne Woolley
1941: Alwin M. Pappenheimer, Jr.
1942: Harland G. Wood
1943: No award
1944: No award
1945: Esmond E. Snell
1946: Maclyn McCarty
1947: Wayne W. Umbreit
1948: Alan W. Bernheimer
1949: Elvin A. Kabat
1950: Roger Y. Stanier
1951: Seymour S. Cohen
1952: J. Oliver Lampen
1953: Joshua Lederberg
1954: James W. Moulder
1955: Willis A. Wood
1956: Melvin Cohn
1957: Henry Koffler
1958: Wilbur W. Ackermann
1959: Charles Yanofsky

1960: Wallace Rowe
1961: Harry Rubin
1962: Norton D. Zinder
1963: John J. Holland
1964: Mathew S. Meselson
1965: Karl G. Lark
1966: Frederick C. Neidhardt
1967: Brian J. McCarthy
1968: John J. Cebra
1969: David Schlessinger
1970: Jonathan R. Beckwith
1971: David Baltimore
1972: R. John Collier
1973: Leland H. Hartwell
1974: Joseph R. Kates
1975: G. Wesley Hatfield
1976: Ronald W. Davis
1977: Alice S. Huang
1978: David Botstein
1979: Winston J. Brill
1980: Edward M. Scolnick
1981: Tom Maniatis
1982: Thomas E. Shenk

THE CARSKI FOUNDATION DISTINGUISHED TEACHING AWARD

The Carski Foundation Distinguished Teaching Award was established in 1968 to provide recognition to a mature individual for distinguished teaching of microbiology to undergraduate students and for encouraging them to subsequent achievement. The award consists of \$1,000 and a plaque and is presented each year at the ASM Annual Meeting. The recipient must have taught for a minimum of 10 years, and a substantial portion of his time during the past 5 years must have been devoted to teaching undergraduate students in microbiology. The recipient must be actively teaching in a college or university in the United States or where there is a branch of ASM. Selections are made by an award committee of three ASM members.

1983 Award Recipient

M. JOHN PICKETT

University of California, Los Angeles

Past Recipients

1968: Wayne W. Umbreit, Rutgers, The State University, New Brunswick, N.J.

1969: Sidney C. Rittenberg, University of California, Los Angeles

1970: Walter A. Konetzka, Indiana University, Bloomington

1971: Ralph S. Wolfe, University of Illinois, Urbana

1972: William B. Sarles, University of Wisconsin, Madison

1973: William G. Walter, Montana State University, Bozeman

1974: Frank E. Swatek, California State University, Long Beach

1975: Matthew C. Dodd, Ohio State University, Columbus

1976: Elizabeth R. Hall, Washington State University, Pullman

1977: Margaret Green, University of Alabama, Tuscaloosa

1978: Noel R. Krieg, Virginia Polytechnic Institute and State University, Blacksburg

1979: Elwood B. Shirling, Ohio Wesleyan University, Delaware

1980: Warren Litsky, University of Massachusetts, Amherst

1981: Robert J. Brady, Miami University, Oxford, Ohio

1982: John L. Fryer, Oregon State University, Corvallis

THE FISHER SCIENTIFIC COMPANY AWARD IN APPLIED AND ENVIRONMENTAL MICROBIOLOGY

The Fisher Scientific Company Award in Applied and Environmental Microbiology, established in 1977, is made for the purpose of stimulating research and development in applied microbiology (except clinical fields) and environmental microbiology. The award consists of \$1,000, a certificate, and traveling expenses incidental to conferring the award at the ASM Annual Meeting. There is no age limit for the award, the sole requirement for candidacy being outstanding accomplishment in research or development in the fields appropriate to the award. The recipient of the award is selected by an award committee consisting of three members of ASM. Candidates for the award are developed by the award committee, who take such steps as are desirable to secure nominations of individuals deemed worthy of consideration. Also, nominations may be submitted over the signatures of five or more members of ASM.

1983 Award Recipient

JOHN H. BREWER

Hardin Simmons University, Abilene, Texas

Past Recipients

1977: David Gottlieb, University of Illinois, Urbana

1978: Moshe Shilo, Hebrew University, Jerusalem, Israel

1979: David Perlman, University of Wisconsin, Madison

1980: Martin Alexander, Cornell University, Ithaca, N.Y.

