92nd General Meeting
26-30 May 1992
New Orleans, Louisiana

PROGRAM

Grant No. DAMD17-92-J-2015

Approved for public release; distribution unlimited

American Society for Microbiology
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President-Elect: JOHN INGRAHAM, Department of Microbiology, University of California, Davis, CA 95616. Telephone: (916) 752-0273.

Secretary: CYNTHIA A. NEEDHAM, Lahey Clinical Medical Center, 41 Mall Road, Burlington, MA 01803. Telephone: (617) 273-8936.

Treasurer: SAMUEL KAPLAN, Department of Microbiology, University of Texas Medical School, P.O. Box 20708, Houston, TX 77225. Telephone: (713) 794-1742.

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NANCY K. HALL, Divisional Group V Representative. University of Oklahoma College of Medicine, Oklahoma City.

FUTURE MEETINGS

General Meeting of the Society

1993: Atlanta, Ga., 16–20 May. Abstract forms for the submission of papers will be distributed with the August 1992 issue of the ASM News.


Interscience Conference on Antimicrobial Agents and Chemotherapy


Upcoming ASM Conferences


**Title and Subtitle**
American Society for Microbiology: Annual Meeting

**Authors**
Toby K. Eisenstein

**Performing Organization**
Temple University
Department of Microbiology & Immunology
Philadelphia, PA 19140

**Sponsoring Organization**
U.S. Army Medical Research & Development Command
Fort Detrick
Frederick, Maryland 21702-5012

**Distribution Statement**
Approved for public release; distribution unlimited

**Abstract**
(Maximum 200 words)

**Subject Terms**

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**Report Date**
1992

**Report Type and Dates Covered**
Proceedings

**Funding Numbers**
DAMD17-92-J-2015
Program

of the

92nd General Meeting

of the

American Society for Microbiology

Tuesday through Saturday, 26–30 May 1992

New Orleans, La.
The American Society for Microbiology Gratefully Acknowledges the Support of Our 1992 SUSTAINING MEMBERS*

**PLATINUM**
- Abbott Laboratories
- Difco Laboratories
- Eli Lilly and Company
- Glaxo Inc.
- ICI Pharmaceuticals
- Institutes for Microbiology Research
- Lab-Line Instruments, Inc.
- Miles Inc., Pharmaceutical Division
- Ortho Pharmaceutical Corporation
- Pfizer Labs
- Pfizer Pharmaceuticals
- Roche Laboratories
- G.D. Searle and Company
- SmithKline Beecham Pharmaceuticals
- The Symedco Group

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- Genentech, Inc.
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- AB Biodisk
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- Belco Glass, Inc.
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- Costar Corporation
- Chr. Hansen’s Laboratory
- Denmark A/S
- Chrisope Technologies, Inc.
- Daiichi Pharmaceutical Corporation
- Dainippon Pharmaceutical Co. Ltd.
- Deltown Specialties
- Denley Instruments, Inc.
- Du Pont Medical Products - Diagnostics & Biotechnology Systems
- Eastman Kodak Company
- EM Diagnostic Systems
- Fora Scientific, Inc.
- Fotodyne Incorporated
- FTS Systems, Inc.
- Fujisawa Pharmaceutical Co., Ltd.
- GEN-PROBE Incorporated
- Hoechst-Roussel Pharmaceuticals Inc.
- ImClone Systems Inc.
- Ingold Electrodes, Inc.
- Innovative Diagnostic Systems, Inc.
- Integrated Diagnostics, Inc.
- Johnson & Johnson Corporate
- Kirkegaard & Perry Laboratories, Inc.
- Leica, Inc.
- 3M Medical-Surgical Division
- Infection Control Products
- Mead Johnson Nutritional Group
- Medical Technology Corporation
- Medical Wire and Equipment Company
- Meridian Diagnostics, Inc.
- Microbiology Reference Laboratory (MRL)
- Millipore Corporation
- Monsanto Company
- MSI/Micro Media Systems
- Nalge Company
- New Brunswick Scientific Company, Inc.
- Norwich Eaton Pharmaceuticals, Inc.
- Novo Nordisk Biotech, Inc.
- NuAire Inc.
- The NutraSweet Company
- Organon Teknika
- Ortho Diagnostic Systems, Inc.
- Pacific Biotech, Inc.
- Panlabs, Inc.
- Pfizer Inc., Central Research Division
- Pharmacia LKB Biotechnology, Inc.
- Pitman-Moore, Inc.
- Pro-Lab Diagnostics
- Radiometer America Inc / Sensititre Systems Group
- Rainin Instrument Company, Inc.
- Remel
- RevoScientific, Inc.
- Ribi Immunochem Research, Inc.
- Rupp & Bowman Company
- Sandoz Pharma Ltd.
- Sanofi Diagnostics Pasteur
- Savoy Diagnostics Ltd.
- Schering Corporation
- Schleicher & Schuell, Inc.
- Sheffield Products Division, Quest International
- Sigma Cell Culture Reagents
- SmithKline Diagnostics, Inc.
- Specialty Laboratories, Inc.
- Sulzer Biotech Systems
- Syva Company
- T Cell Diagnostics, Inc.
- Traders Protein
- Unipath Co. Oxoid Division
- The Upjohn Company
- USDA, APHIS, Biotechnology, Biologies, and Environmental Protection
- Vangard International Inc.
- The VirTis Company, Inc.
- Wampole Laboratories
- The William Byrd Press, Inc.
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*As of 3/92
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The 92nd General Meeting
of the
American Society for Microbiology

New Orleans, La.
26–30 May 1992

INVITATION

ASM will hold its 92nd General Meeting in New Orleans, La. ASM '92 is scheduled from 26 to 30 May 1992. You can enjoy the many fun activities that New Orleans has to offer while you learn of the latest advances in your field of scientific interest. Hotel rooms are in abundance, and all have easy access to the New Orleans Convention Center, the venue for this year's meeting, via ASM's continuous shuttle service. The General Meeting Program Committee has once again organized a comprehensive scientific program consisting of symposia, seminars, round tables, and slide and poster sessions, all planned with an eye to giving you the most up-to-date information possible. Technical and scientific exhibitors will display their latest products and services during the meeting.

GENERAL INFORMATION

Hotel Reservations

Hotel rooms will be available for all interested individuals who use the Telephone Housing Form (p. vii) and respond by the published deadline to the phone number noted. Only reservations placed through the housing bureau will receive convention rates.

Hotels will send confirmations for all reservations received by 20 April 1992. Reservations must be placed with the ASM Housing Bureau only. Rooms will be assigned at the convention rates on a space-available basis. All hotels require a deposit for the first night's occupancy by a date that will be noted on the reservation confirmation. If the deposit is not received by the hotel, the reservation will be cancelled.

If a reservation cannot be used, please make it available for reassignment by prompt cancellation. If any other changes must be made, please make them directly with the hotel after receipt of the reservation confirmation. Deposits are nonrefundable if cancellation is not received within 72 hours of your scheduled arrival.

Discounted Air Travel

Delta Airlines is offering the following special discount air fares to New Orleans for those attending the General Meeting:

- 40% off full coach fares on Delta's domestic system
- 35% off full coach fares from Canada
- 5% off promotional fares

To take advantage of these Delta discounts, call 1-800-241-6760 and refer to file number HO112. Reservations can be booked through Delta's Meeting Network seven days a week, from 8:00 a.m. to 8:00 p.m. (Eastern time).