1981: William Sandine, Oregon State University, Corvallis

1982: Holger W. Jannasch, Woods Hole Oceanographic Institution, Woods Hole, Mass.

THE BECTON-DICKINSON AWARD IN CLINICAL MICROBIOLOGY

The Becton-Dickinson Award in Clinical Microbiology is intended to honor distinguished microbiologists identified with clinical microbiology. The award, which consists of \$1,000, a plaque, and funds to defray the expenses of the award winner in attending the ASM Annual Meeting at which the award is given, was made for the first time in 1978. The award is based on outstanding research accomplishments, clinical or non-clinical, leading to or forming the foundation for important applications in clinical microbiology. A nomination for the award can be submitted by a local branch of ASM or by a group of five or more ASM members. Selections are made by an award committee of three members of ASM.

1983 Award Recipient

G. D. HSIUNG

Yale University School of Medicine, New Haven, Conn.

Past Recipients

1978: John C. Sherris, University of Washington, Seattle

1979: Henry Isenberg, Long Island Jewish-Hillside Medical Center, New Hyde Park, N.Y.

1980: Amedeo Bondi, Hahnemann Medical College, Philadelphia, Pa.

1981: Albert Balows, Centers for Disease Control, Atlanta, Ga.

1982: William B. Cherry, Centers for Disease Control, Atlanta, Ga.

U.S. FEDERATION OF CULTURE COLLECTIONS' J. ROGER PORTER AWARD

The J. Roger Porter Award of the U.S. Federation of Culture Collections (USFCC) has been established by USFCC and accepted by ASM. The award address will be presented at the meeting of USFCC at the time of the ASM Annual Meeting. The award is made to honor microbiologists contributing significantly to the USFCC objectives. The award shall consist of \$1,000 cash and an appropriate certificate. The recipient of the award shall be selected from the nominees by an award committee consisting of three members of ASM who are also members of USFCC.

1983 Award Recipient

RUTH GORDON

American Type Culture Collection, Rockville, Md.

Some Studies in Communication

Past Recipient

1982: Joseph G. Tully, National Institute of Allergy and Infectious Diseases, Bethesda, Md.

SPECIAL SESSIONS PRESENTED AT THE 83rd ANNUAL MEETING

COLLOQUIA

Divisional Group II

Bacterial Motion and Interaction

Conveners: L. N. ORNSTON, Yale Univ., New Haven, Conn., and W. FINNERTY, Univ. of Georgia, Athens

Becton-Dickinson Traveling Lecture: Life at Low Reynolds Number. E. M. PURCELL. Harvard Univ., Cambridge, Mass.

Mechanism of Flagellar Motion. H. BERG. California Inst. of Technology, Pasadena.

Chemotaxis. J. PARKINSON. Univ. of Utah, Salt Lake City.

Control of Phase Variation. M. SIMON. Univ. of California at San Diego, La Jolla.

DNA Rearrangements for Pilus Expression in *Neisseria*. M. SO. Cold Spring Harbor Lab., Cold Spring Harbor, N.Y.

How Surface Structures Serve the Cell

Conveners: T. BEVERIDGE, Univ. of Guelph, Guelph, Ontario, Canada, and L. LEIVE, NIH, Bethesda, Md.

Strengths and Limitations of Microscopy. R. G. E. MURRAY. Univ. of Western Ontario, London, Ontario, Canada.

Assembly and Function of the Outer Membrane. M. J. OSBORN. Univ. of Connecticut, Storrs.

Peptidoglycan: How to Be Dynamic and Rigid Simultaneously. P. GIESBRECHT. Robert Koch Inst., Berlin, Federal Republic of Germany.

Outer Membrane-Mediated Transport: Role of Colicin and Bacteriophage Receptors. J. KONISKY. Univ. of Illinois, Urbana.

The Bacterial Capsule and Related Structures. I. SUTHERLAND. Univ. of Edinburgh, Edinburgh, Scotland.

From Information to Execution—How Structure Serves Function for DNA, RNA, and Protein

Conveners: I. CRAWFORD, Univ. of Iowa, Iowa City, and M. HOWE, Cold Spring Harbor Labs., Cold Spring Harbor, N.Y.

Nucleoid Organization. D. E. PETTIJOHN. Univ. of Colorado, Denver.

RNA Polymerase—Molecular Conformation in Relation to Interaction with DNA and RNA. S. BEYCHOK. Columbia Univ., New York, N.Y.

Attenuation Control of *his* Operon. J. ROTH. Univ. of Utah, Salt Lake City.

Macromolecular Interactions in Ribosome Assembly. P. ZIMMERMANN. Univ. of Massachusetts, Amherst.

Bacteriophage Assembly. H. MURIALDO. Univ. of Toronto, Toronto, Ontario, Canada.

Divisional Group III

Application of Genetic Engineering to Cellulose Hydrolysis

Convener: BLAND S. MONTENECOURT, Lehigh University, Bethlehem, Pa.

Expression and Cloning of Genes Involved in Cellulose Degradation by the Wood-Rotting Fungus *Schizophyllum commune*. VERN SELIGY. National Research Council, Ottawa, Ontario, Canada.

Vectors for *Zymomonas*. DOUGLAS E. EVELEIGH. Rutgers Univ., New Brunswick, N.J.

Molecular Cloning and Characterization of *Trichoderma reesei* Cellulase Genes. DARREL STAFFORD. Univ. of North Carolina, Chapel Hill.

IS120: An Insertion Sequence from *Clostridium thermocellum*. BRAD SNEDECOR. Genetech, Inc., South San Francisco, Calif.

Cloning and Expression of Thermophilic Cellulase Genes in *Escherichia coli*. DAVID B. WILSON. Cornell Univ., Ithaca, N.Y.

Scale-Up and Product Development Through Biotechnology

Convener: CHARLES L. COONEY, MIT, Cambridge, Mass.

A Perspective on Process Scale-Up in Biotechnology. CHARLES L. COONEY. MIT, Cambridge, Mass.

Fermentor Scale-Up: A Challenge in Biotechnology. THOMAS MURPHY. Abbot Laboratories, Inc., North Chicago, Ill.

Design and Execution of Recovery Processes in Bio-technology. MICHAEL J. ROSS, ANDREW JONES, and ARMIN RAMEL. Genentech, Inc., South San Francisco, Calif.

Large-Scale Isolation of Proteins from Complex Mixtures. GARY J. CALTON. Purification Engineering, Inc., Columbia, Md.

Scale-Up of Mammalian Cell Culture. ANTHONY J. SINSKEY. MIT, Cambridge, Mass.

C₁-Metabolizing Microorganisms

Convener: RAMESH N. PATEL, Exxon Res. & Engineering Co., Linden, N.J.

Methanogenesis. RALPH S. WOLFE. Univ. of Illinois, Urbana

Oxidation of Hydrocarbons by Methanotrophs. RAMESH N. PATEL. Exxon Res. & Engineering Co., Linden, N.J.

Genetics of Methanotrophs. RICHARD S. HANSON. Univ. of Minnesota, Navarre.

Enzymes of C₁ Metabolism in Acetogenic Bacteria. LARS G. LJUNGDAHL. The Univ. of Georgia, Athens.

Carbon Metabolism Coupled to N₂ Fixation in Photosynthetic Bacterial. DUANE C. YOCH. Univ. of South Carolina, Columbia.

Biotechnology in the Food Industry

Convener: GAIL M. KEMPLER, Nabisco Brands, Inc., Wilton, Conn.

Advances in Enzyme Technology. JEFFREY T. BARACH. Miles Lab., Elkhart, Ind.

Advances in Starter Culture Technology. TODD R. KLAENHAMMER. North Carolina State Univ., Raleigh.

Applications of Bacteria by the Food Industry. ANTHONY J. SINSKEY. MIT, Cambridge, Mass.

Current and Future Applications of Yeasts and Molds. SAUL SCHEINBACH. Nabisco Brands, Inc., Wilton, Conn.

Developments in Plant Science Technology. GEORGE KIDD. Internat. Plant Res. Inst., San Carlos, Calif.

Role of Culture Collections and Reference Centers in Gene Technology

Convener: S. G. BRADLEY, Virginia Commonwealth Univ., Richmond

The Challenge of Gene Technology for Culture Collections. JOSEPHINE CLARK-CURTISS. Univ. of Alabama Med. Ctr., Birmingham.

Role of a Plasmid Reference Center in Gene Technology. ESTHER LEDERBERG. Stanford Univ., Stanford, Calif.

Perspective of the Culture Collection in Gene Technology. C. P. KURTZMAN. Agricultural Res. Service Culture Collection, Northern Regional Res. Ctr., Peoria, Ill.