American Airlines is pleased to offer discount airfare to ASM's 92nd General Meeting. Choose from the following discounts:

- 50% off full coach fares from the 48 contiguous states, Hawaii, Puerto Rico, and the Virgin Islands.
- 40% off full coach fare from Canada
- 5% off lowest promotional fare (rules and restrictions apply)

To receive one of the above discounts you must make your reservations through the American Airlines Meeting Desk (1-800-433-1790) and mention ASM's STAR file number S12Z2G5. You may book your reservations through the American Airlines Meeting Desk seven days a week, from 7 a.m. to 12 midnight (Central time).

Discounted Car Rental

Alamo Rent A Car has been appointed the official car rental company for the 92nd General Meeting of the American Society for Microbiology, 26–30 May 1992, in New Orleans, La. Special discounted rates have been extended one week prior to and one week following the meeting. UNLIMITED FREE MILEAGE. Be sure to inquire about SPECIAL LOW ASM RATES that provide even greater savings for rentals over the Memorial Day weekend only. Come early and take a drive through the swamp country or visit the plantations along River Road before the ASM meeting. To make reservations call Alamo at 1-800-732-3232 and request Group I.D. #247853 and Rate Code G1 if you want to take advantage of the Memorial Day weekend special. Rate Code G3 is for all other times and rates.
Parking Facilities at the New Orleans Convention Center

The New Orleans Convention Center has three surface lots and two garage levels for a total of 1,908 parking spaces. Fees are $4 per day in the garage or $3 per day for outdoor parking. An unlimited access pass for the duration of the meeting will be available for $33 and may be purchased at the exhibitor service center. Refer to the ASM Housing Form for parking fees at official ASM hotels.

Bus Service

Shuttle buses will provide frequent service between the participating hotels and the New Orleans Convention Center during the days of the General Meeting. Continuous shuttle service will be provided during the day. Buses will also operate during Tuesday registration hours and for the Opening Session at the Convention Center and Opening Reception at the New Orleans Aquarium of the Americas. To accommodate those attending the Wednesday, Thursday, and Friday late afternoon scientific sessions, the last buses will depart from the Convention Center 15 minutes after the close of the last sessions.

Shuttle service is provided only to registrants who have reserved hotel rooms via the ASM Housing Bureau. Exact bus schedules will be posted in the lobbies of all ASM hotels and the New Orleans Convention Center.

Bus service is available for those who are disabled. Please contact ASM Headquarters for further information.

Advance Registration

Preregistrants will receive confirmation by mail. Badges will be mailed beginning 20 April 1992.

Note that credit card registration is available for advance as well as on-site registration.

U.S. members and nonmembers who preregister and pay $25 will receive the Abstracts of the General Meeting of the American Society for Microbiology (if ordered) by mail. Abstracts ordered by international preregistrants will be available for pickup at the Preregistered counter in the New Orleans Convention Center; please present your meeting registration confirmation in order to obtain your abstracts.

Additional registration forms are available from the ASM Meetings Department, 1325 Massachusetts Avenue, N.W., Washington, DC 20005 [ASM Meetings Hotline (202) 737-0377].

Registration

Registration and associated activities will be in the New Orleans Convention Center. Registration hours will be as follows:

Monday, 25 May
(Exhibitors only) 8:00 A.M. - 5:00 P.M.
Tuesday, 26 May 8:00 A.M. - 8:00 P.M.
Wednesday, 27 May 7:00 A.M. - 5:00 P.M.
Thursday, 28 May 8:00 A.M. - 5:00 P.M.
Friday, 29 May 8:00 A.M. - 5:00 P.M.
Saturday, 30 May 8:00 A.M. - 2:00 P.M.

Only members who have paid 1992 ASM dues can register at member rates. Members who register at the time of the meeting must present a 1992 Membership Card or have their status verified at the Membership Desk. Students must also certify their student status by presenting a 1992 Student Membership Card or other certification of student status at the Membership Desk.

Preregistration and on-site registration fees are listed below and on the registration form. Those who preregister are entitled to a discount.

<table>
<thead>
<tr>
<th>Before 20 April</th>
<th>After 20 April</th>
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<tbody>
<tr>
<td>Member*</td>
<td>$ 85</td>
</tr>
<tr>
<td>Nonmember*</td>
<td>$135</td>
</tr>
<tr>
<td>Emeritus or honorary member*</td>
<td>$ 35</td>
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<tr>
<td>Student (member)*</td>
<td>$ 35</td>
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<tr>
<td>Student (nonmember)*</td>
<td>$ 50</td>
</tr>
<tr>
<td>Spouse (nonscientist)</td>
<td>$ 20</td>
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<td>Abstracts of 1992 General Mtg....</td>
<td>$ 25</td>
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<tr>
<td>CME Credit Form</td>
<td>$ 10</td>
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*Includes a copy of the Program.

Personal checks and credit cards will be accepted only for the exact amount of registration fees.

Admission to sessions and exhibits will be restricted to those displaying the official registration badge.

Location of Scientific Sessions

All of the scientific sessions will be located in the New Orleans Convention Center. For exact session locations, consult the session listings in the Program and the floor plans inside the back cover of the Program. A section of Exhibit Hall C has been set aside for poster sessions.

ASM Programs and Services

In the lobby of the New Orleans Convention Center, ASM headquarters staff will operate booths where meeting attendees may find information about ASM membership, education and professional recognition programs, and the American Academy of Microbiology. The latest ASM publications will be available for purchase as well. All ASM booths will be open during published registration hours.
**TELEPHONE HOUSING FORM—DO NOT MAIL**

92nd General Meeting, New Orleans, La.
26–30 May 1992

1-800 HOUSING INSTRUCTIONS

DEADLINE: U.S. attendees, 20 April 1992; non-U.S. attendees, 13 April 1992

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**United States (including Alaska and Hawaii)**
(800) 345-1187

**Metropolitan New Orleans Area**
(504) 566-5005

**Fax (non-U.S. registrants only)**
(504) 522-6123

---

Prior to calling the Housing Bureau for reservations please read all housing information carefully and complete the form below. It may take 3 to 4 minutes to complete your call, but less if you have all of the following information ready when you place your reservation. The Housing Bureau is open Monday to Friday from 7:00 a.m. to 7:00 p.m. (central standard time).

All hotels require a deposit equal to one night's room rate (including tax). Deposits can be made by credit card or check. If you are making your deposit by check, send the deposit directly to the hotel upon receipt of the hotel's acknowledgment. For groups of 25 or more, first and last night's room deposits will be required.

---

**Accommodation Requested:**

Hotel Choices: 1st Choice

2nd Choice

3rd Choice

☐ Room must be suitable for handicapped

Please note those sharing a room.

Name

Arrival Date/Hour

Departure Date

---

For reservation deposits via a major credit card, provide the following information:

☐ Single (1 person, 1 bed)

☐ Double (2 persons, 1 bed)

☐ Twin (2 persons, 2 beds)

☐ Suite

SEND CONFIRMATION TO:

Name ____________________________

Company __________________________

Address __________________________

City, state, ZIP code __________________________

Telephone no. __________________________

Fax no. __________________________

---

An acknowledgment will be sent to you by the Housing Bureau, and confirmation will be sent to you by your assigned hotel. Please read your confirmation immediately and carefully for instructions regarding deposit requirements and check-in.