Industrial Aspects of Culture Collections for Gene Technology. R. P. ELANDER. Bristol-Myers Industrial Div., Syracuse, N.Y.

Research Needs in Gene Technology for Culture Collections. V. S. MALIK. Philip Morris Res. Ctr., Richmond, Va.

Biotechnology of Mammalian and Plant Cell Cultures

Convener: RICHARD W. THOMA, New Brunswick Scientific Co., Edison, N.J.

Overview of Large-Scale Cell Culture Projects. DANIEL N. BULL. New Brunswick Scientific Co., Edison, N.J.

Design and Operation of a Mammalian Cell Culture System. J. DANIEL LYNN and RONALD T. ACTON. Univ. of Alabama in Birmingham, Birmingham.

Suspension Cell Culture: Applied Biotechnology for New and Useful Compounds for Biomedical Research. FREDERICK KLEIN and ROBERT T. RICKETTS. Fermentation Program, Frederick Cancer Res. Facility, Frederick, Md.

Quantitative and Engineering Aspects on the Scale-Up of Tissue Cultivation of Microcarriers. WEI-SHOU HU and DANIEL I. C. WANG. Dept. of Nutrition and Food Sci. and Dept. of Chemical Engineering, MIT, Cambridge, Mass.

Large-Scale Cultivation of Plant Cell Tissue Cultures—Prerequisites and Examples. MICHAEL L. SHULER and ANDERS HALLSBY. Sch. of Chemical Engineering, Cornell Univ., Ithaca, N.Y.

SYMPOSIA

Divisional Group II

Bacterial Behavior: Intercellular Communication and Mechanisms of Sensory Transduction

Conveners: E. P. GREENBERG, Sch. of Agriculture and Life Sci., Cornell Univ., Ithaca, N.Y., and G. DUNNY, Sch. of Vet. Med., Cornell Univ., Ithaca, N.Y.

Role of Extracellular Chemical Signals in *Streptococcus faecalis* Conjugation. G. DUNNY. Sch. of Vet. Med., Cornell Univ., Ithaca, N.Y.

Extracellular Autoinducer that Controls Bioluminescence in Bacteria. K. H. NEALSON. Scripps Inst. of Oceanography, La Jolla, Calif.

Are Vertebrate Peptide Hormones Messenger Molecules in Bacteria? J. ROTH and D. LEROITH. NIH, Bethesda, Md.

Chemoreception and Transduction in Bacterial Chemotaxis. GERALD HAZELBAUER. Washington State Univ., Pullman.

Involvement of Electrical Impulses in Spirochete Chemotaxis. E. P. GREENBERG. Sch. of Agriculture and Life Sci., Cornell Univ., Ithaca, N.Y.

Basis of Directed Movement in *Myxococcus xanthus*. M. DWORKIN. Univ. of Minnesota, Minneapolis.

Divisional Group IV

Oncogenes

Convener: ROBERT A. WEINBERG, MIT, Cambridge, Mass.

Becton-Dickinson Traveling Lecture: Mechanism of Activation of Cellular Oncogenes ROBERT A. WEINBERG. MIT, Cambridge, Mass.

Transforming Genes of Lymphomas and Carcinomas. GEOFFREY M. COOPER. Sidney Farber Cancer Inst., Boston, Mass.

Viral Oncogenesis Without Viral Oncogenes. HAROLD E. VARMUS. Univ. of California, San Francisco.

Oncogenes Among Antibody Genes. PHILLIP LEDER. Harvard Med. Sch., Boston, Mass.

Divisional Group V

Current Status of Susceptibility Testing: Role of the National Committee for Clinical Laboratory Standards Consensus Mechanism

Convener: HARRY FRANKEL, Pfizer Pharmaceuticals, New York, N.Y.

Current National Committee for Clinical Laboratory Standards Activities. ARTHUR L. BARRY. Clin. Microbiol. Inst., Tualatin, Oreg.

Disk Diffusion Tests: Changes in Methods, Interpretation, and Quality Control. RONALD N. JONES and PETER C. FUCHS. Kaiser-Permanente Med. Care Program, Clackamas, and St. Vincent's Hosp. and Med. Ctr., Portland, Oreg.

Standardization of Mueller-Hinton Agar. HELEN M. POLLOCK and THOMAS L. GAVAN. Univ. of South Alabama Med. Ctr., Mobile, and The Cleveland Clin. Fndn., Cleveland, Ohio.