**ALL CHANGES OR CANCELLATIONS SHOULD BE MADE DIRECTLY WITH THE HOUSING BUREAU ([504] 566-5005]). CANCELLATIONS MADE LESS THAN 72 HOURS BEFORE ARRIVAL SHOULD BE MADE DIRECTLY WITH THE HOTEL TO ENSURE PROPER CREDIT.**

Note: To take advantage of ASM services and amenities such as ASM Shuttle Bus Service, Daily ASM Conference Journal, and Direct Line Service, registrants must use the ASM Housing Bureau and stay at an official ASM hotel.
## ASM Official Hotels, New Orleans

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<tr>
<th>Code/hotel</th>
<th>Rate ($)</th>
<th>Room service</th>
<th>No. of restaurants</th>
<th>No. of bars/lounges</th>
<th>Pool</th>
<th>Health club</th>
<th>Parking ($ per day)</th>
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<td>79</td>
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<td>7. Hyatt Regency</td>
<td>Single</td>
<td>99$</td>
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*All hotel room rates are subject to 11% tax plus $3 per room, per night occupancy tax. Taxes are subject to change without notice.*

*Exercise facilities for guest use nearby.*

*River'side/executive, $110.*

*Government rate, $72.*
1992 ASM Official Hotels

1. CLARION ($88 single/$88 double): This recently renovated historic landmark is just minutes from the Louisiana Superdome. The hotel provides a free shuttle to the New Orleans Centre Shopping Mall, the Riverwalk, and the Aquarium of the Americas. The Clarion offers affordable elegance, fine dining and the ambiance of New Orleans. (504) 522-4500.

2. DOUBLETREE ($98 single/$98 double): Located on Canal Street overlooking the Mississippi River and within walking distance of the Convention Center. the Doubletree captures a country French atmosphere. The hotel features an outdoor pool and fitness center, as well as fine New Orleans style dining facilities. (504) 581-1300.

3. FAIRMONT ($95 single/$95 double): Conveniently located near the French Quarter and the ASM headquarters hotel, in the center of the Shopping District. This elegant hotel is among the oldest grand hotels in the country and is known as the "grande dame" of New Orleans. Enjoy fine dining and excellent recreation facilities, including rooftop tennis courts and outdoor swimming pool.

4. HILTON ($100 single/$100 double/$110 riverside/executive): Adjacent to the Convention Center and connected to the Riverwalk Marketplace on the Mississippi River, this unique luxury hotel features six award-winning restaurants, four lounges, and one of New Orleans' premiere health clubs with indoor tennis, racquetball, and basketball. (504) 561-0500.
5. HOLIDAY INN CROWNE PLAZA ($95 single/$95 double): Located in the heart of the Central Business District, just three blocks from the French Quarter, Convention Center, and Riverwalk, this hotel features two restaurants, nightly entertainment, an outdoor pool, and exercise facilities. (504) 525-9444

6. HOLIDAY INN DOWNTOWN ($79 single/$89 double): Located near the Louisiana Superdome and the New Orleans Centre Shopping Mall, this hotel features a newly opened executive floor with private club room and extra amenities, as well as a heated pool, hydro spa, restaurant, and lounge. (504) 581-1600.

7. HYATT REGENCY ($99 single/$99 double; government rate, $72 single/$72 double): This luxury hotel features a 25-story atrium courtyard and is attached to the Louisiana Superdome and the New Orleans Centre Mall. The hotel offers free shuttles to the French Quarter, the Riverwalk, and the Aquarium of the Americas. (504) 561-1234.

8. INTER-CONTINENTAL ($100 single/$100 double): This four-star international style luxury hotel is only a 5- to 10-minute walk from the French Quarter and the Convention Center. Located on St. Charles Avenue, the hotel is at the center of New Orleans' business, shopping, and entertainment districts. (504) 525-5566.

9. ITT SHERATON NEW ORLEANS ($110 single/$120 double): This elegant ASM headquarters hotel is located on Canal Street overlooking the Mississippi River and the French Quarter and just minutes from the Convention Center. The Sheraton offers three restaurants and nightly entertainment, as well as premiere health club facilities and a rooftop pool. (504) 525-2500.
10. LE MERIDIEN ($100 single/$100 double): This elegant French style hotel is located on Canal Street with easy access to the French Quarter and the River attractions. This four star, four diamond deluxe hotel features the Louis Armstrong Foundation Jazz Club, a full service health club, an outdoor pool, and a business center. (504) 525-6500.

11. LE PAVILLON ($89 single/$89 double): This old world style hotel from the age of grand hotels is just steps away from the city's nightlife and convenient to the business and cultural districts. The hotel features 220 exquisitely appointed guest rooms, a rooftop pool, and nearby fitness and spa facilities. (504) 581-3111.

12. MARRIOTT ($105 single/$105 double): Located on the corner of Canal and Charles Streets in the historic French Quarter and only minutes from the Convention Center. The Marriott offers contemporary luxury in the heart of the city and features several restaurants and lounges, live entertainment, a health club, and a swimming pool. (504) 581-1000.

13. MONTELEONE ($98 single/$98 double): This New Orleans original is located in the heart of the French Quarter, only minutes from the famous Bourbon Street. The Monteleone presents the ambiance of old world Europe and is the largest full service hotel in the Quarter. (504) 523-3341.
14. RADISSON SUITES ($110 single/$110 double): The Radisson is located in the warehouse district, only two blocks from the Convention Center and the Riverwalk. This all-suite hotel offers beautifully appointed rooms with living areas, wet bars, refrigerators, and spacious bedrooms as well as complimentary breakfast buffet and cocktail receptions daily. (504) 525-1993.

15. OMNI ROYAL ORLEANS ($99 single/$99 double): Considered to be the most luxurious hotel in the French Quarter, the Omni Royal Orleans is just one block from the famous Bourbon Street. The hotel offers the elegance and grace of traditional French-American style and features an award-winning restaurant, full service exercise facilities, and a rooftop pool and café with a spectacular view of the Mississippi River. (504) 529-5333.

16. ROYAL SONESTA ($100 single/$100 double): Located in the French Quarter, the Royal Sonesta creates an atmosphere of European elegance mixed with Southern charm. Renowned for its iron-laced balconies overlooking Bourbon Street, it encompasses almost an entire city block surrounding a tropical courtyard and pool. (504) 586-0300.

17. WESTIN ($110 single/$110 double): This elegant contemporary deluxe hotel is adjacent to the Mississippi River and the Aquarium of the Americas. The Westin is connected to the Canal Place Shopping Centre, which includes such exclusive shops as Saks Fifth Avenue, Gucci, and Ralph Lauren. All rooms feature magnificent views, marble baths, minibars, and fine European appointments. (504) 566-7006.

18. WINDSOR COURT ($110 room/$125 junior suite/$135 full suite): Recently renovated, the Windsor is an elegant English style hotel located just blocks from the Convention Center and the French Quarter in the Central Business District. The Windsor is the first and only hotel in New Orleans to receive a AAA five diamond rating. The hotel offers unsurpassed luxury accommodations and services. (504) 523-6000.
Information Center

The Information Center will be located in the lobby of the New Orleans Convention Center and will include the following services:

List of Registrants
Program Changes Board
Social Events Board

Future Meetings Board
Message Center
General Information Desk

The Program Changes and Additions Board and the Special Social Events Board are intended to provide last-minute and up-to-date changes to the scientific and social programs. Notices must be approved by Melissa Sordyl, Director, Meetings.

Mail and Messages

All mail and communications to meeting registrants should be directed to the individual at the hotel where he or she is registered. Attendee locator lists will be available in the Registration area of the Convention Center beginning Wednesday, May 27. Paging service is not available at the Convention Center.

Media Facilities

The Press Room will be located in Exhibit Hall C of the New Orleans Convention Center, under the direction of Barbara P. Hyde, Manager, Public Relations, and Dr. Penelope Hitchcock of the ASM Public Relations Committee, assisted by James Sliwa of the Public Affairs/Public Relations Office. Hours will be from 9:00 A.M. to 5:00 P.M. on Tuesday, May 26, and 8:00 A.M. to 5:00 P.M. Wednesday through Saturday. There will be daily formal press conferences. Releases on selected papers will be made available to media representatives. Interviews with authors of papers will be arranged. The Press Room phone number will be (504) 582-3124.

Questions concerning advance arrangements should be addressed to Mr. Sliwa at ASM Headquarters, 1325 Massachusetts Avenue, N.W., Washington, DC 20005-4171.

Business Service Center

ASM will provide a business service center which will be located in the rear of Exhibit Hall A next to the Andrews-Bartlett Servicenter. The business center will be open during exhibit hours.

International Lounge

The International Lounge will be located in Room B2 of the Convention Center. Multilingual personnel will be on hand, and international periodicals will be available. The lounge will be open during published registration hours. Light refreshments will be served.

Placement Service

The ASM Placement Service will have its office in Exhibit Hall C at the New Orleans Convention Center during the following hours:

Tuesday, May 26...................... 8:00 A.M.- 6:00 P.M.
Wednesday, May 27................... 7:00 A.M.- 5:00 P.M.
Thursday and Friday.
May 28-29......................... 8:00 A.M.- 5:00 P.M.
Saturday, May 30...................... 8:00 A.M.-12:00 P.M.

Everyone using the on-site recruitment facilities must be registered for the meeting. Placement Service activities will be under the direction of the Placement Committee and Headquarters staff.

Candidates

Microbiologists seeking employment are urged to preregister with the Placement Service at the Washington, D.C., Headquarters prior to the Friday, May 15 deadline. This will guarantee that their one-page Personal Data Forms are available to employers on the first day of the meeting and will make ASM members eligible for the preregistration discount. The Personal Data Form required for registration is published in the February, April, August, and December issues of the ASM News and on p. xxxi-xxxi of this Program.

Personal Data Forms MUST BE TYPEWRITTEN. Handwritten forms will not be accepted. NO TYPING FACILITIES WILL BE AVAILABLE ON SITE.

Registration for one year in the Placement Service is $40 for ASM members and $100 for nonmembers. An additional $10 processing charge will be assessed to ASM members who register on site at the meeting. Proof of membership is required to obtain the member rate. Personal Data Forms will be accepted throughout the meeting. HOWEVER, only those forms received before NOON on Wednesday, May 27, will be filed in the registry books made available to prospective employers.

Employers

Employers can post available positions at the meeting using special forms provided by the Placement Service. A coupon for ordering the forms appeared in the January 1992 issue of the ASM News on p. 56, or you may contact the Placement Service directly at (202) 737-3600, ext. 284. The fee of $125 per posting includes the following services: access to all of the resumes; a message service to set up appointments with prospects; and use of the interviewing facilities.

Job postings received at the Washington, D.C., Headquarters prior to the Friday, May 15 deadline will be posted on the first day of the meeting. However, job postings will be accepted and posted throughout the meeting.

ASM Sustaining Members who do not post a position may use all of the onsite Placement facilities at no cost as a benefit of ASM corporate membership.
**Previewing Slides**

Speakers may preview slides in one of the Speaker Ready Rooms, located in Rooms 11 and 84 of the New Orleans Convention Center. The rooms will be open during registration hours.

**Food Service**

Food service areas in the Convention Center will be located in Exhibit Hall A, and the Atrium Restaurant/Lounge is located in the registration/lobby area.

**Coat and Bag Check Service**

ASM will provide bag and coat check service at the Convention Center SATURDAY ONLY. It will be located in the registration area of the Convention Center.

**First Aid**

The New Orleans Convention center operates a First Aid Service. It is located in Lobby C and Lobby F of the Convention Center. In case of emergency, pick up a house telephone and dial 0. The emergency telephone number in the ASM headquarters office at the convention center will be (504) 582-3120.

**Badges Recycling**

In an attempt to be environmentally responsible, ASM continues its policy to recycle badge cases. Recycle bins will be located throughout the Convention Center. At the close of the meeting, please deposit the badge cases in these bins.

**Important Telephone Numbers**

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<thead>
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<tr>
<td>ASM Headquarters Office</td>
<td>(504) 582-3121</td>
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<td>ASM Emergency number</td>
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<tr>
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<tr>
<td>Child Care Center (located at the Radisson)</td>
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**Smoking**

The General Meeting Program Committee has recognized the negative health implications of smoking. Its policy, therefore, is that there will be no smoking in the session rooms, exhibit hall, or poster session area.

**ACTIVITIES**

**Opening Session**

The 92nd General Meeting will open officially at 6 p.m. on Tuesday, 26 May, when the Opening Session convenes in Ballroom I of the New Orleans Convention Center. Opening ceremonies include the announcement of the Eli Lilly, Carski Foundation, Becton Dickinson, Sonnenwirth, Cetus, Abbott, and USFCC/J. Roger Porter Awards and the ASM Award in Applied and Environmental Microbiology. The Annual ASM Lecture, supported by the Office of Naval Research, is entitled “Ribosomes and Volcanoes: Molecular Microbial Ecology and Submarine Hydrothermal Vents” and will be given by Norman R. Pace, University of Indiana, Bloomington.

**Opening Reception**

The Opening Reception, immediately following the Opening Session, will be held at the Aquarium of the Americas. This year’s reception is being supported by a grant from Roerig. ASM will provide shuttle service from the Convention Center to the Aquarium. Return service to hotels will be available after the reception.

**President’s Address**

Richard L. Crowell, Hahnemann University, Philadelphia, Pa., will present the President’s Address, “Viruses in Receptorland,” during Session 82, 4:45 P.M. on Wednesday, 27 May, in Ballroom IA of the Convention Center. The President’s Bowl will be presented.

**Eli Lilly Award Address**

The 1992 recipient of the Eli Lilly Award in Microbiology and Immunology, Vincent R. Racaniello, Columbia University College of Physicians and Surgeons, New York, N.Y., will present the Eli Lilly Award address during Session 167, 4:45 P.M. on Thursday, 28 May, in Ballroom IA of the New Orleans Convention Center. His lecture topic is “Virus-Receptor Interaction in Poliovirus Entry and Pathogenesis.”

**President’s Forum**

On Thursday, 28 May, all registrants are invited to attend the President’s Forum and Reception, honoring
ASM President Richard L. Crowell. The evening will begin with the President’s Forum, held in the Grand Ballroom of the Sheraton New Orleans at 8:00 P.M. The Forum will be followed at 9:00 P.M. by the gala President’s Reception in the Pontchartrain Ballroom of the Sheraton.