Dilution Test: Interpretive Standards and Quality Control. CLYDE THORNSBERRY. Ctrs. for Disease Control, Atlanta, Ga.

Anaerobes: Practical Methods for Susceptibility Testing. RONALD J. ZABRANSKY. Mt. Sinai Med. Ctr., Milwaukee, Wis.

Streptococci: Reevaluation of Interpretative Criteria for Susceptibility Testing. LAURI D. THRUPP. Univ. of California—Irvine, Orange.

SEMINARS

Biology of *Trypanosoma cruzi*

Convener: J. JOSEPH MARR, Univ. of Colorado Health Sci. Ctr., Denver

The Natural Heterogeneity of *T. cruzi*: Biological and Medical Implications. JAMES DVORAK. Lab of Parasitic Diseases, Nat. Inst. of Allergy and Infectious Diseases, Bethesda, Md.

Mechanisms of Action of Nifurtimox, Benznidazole, and Gentian Violet. ROBERTO DoCAMPO. Inst. of Biol. Chemistry, Faculty of Med., Univ. of Buenos Aires, Buenos Aires, Argentina.

Metabolism and Biological Activity of Pyrazolopyrimidines in *T. cruzi*. RANDOLPH L. BERENS. Div. of Infectious Diseases, Univ. of Colorado Health Sci. Ctr., Denver.

Suppression and Immunity in Chagas' Disease. RAYMOND E. KUHN. Wake Forest Univ., Winston-Salem, N.C.

Developmental Regulation of Neuraminidase in *T. cruzi* and Its Role in Infection. MIERCIO PEREIRA. Tufts-New England Med. Ctr. and Federal Univ. of Rio de Janeiro, Rio de Janeiro, Brazil.

Accreditation of Post-Baccalaureate Training Programs in Clinical and Public Health Microbiology

Conveners: RONALD J. ZABRANSKY, Mount Sinai Med. Ctr., Milwaukee, Wis., and HENRY C. FUNG, California State Univ., Long Beach

What Is Accreditation? Why in Microbiology? RONALD J. ZABRANSKY. Mount Sinai Med. Ctr., Milwaukee, Wis.

Role of Accredited Programs with Respect to Board Certification. LAURENCE McCARTHY. BBL Microbiol. Systems, Cockeysville, Md.

Role of Accreditation in the Laboratory Sciences. CAROL ELKINS. Nat. Accrediting Agency for Clin. Lab. Sci., Chicago, Ill.

Need for Accredited Programs at the Baccalaureate Level. RAYMOND BOBO. Univ. of Alabama Med. Ctr., Birmingham.

Existing Training Programs. HUGH GERLACH. St. Francis Hosp., Wichita, Kans.

Role of ASM in Accreditation. HENRY C. FUNG. California State Univ., Long Beach.

Bacterial Infections and Pathogenesis (B)

Genetic Control of Natural Resistance to Bacterial Infections

Convener: ALISON D. O'BRIEN, Uniformed Services, Univ. of the Health Sci., Bethesda, Md.

Mice as a Tool in Genetic Studies of Resistance to Infection. BENJAMIN TAYLOR. Jackson Lab., Bar Harbor, Maine.

Genetic Control of Innate Resistance to *Salmonella typhimurium* Infection in Mice. ALISON O'BRIEN. Uniformed Services Univ. of the Health Sci., Bethesda, Md.

Genetic Control of Murine Resistance to Mycobacterial Infections. EMIL SKAMENE. Montreal Gen. Hosp. Res. Inst., Montreal, Quebec, Canada.

Murine Listeriosis: Genetic Control of Innate and Acquired Immunity. PATRICIA KONGSHAVEN. Montreal Gen. Hosp. Res. Inst., Montreal, Quebec, Canada.

Genetic Control of Natural Resistance to *Rickettsia tsutsugamushi* in Mice. MICHAEL GROVES. U.S. Army Med. Unit, Kuala Lumpur, Malaysia.

Role of the Murine *Lps* Gene in Susceptibility to Gram-Negative Bacterial Infections. DAVID ROSENSTRÉICH. Albert Einstein Col. of Med., Bronx, N.Y.

Streptococcal and Staphylococcal Pyrogenic Exotoxins and Enterotoxins

Convener: PATRICK M. SCHLIEVERT, Univ. of Minnesota, Minneapolis

Hepatotoxic Properties of the Streptococcal Pyrogenic Exotoxins. TIMOTHY G. BLOOMSTER and DENNIS W. WATSON. Dept. of Microbiol., Univ. of Minnesota, Minneapolis.

Genetics of Group A Streptococcal Pyrogenic Exotoxins. LANE P. JOHNSON and PATRICK M. SCHLIEVERT. Dept. of Microbiol., Univ. of Minnesota, Minneapolis.

Immunobiology of Staphylococcal Pyrogenic Exotoxin Type C. PATRICK M. SCHLIEVERT. Dept. of Microbiol., Univ. of Minnesota, Minneapolis.

Stimulation of a Toxic Shock Syndrome Market Antigen Production. MERLIN S. BERGDOLL. Food Res. Inst., Univ. of Wisconsin, Madison.

Production of Enterotoxin F and Pyrogenic Exotoxin C by Toxic Shock Syndrome. PETER F. BONVENTRE. Dept. of Microbiol. and Molecular Genetics, Univ. of Cincinnati Med. Ctr., Cincinnati, Ohio.

Transport and Processing of Staphylococcal Enterotoxins. JOHN J. IANDOLO. Div. of Biol., Kansas State Univ., Manhattan.

Biologically Relevant Factors Induced by Endotoxin and Their Action at the Molecular Level

Convener: L. JOE BERRY, Univ. of Texas, Austin

Recently Identified Protein in Lymphocytes Involved in Their Mitogenic Response to Lipopolysaccharide. JERRY R. MCGHEE. Univ. of Alabama Med. Ctr., Birmingham.

Colony Stimulating Factor: The Influence of Lipopolysaccharide on the Generation of Macrophages in Bone Marrow. ROBERT N. MOORE. Univ. of Tennessee, Knoxville.

Lymphokines and Prostaglandins Produced by Macrophages in Response to Lipopolysaccharide. STEPHEN W. RUSSELL. Univ. of Florida, Gainesville.

Biochemical Mechanism(s) of Spleen Cell Triggering by Lipopolysaccharides—Critical Dependency Upon Lipopolysaccharide Subunit Composition. STANLEY VUKAJLOVICH and DAVID C. MORRISON. Emory Univ. Sch. of Med., Atlanta, Ga.

Glucocorticoid Antagonizing Factor: The Molecular Basis of Its Action. GREGORY M. SHACKLEFORD and L. JOE BERRY. Univ. of Texas, Austin.

***Pseudomonas aeruginosa* Infections**

Conveners: ALBERT T. McMANUS, U.S. Army Inst. of Surgical Res., San Antonio, Tex., and JEROLD C. SADOFF, Walter Reed Army Inst. of Res., Washington, D.C.

Pseudomonas aeruginosa in Acute and Chronic Immunosuppressed Patients. JAMES E. PENNINGTON. Brigham and Women's Hosp., Boston, Mass.

Pseudomonas aeruginosa as a Surgical Pathogen. BASIL A. PRUITT, JR. U.S. Army Inst. of Surgical Res., San Antonio, Tex.

Recent Additions to Chemotherapy of *Pseudomonas aeruginosa* Infections. GORDON M. TRENHOLME. Rush-Presbyterian-St. Luke's Medical Center, Chicago, Ill.

Overview of Incidence of *Pseudomonas aeruginosa* Infections. ALAN S. CROSS. Walter Reed Army Inst. of Res., Washington, D.C.

Haemophilus influenzae

Convener: DANIEL M. MUSER, Baylor Col. of Med., Houston, Tex.

Haemophilus influenzae Infection in Children: Type B Disease. SHELDON KAPLAN. Baylor Col. of Med., Houston, Tex.

Experimental Models, Capsules, and Virulence. E. RICHARD MOXON. Johns Hopkins Hosp., Baltimore, Md.

Outer Membrane Proteins and Lipopolysaccharides. ERIE HANSEN. Univ. of Texas Health Sci. Ctr. at Dallas, Dallas.

Immunity to *Haemophilus influenzae* Type B. JOHN ROBBINS and RACHEL SCHNEERSON. Bureau of Biologic Standards, FDA, Bethesda, Md.

Nontypable *Haemophilus influenzae*: Clinical Spectrum and Immunology. DANIEL MUSER. Baylor Col. of Med., Houston, Tex.

Antibiotic Resistance. ARNOLD SMITH. Univ. of Washington, Seattle.