In 1965, the New Brunswick Scientific Company instituted sponsorship of a lectureship series in conjunction with the ASM General Meeting. Lectures in this series have emphasized interdisciplinary, controversial, or philosophical aspects of subjects of general scientific interest. In 1992, the New Brunswick Scientific Company continues to support ASM through sponsorship of the President’s Forum. The participants receive an honorarium and travel expenses. Selection of the speakers is made by the President of ASM, Richard Crowell, who will moderate the forum.

This year’s topic will be:

“Biological Warfare: an Old Problem and Future Concerns”

with speakers:

David L. Huxsoll
Louisiana State University, Baton Rouge

Matthew S. Meselson
Harvard University, Cambridge, Mass.

Nancy Connell
Albert Einstein College of Medicine, Bronx, N.Y.

Sonnenwirth Memorial Lecture


Becton Dickinson Award/Division C Lecture

The award address of the 1992 Becton Dickinson & Company Award in Clinical Microbiology will be presented by James H. Jorgensen, University of Texas Health Sciences Center, San Antonio. The lecture, “Evolving Technology and Changing Needs in Clinical Microbiology,” will be presented at Session 85, Thursday, 28 May, at 8:30 A.M. in Ballroom IB of the Convention Center.

Cetus Corporation Biotechnology Research Award

The award address of the Cetus Corporation Biotechnology Research Award will be presented by Kary B. Mullis, LaJolla, Calif. The lecture, “Polymerase Chain Reaction,” will be presented at Session 252A, Friday, 29 May, at 4:45 P.M. in Room 27 of the Convention Center.

Carski Foundation Distinguished Teaching Award

The Carski Foundation Distinguished Teaching Award will be presented to Jerald C. Ensign, University of Wisconsin, Madison. The award lecture, “A Place for Bacterial Diversity in the Microbiology Curriculum: a Plea To Save an Endangered Species,” will be presented during Session 294, Saturday, 30 May, at 1:30 P.M. in Room 13 of the Convention Center.
The recipient of the Scherago-Rubin Award, Elena Prevost-Smith, Medical University of South Carolina, Charleston, will present her paper, "The Value of Extended Agitation Incubation and Subculturing BACTEC NR 660 Resin Blood Culture Bottles for Clinical Yeast Isolates," during Session 119, Thursday, 28 May, at 10:30 A.M. in Exhibit Hall C.

Raymond W. Sarber Fellowship Awards

The Raymond W. Sarber Fellowship Awardees are listed below and will present their papers as follows:

- Christine C. Gincocchio, SUNY at Stony Brook, Stony Brook, N.Y. "Identification and Molecular Characterization of a Salmonella typhimurium Gene Involved in Triggering the Internalization of Salmonellae into Cultured Epithelial Cells." Session 113, Thursday, 28 May, 9:00 A.M.
- Hon-Ming Lam, University of Texas Medical School, Houston. "Unusual Pleiotropic Effects of Insertion Mutations in ptxH of Escherichia coli K-12." Session 293, Saturday, 30 May, 1:30 P.M.
- Ping Wang, Leigh University, Bethlehem, Pa. "Analysis of Monohydroxyl Biphenyl Production from Dibenzo-thiophene by New Desulfurizing Bacteria." Session 33, Wednesday, 27 May, 10:30 A.M.
- Ling-Fang Tseng, North Shore University Hospital, Manhasset, N.Y. "Rapid and Simple Antiviral Sensitivity Testing of Cytomegalovirus." Session 236, Friday, 29 May, 1:30 P.M.

Vector Laboratories Young Investigator Travel Awards

The Vector Laboratories Young Investigator Travel Awardees are listed below and will present their papers as follows:

- Sukumar Pal, University of California, Irvine. "Characterization of Neutralizable Epitope Located in the Variable Domain 3 of the Major Outer Membrane Protein of Chlamydia trachomatis." Session 122, Thursday, 28 May, 10:30 A.M.
- David Golden, U.S. Food and Drug Administration, Washington, D.C. "Influence of Solutes, Potassium Sorbate, and Incubation Temperature on Lipid Composition of Zygosaccharomyces rouxii." Session 249, Friday, 29 May, 3:00 P.M.
- Heidi Kaplan, University of Texas Health Science Center, Houston. "Regulation of a Signal-Dependent Gene Expressed Early during Myxococcus xanthus Development." Session 192, Friday, 30 May, 9:00 A.M.

Kunal Saha, M.D. Anderson Cancer Center, Smithville, Tex. "Protective Role of CD8+ T Cells In Vivo against Murine Retrovirus-Induced Neurological Disorders and Immunodeficiency Is Enhanced by the Presence of CD4+ Cells." Session 57, Wednesday, 28 May, 1:30 P.M.

Luncheon for Presidents and Secretaries of Local Branches

The South Central Branch and the Local Committee on Arrangements will host a luncheon for presidents and secretaries of local ASM branches and the officers of ASM on Wednesday, 27 May, at 11:30 A.M. in the Aurora Room of the Sheraton New Orleans. Shuttle transportation will be provided from the Convention Center.

New Member Orientation

An orientation reception will be held for ALL new members on Tuesday, 26 May, from 4:30 to 5:30 P.M. in Rhythms, at the Sheraton New Orleans. Refreshments will be served. All new members are urged to attend and learn about the programs and services ASM has to offer. ASM Volunteers and staff from all areas will be present to answer your questions. New student members are especially welcome and encouraged to attend. Shuttle service will be provided from the Convention Center to the Sheraton.

Branch Officers Forum

A forum for Branch Officers will be held on Wednesday, 27 May, at 9:00 A.M. in the St. Charles B Room of the Sheraton New Orleans. The primary objective of this year's Branch Forum is to foster interaction between branches. All incoming and present branch officers are invited to participate in a new format this year. Branches will form "break-out" sessions according to preselected criteria (i.e., branch geographic size, membership, etc.) to discuss common issues and concerns. Topics may include "How To Foster More Activity in Those 'Hard-To-Reach' Locations," "Strategies Branches Use To Improve Member Participation," and more if time permits. The break-out sessions will be preceded by a brief presentation by PSAB on "Legislation at the State Level." The more participants, the more informative this forum will be.

Division Officers Forum

A meeting for all incoming and present Division Officers will be held on Thursday, 28 May, at 7:00 A.M. in the Aurora Room of the Sheraton New Orleans. Discussion
will focus upon (i) the responsibilities of the Division Officers, (ii) the role of Divisions as it relates to the ASM General Meeting Program Committee and the Committee on Divisions, (iii) ASM's strategic plan and objectives relating to Divisions, and (iv) Division fundraising. ASM hopes that all Division Chairs, Chairs-elect, Councilors, Alternate Councilors, and Divisional Group Representatives will attend.

**General Membership Meeting of ASM**

The General Membership Meeting of ASM will be held from 12:00 P.M. to 1:30 P.M. on Thursday, 28 May, in Room 5 of the Convention Center. All Society members are urged to attend and take part in the discussion of Society activities and business. The officers and board chairs of the Society will be available to discuss ASM activities and answer questions. A light lunch will be available.

**Local Committee on Arrangements**

The Local Committee on Arrangements will maintain an office throughout the meeting. The office will be located in the registration area of the Convention Center next to Exhibit Hall B. The telephone number will be 582-3128.

**Local Committee on Arrangements—Executive Committee**

Chairman ...................... GERALD DOMINGUE
Vice Chairman ............... RONALD LUFTIG
Secretary ....................... LUCIA CARDENAS
Treasurer ....................... KENNETH L. BOST
Golf and Tennis Day .......... LISET HUMAN

**Tours**

All attendees and their families are invited to enjoy a variety of entertaining social, recreational, and dining activities in and around New Orleans. Please see the Guest Information brochure for details.

**Golf and Tennis Day**

For information and preregistration for ASM Golf and Tennis Day, please contact Liset Human at Tulane University School of Medicine, (504) 588-5801.

**Guest Hospitality Center**

The Guest Hospitality Center will be located in the Radisson Suites Hotel. Board games, newspapers, and other publications will be available for attendees to use with their families. The Radisson Suites Hotel is one block from the Convention Center.

**Child Care Center**

The Child Care Center will be located in the Diamond Room of the Radisson Suites Hotel, located one block from the Convention Center. Please see the Guest Information brochure for more details.

**EXHIBITS**

**Technical Exhibits**

Technical exhibits will be located in the New Orleans Convention Center Exhibit Halls A and B. Representatives of exhibiting companies will display their products, give demonstrations, and discuss applications of their products. Each person attending the General Meeting is urged to visit the exhibit area and become familiar with the latest in apparatus, supplies, and books.

The exhibits will be open from 8:30 A.M. to 5:00 P.M. on Wednesday, Thursday, and Friday; consult the exhibits program available at the meeting for booth numbers of exhibiting companies. The following companies have reserved exhibit space as of February 10 (asterisk indicates sustaining member):

*Abbott Laboratories
Academia Book Exhibits
Academic Press, Inc.
*Adams Scientific, Inc.
Ahlstrom Filtration, Inc.
Alamar Biosciences, Inc.
Alexon, Inc.
Ambion, Inc.
Ambis, Inc.
Amerex Instruments, Inc.
American Qualex Immunology & Molecular Biology Reagent Co.
American Type Culture Collection (ATCC)
Amicon Division, W.R. Grace & Co., Conn.
Analytab Products
Analytical Luminescence Laboratory
*Applied Biosystems, Inc.
Applied Imaging Corporation
Association of State & Territorial Public Health Laboratory Directors
Associates of Cape Cod, Inc.
Astra Pharmaceutical Products, Inc.
AutoMed Awareness Technology, Inc.
*AB Biodisk, North America, Inc.
ADI Diagnostics Inc.
ALPHA-TEC Systems, Inc.
AMRESCO Inc.
*AMSCO/American Sterilizer Company
*Anaerobe Systems
B. Braun Biotech, Inc.
Barnstead/Thermolyne Corporation
*Baxter Diagnostics, Microscan, Bartels, and Scientific Products
*Becton Dickinson and Company
Benjamin/Cummings Publishing Company
The Binding Site
Bio-Medical Products Corp.
Bio-Synthesis Inc.
Bio-Tek Instruments Inc.
Bioengineering AG
Biokit USA Inc.
*Biolog, Inc.
Biomedical Products
Bionique Testing Laboratories, Inc.
Biotest Diagnostics Corporation
BioLab Associates
*BioMerieux Vitek, Inc.
BioStar Medical Products, Inc.
BioTechniques/Eaton Publishing
*BioWhittaker, Inc. (formerly Whittaker Bioproducts, Inc.)
Blackwell Scientific Publications, Inc.
Boehringer Mannheim
Boeing Defense & Space Group
Boekel Industries, Inc.
*Brinkman Instruments, Inc.
Burroughs Wellcome Co.
*The Baker Company
Bel-Art Products
*Bellco Glass, Inc.
BINAX, Inc.
Bio-Rad Laboratories
C-GEM Biomedical
Carlson Scientific Inc.
*Carr-Scarborough Microbiologicals, Inc.
Cell Press
Chapman and Hall
Chemicon International, Inc.
*Chrisope Technologies, Inc.
Cold Spring Harbor Laboratory Press
Columbus Instruments International
Corning Incorporated
Council for Responsible Genetics, Inc.
Coy Laboratory Products
Cambridge Biotech Corporation
CHEMAP, Inc.
*Costar Corporation
CRC Press, Inc.
*Deltown Specialties
*Denley Instruments, Inc.
Diagnostic Products Corporation
*Difco Laboratories
Digene Diagnostics, Inc.
Drummond Scientific Company
*Du Pont
Dako Corporation
DBM Scientific Corp.
DIamedix Corporation
DNASTAR, Inc.
Dynochrom Inc.
*Eastman Kodak Company
Eberbach Corporation
Elkay Labsystems
Elsevier Science Publishing Co., Inc.
Epic Systems Corporation
Evergreen Scientific
ECOMED, Inc.
EG&G Berthold
*EM Diagnostic Systems
Encyclopaedia Britannica North America
Environetics, Inc. (formerly Access)
EY Laboratories, Inc.
Fisher Scientific
*Forma Scientific, Inc.
FMC BioProducts
*Fotodyne Incorporated
FTS Systems, Inc.
Gelman Sciences
Genemed Biotechnologies, Inc.
General Valve Corporation
*Glaxo Pharmaceuticals, Div. of Glaxo Inc.
Granbio, Inc.
Gull Laboratories, Inc.
*Gen-Probe Incorporated
Hach Company
Harris Manufacturing
Hitachi Software Engineering America, Ltd.
*Hoechst-Roussel Pharmaceuticals, Inc.
Hofer Scientific Instruments
Hotpack Corp.
HyClone Laboratories, Inc.
Helix Diagnostics, Inc.
Immuno Concepts, Inc.
Immuno-Mycologics, Inc.
Institute for Scientific Information
*Institutes for Microbiology Research
*Integrated Diagnostic, Inc.
IntelliGenetics, Inc.
Intergen Company
International Biotechnologies, Inc.
International BioProducts Inc.
International Mycoplasma
International PBI, S.P.A.
IAF BioChem International Inc.
IGEN, Inc.
*Innovative Diagnostic Systems, Inc.
INOVA Diagnostics, Inc.
J.B. Lippincott Company
J.T. Baker Inc.
Jackson ImmunoResearch Laboratories, Inc.
Jandel Scientific
Sulzer Biotech Systems
Sunquest Information Systems, Inc.
Syva Company
SAFESKIN
SAMCO
SCIENCE Magazine
Scientific Device Laboratory, Inc.
Shamrock Scientific Specialty, Inc.
S.I.T Labinstruments
Sonics & Materials, Inc.
Stovall Life Science, Inc.
*T Cell Diagnostics, Inc.
Takara Biochemical Inc.
Technology for Medicine, Inc.
Tekmar Company
Tomtec, Inc.
Tomy Tech USA, Inc.
Trend Scientific, Inc.
Tropix, Inc.
TAGO, Inc.
TECAN
U.S. Federation for Culture Collections
United States Biochemical Corporation
*Unipath-Oxoid Division
USA Scientific Plastics, Inc.
Vestec Corporation
Viromed Laboratories, Inc.
The Virtis Company
*Vangard International, Inc.
VIRION (U.S.), Inc.
W.B. Saunders Company
W.H. Freeman and Company
*Wampole Laboratories
Wheaton
Wescor, Inc.
*Williams & Wilkins
Worthington Biochemical Corporation
Zymed Laboratories, Inc.
*3M Health Information Systems

Scientific Exhibits
The scientific exhibits will be located adjacent to the technical exhibits in the Exhibit Hall and will be open during regular exhibit hours. A description of these exhibits will be included in the exhibits program.