General Medical Microbiology (D)

***Vibrionaceae*: Laboratory Diagnosis, Virulence Factors, and Clinical Significance**

Conveners: GERALD T. KEUSCH, Tufts Univ., Boston, Mass., and EDWARD J. BOTTONÉ, Mount Sinai Hosp., New York, N.Y.

Opening Remarks. GERALD T. KEUSCH. Tufts Univ., Boston, Mass.

Isolation and Cultural and Biochemical Aspects of *Vibrionaceae*. EDWARD J. BOTTONE. Mount Sinai Hosp., New York, N.Y.

Virulence Factors Associated with *Vibrios*. SAM W. JOSEPH. Univ. of Maryland, College Park.

Virulence Factors Associated with *Aeromonads*. J. MICHAEL JANDA. Mount Sinai Hosp., New York, N.Y.

Epidemiology, Clinical Manifestations, and Problems. MYRON M. LEVINE. Univ. of Maryland Sch. of Med., Baltimore.

Immunology (E)

Potential Applications for Immunomodulating Agents

Conveners: PHILLIP H. KLESIOUS, Agricultural Res. Service, Auburn, Ala., and RONALD D. SCHULTZ, Univ. of Wisconsin, Madison

Immunopotentiality by Thymosin. ALLAN L. GOLDSTEIN. George Washington Univ., Washington, D.C.

In Vitro and In Vivo Immunoregulatory Effects of Interferons. ERNEST C. BORDEN. Univ of Wisconsin—Madison, Madison.

Modulation of Antigen-Specific T-Cell Responses by Cytokines. DENIS R. BURGER. VA Med. Ctr., Portland, Oreg.

Leucogenenol as an Immunoregulating Hormone. FRED A. H. RICE and J. DENNIS McCURDY. American Univ. and FDA, Washington, D. C.

Use of Adjuvants in the Control of Viral Respiratory Diseases of Poultry. MAX BRUGH, JR. Agricultural Res. Service, USDA, Athens, Ga.

Immunoregulatory Properties of Fetal Bovine Serum. RONALD D. SCHULTZ. Univ of Wisconsin—Madison, Madison.

Effect of Microbial Products on the Immune System

Convener: JAMES A. CLAGETT, Univ. of Washington, Seattle

Polyclonal B-Cell Activation—Characteristics, Nature, and Genetics. JAMES A. CLAGETT. Univ. of Washington, Seattle.

Polyclonal B-Cell Activation as a Potential Pathogenetic Mechanism in Bacterial Infections of Humans. JOHN TEW. Med. Col. of Virginia, Virginia Commonwealth Univ., Richmond.

Immunological Role of Reticulocytosis in Inducing Protective Immunity Against Malaria. RICHARD GERSHON. Yale Univ. Sch. of Med., New Haven, Conn.

Murine Leishmaniasis: Subversion of Host Immunity. HOWARD RAFF. Univ. of Washington, Seattle.

Modulation of Neutrophil Function by Oral Microorganisms. THOMAS E. VAN DYKE. Emory Univ. Sch. of Dent., Atlanta, Ga.

Acute Malarial Infections Activate Diverse Immunosuppressive Mechanisms. WILLIAM WEIDANZ. Hahnemann Med. Col., Philadelphia, Pa.

Natural Killer Cells: Killing of Microorganisms

Convener: RAPHAEL KLEINMAN, Univ. of Georgia, Athens

Role of Natural Killer Cells in Virus Infections. RAYMOND M. WELSH, JR. Univ. of Massachusetts Med. Ctr., Worcester.

Killing of Bacteria by Lymphocytes from Normal Humans and Mice. MARY D. HUNT, JANICE A. LEWIS, and RAPHAEL KLEINMAN. Univ. of Georgia, Athens.

Natural Killer Cell Activity Against a Mycotic Pathogen. JUNEANN MURPHY. Univ. of Oklahoma, Norman.

Natural Killer Cell Activity Against the Protozoan Parasite *Trypanosoma cruzi*. FRANK M. HATCHER and RAYMOND E. KUHN. Meharry Med. Col., Nashville, Tenn., and Wake Forest Univ., Winston-Salem, N.C.

Impact of Monoclonal Antibodies on the Diagnosis and Prevention of Parasitic Diseases

Conveners: DIANE W. TAYLOR, Georgetown Univ., Washington, D.C., and JOAN RENER, Hazleton Labs, Vienna, Va.