AMERICAN ACADEMY OF MICROBIOLOGY PROGRAMS
Information on Fellowship in the American Academy of Microbiology; Awards; certification through the Certification Board of the National Registry of Microbiologists, the American Board of Medical Microbiology, and the American Board of Medical Laboratory Immunology; and accreditation of postdoctoral training programs in microbiology and immunology by the Committee on Postdoctoral Education Programs will be available at a booth located in the registration area of the New Orleans Convention Center.

DOCUMENTATION OF MEETING ATTENDANCE FOR CATEGORY 1 CONTINUING MEDICAL EDUCATION
The American Society for Microbiology is accredited by the Accreditation Council for Continuing Medical Education (ACCME) as a sponsor of Category 1 continuing medical education (CME). Attendance at all symposia, seminars, round table sessions, and divisional and award lectures is eligible for credits. Paper and poster sessions are NOT eligible for credit. Eligible sessions are indicated in the program under the session title.

Physicians, Diplomates, and Registrants seeking recognition or recertification with The Physician's Recognition Award (PRA), American Board of Medical Microbiology (ABMM), American Board of Medical Laboratory Immunology (ABMLI), or National Registry of Microbiologists (NRM) may apply these credits. ASM is not accredited by any nursing or pharmacy association. Additionally, ASM is not accredited by the State of Louisiana or any other state.

To obtain this service, indicate your selection on the Meeting Registration Form. Once your registration has been processed, you will be mailed the appropriate forms. The Society will no longer offer a separate desk for verification. This service has been incorporated into the Meeting Registration.

After the meeting, the bottom copy of the Certificate of Attendance as well as the Participant Evaluation may be returned to the black Drop-Off boxes in the registration area or by mail within 2 weeks after the meeting. The Society is not responsible for forms which are incomplete, incorrect, or submitted after the 2-week deadline date. All forms which are incomplete, do not contain the correct information, or are received after the deadline date cannot be processed and will be returned. There is a nonrefundable $10 fee for the service.

WORKSHOPS

General Information
The Committee on Continuing Education, Board of Education and Training, is pleased to announce the 1992 Workshop Program, 29 and 30 May, to be held at the Sheraton New Orleans. All of the workshops are pending approval for category 1 medical education (CME) credits. Individuals who wish credits must register, sign in, and successfully complete the workshop.
Registration

Individuals are urged to complete and forward the registration form as soon as possible. Receive a 25% discount when you register by 29 April 1992 (see early registration fee). Registration must be postmarked on or before this date to be charged at the lower rate.

How To Register

Mail

Send:
1. Completed registration form
2. Registration fee (payable to ASM)
3. ONE self-addressed mailing label to Workshop Coordinator, ASM, 1325 Massachusetts Ave., N.W., Washington, D.C. 20005. Incomplete forms or forms sent without the proper payment will be returned. Registration forms received after 29 April will be returned for on-site registration in New Orleans.

Telephone

Telephone registration is only available to individuals who wish to pay the registration fee with a valid VISA, MasterCard, or American Express account.

1. Fill out the registration form (to ensure accuracy).
2. Call the workshop coordinator at (202) 737-3600.
3. Read from the registration form to the workshop coordinator.
4. Have the credit card number and expiration date available.

There is a nonrefundable 7% charge for credit card service.

On-Site Registration

If you cannot register for a workshop before 29 April, you have the opportunity to register for the workshop onsite. On-site registration will be accepted on a first-come, first-served basis and will be charged at the higher, on-site fee. On-site registration will be available at the Workshop Registration Desk, Sheraton New Orleans Hotel, Friday, 29 May, from 7:30 A.M. to 5:00 P.M., and Saturday, 30 May, from 7:30 A.M. to 12:00 P.M., and only for workshops which have not filled to capacity or been cancelled. Workshops may fill to capacity or be cancelled without prior notice.

To take advantage of the member rate, individuals must be active 1992 ASM members.

Cancellations

Individuals who wish to cancel out of a workshop on or before 29 April may receive a full refund, minus a $25 handling fee. Those who cancel after this date are not entitled to any refund.

WORKSHOP ORIENTATION PROGRAM

A workshop orientation program for individuals who want to assist with the Society's workshop activities has been scheduled for Thursday, 28 May, from 12:00 P.M. to 1:00 P.M. in Room 89 of the Convention Center. During this session individuals will learn about the overall responsibilities of a workshop organizer. The workshop organizer serves as a liaison between the workshop faculty members and the Committee on Continuing Education of the Board of Education and Training. Approximately 50 workshops are presented to the Committee annually.

We encourage you to get involved; contribute your expertise to the Society's workshop programs. You do not need to register for the orientation program...just come, bring a lunch and a friend. Cold refreshments will be available.

TEACHING MATERIALS PRESENTATIONS

The Board of Education and Training will host the third annual Teaching Material Exchange in Room 90 of the New Orleans Convention Center, on Thursday, 28 May, from 11:00 A.M. to 3:00 P.M. The Exchange provides a forum for undergraduate faculty participants to demonstrate their teaching innovations and describe their usefulness in the classroom.

Innovations include computer software programs, videotapes, videodiscs, tutorials, models, transparencies, slides, audiotapes, and other visual, audio, or electronic programs. Participants will gain insight on the creative methods used to teach microbiology.

An informal focus group meeting will be conducted after the program that will address ways to improve ASM's role in undergraduate education.

For more information, including a schedule for the presentations, please refer to the Board of Education and Training booth in the convention center.

AUDIOTAPING OF SELECTED WORKSHOPS AND SESSIONS

The Committee on Educational Materials of the Board of Education and Training is pleased to announce the sale of audiocassette tapes from selected workshop presentations and General Meeting sessions. Order forms will be available at the Audiocassette Sales Booth located in the registration area of the convention center. Tapes will be available 2 hours after the end of the session taped and will remain on sale through the week of the General Meeting. Tapes may also be ordered through the mail after the meeting. Place your orders early to avoid delays at the end of the week. All sessions being audiorecorded are denoted by a cassette symbol next to the session title.
EDUCATIONAL PRODUCTS AND SERVICES

Materials on career information, resources for scientists who volunteer in the classroom, programs for undergraduate faculty and students, workshops, audioconferences, the Coalition for Education in the Life Sciences, and the Latin American Professorship Program will be available at the Board of Education and Training booth in the registration area of the convention center.

DIVISIONAL BUSINESS MEETINGS

The Society’s divisions will hold their annual business meetings as noted below. Both the current chair and chair-elect will be present to conduct and plan the business of the divisions. All meetings will be held at the Convention Center.

<table>
<thead>
<tr>
<th>Group</th>
<th>Division</th>
<th>Day, Time, and Location</th>
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<tbody>
<tr>
<td>I</td>
<td>Antimicrobial Chemotherapy (A)</td>
<td>Friday, 29 May, 12:45 P.M., Room 13</td>
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<td>Chair: Dwight J. Hardy</td>
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<td>Chair-elect: Raymond T. Testa</td>
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<td></td>
<td>Microbial Pathogenesis (B)</td>
<td>Thursday, 28 May, 12:45 P.M., Room 19</td>
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<td>Chair: Alan Barbour</td>
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<td>Chair-elect: Janne G. Cannon</td>
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<td></td>
<td>General Medical Microbiology (D)</td>
<td>Thursday, 28 May, 12:45 P.M., Room 1</td>
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<td>Chair: Gerald Byrne</td>
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<td>Chair-elect: Steven J. Norris</td>
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<td></td>
<td>Immunology (E)</td>
<td>Friday, 29 May, 12:45 P.M., Room 2</td>
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<td>Chair: Toby K. Eisenstein</td>
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<td>Chair-elect: Chris E. Taylor</td>
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<td>Mycoplasmology (G)</td>
<td>Friday, 29 May, 12:45 P.M., Room 19</td>
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<td>Chair: Kevin F. Dybvig</td>
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<td>Chair-elect: Leigh R. Washburn</td>
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<td></td>
<td>Mycobacteriology (U)</td>
<td>Friday, 29 May, 12:45 P.M., Room 85</td>
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<td>Chair: Josephine Clark-Curtiss</td>
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<td>Chair-elect: Thomas M. Daniel</td>
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<td>II</td>
<td>Genetics and Molecular Biology (H)</td>
<td>Friday, 29 May, 11:30 A.M., Room 43</td>
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<td>Chair: Thomas J. Silhavy</td>
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<td>Chair-elect: Anne O. Summers</td>
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<td></td>
<td>General Microbiology (I)</td>
<td>Thursday, 28 May, 11:30 A.M., Room 36</td>
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<td>Chair: Jeanne S. Poindexter</td>
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<td>Chair-elect: Robert P. Gunsalus</td>
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<td>Morphology and Ultrastructure (J)</td>
<td>Thursday, 28 May, 12:45 P.M., Room 39</td>
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<td>Chair: Susan F. Koval</td>
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<td>Chair-elect: John W. Costerton</td>
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<td>Microbial Physiology and Metabolism (K)</td>
<td>Thursday, 28 May, 11:30 A.M., Room 41</td>
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<td>Chair: Judy Wall</td>
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<td>Chair-elect: Stephen J. Mattingly</td>
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<td>Bacteriophage Biology (M)</td>
<td>Friday, 29 May, 12:45 P.M., Room 38</td>
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<td>Chair: Peter B. Berget</td>
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<td>Chair-elect: William T. McAllister</td>
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<td>Systematic and Evolutionary Microbiology (R)</td>
<td>Friday, 29 May, 11:30 A.M., Room 37</td>
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<td>Chair: David Stahl</td>
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<td>Chair-elect: Cletus P. Kurtzman</td>
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III  Aquatic and Terrestrial Microbiology (N)
Chair: Roy M. Ventullo  Thursday, 28 May, 11:30 A.M.
Chair-elect: Aaron L. Mills  Room 33

Fermentation Microbiology (O)
Chair: Burton M. Pogell  Thursday, 28 May, 12:45 P.M.
Chair-elect: Linda L. Lasure  Room 80

Food Microbiology (P)
Chair: Peggy M. Foegeding  Thursday, 28 May, 12:45 P.M.
Chair-elect: J. Stan Bailey  Room 97

Environmental and General Applied Microbiology (Q)
Chair: Christon J. Hurst  Wednesday, 27 May, 12:45 P.M.
Chair-elect: Donna L. Bedard  Room 97

IV  *DNA Viruses (S)
Chair: Dennis O'Callaghan  Friday, 29 May, 11:00 A.M.
Chair-elect: Mark F. Stinski  Room 93

*RNA Viruses (T)
Chair: Mary K. Estes  Friday, 29 May, 11:00 A.M.
Chair-elect: Michael M. C. Lai  Room 93

*Joint Division S and T meeting

V  Clinical Microbiology (C)
Chair: Mary J. Gilchrist  Thursday, 28 May, 12:45 P.M.
Chair-elect: Stephen G. Jenkins  Ballroom IB

Medical Mycology (F)
Chair: Garry T. Cole  Thursday, 28 May, 12:45 P.M.
Chair-elect: David A. Stevens  Room 26

Nosocomial Infections (L)
Chair: Bryan P. Simmons  Wednesday, 27 May, 12:45 P.M.
Chair-elect: Robert A. Weinstein  Room 33

Diagnostic Immunology (V)
Chair: Ronald J. Harbeck  Thursday, 28 May, 12:45 P.M.
Chair-elect: Anne L. Jackson  Room 13

PROFESSIONAL AND EDUCATIONAL SESSIONS

Cholera (Sponsored by the American Academy of Microbiology), Session 4, Wednesday, 8:30 A.M., Room 90, Convention Center.

What Should the Microbiology Laboratory Course Accomplish? (Sponsored by the Board of Education and Training), Session 9, Wednesday, 8:30 A.M., Room 103, Convention Center

Update '92 I: Regulatory T Lymphocytes (Sponsored by the Board of Education and Training), Session 43, Wednesday, 12:00 P.M., Room 103, Convention Center

Critical Thinking or Problem Solving Skills (Sponsored by the Board of Education and Training), Session 50, Wednesday, 1:30 P.M., Room 103, Convention Center

Microbiology: Food and Water Quality Concerns in Developing Countries (Sponsored by the Board of Public and Scientific Affairs and the American Academy of Microbiology), Session 62, Wednesday, 1:30 P.M., Room 95, Convention Center

Microbiology Education: Elementary School through College (Sponsored by the Board of Education and Training), Session 91, Thursday, 8:30 A.M., Room 103, Convention Center

Molecular Biology and Biochemistry of Acidophilic Chemo lithotrophs: Applications of Bacterial Leaching of Ores (Sponsored by the Board of Public and Scientific Affairs), Session 101, Thursday, 8:30 A.M., Room 95, Convention Center

Unsolved Problems in the Teaching of Microbiology (Sponsored by the Board of Education and Training), Session
132. Thursday, 1:30 P.M., Room 103, Convention Center

*The Discovery Process* (Sponsored by the Board of Public and Scientific Affairs), Session 138, Thursday, 1:30 P.M., Room 85, Convention Center

*Incorporating Virology into the Undergraduate Microbiology Curriculum* (Sponsored by the Board of Education and Training), Session 176, Friday, 8:30 A.M., Room 103, Convention Center

*Science Literacy: a Fable for Our Time* (Sponsored by the Board of Education and Training), Session 189, Friday, 8:30 A.M., Room 95, Convention Center

*Regulatory and Legislative Perspective for Clinical Microbiologists: STATNET—What Is It? How Do I Get Involved?* (Sponsored by the Board of Public and Scientific Affairs), Session 190, Friday, 8:30 A.M., Room 97, Convention Center

*Scarlet Fever, Septic Scarlet Fever, Toxic Fever, and the Streptococcal Toxic Shock Syndrome* (Sponsored by the Center for the History of Microbiology), Session 209, Friday, 11:00 A.M., Room 100, Convention Center

*Update '92 II: Bacterial Pathogenesis* (Sponsored by the Board of Education and Training), Session 210, Friday, 12:00 P.M., Room 103, Convention Center

*Microbiologists and Mentors: Responsibilities and Rewards* (Sponsored by the Board of Public and Scientific Affairs), Session 226, Friday, 1:30 P.M., Room 80, Convention Center

*Using History To Enrich the Teaching of Microbiology* (Sponsored by the Board of Education and Training), Session 229, Friday, 1:30 P.M., Room 95, Convention Center

*Discovering Your Role in Precollege Science Education* (Sponsored by the Board of Education and Training), Session 216, Friday, 1:30 P.M., Room 103, Convention Center

*Cross-Infections, Risks in Dentistry* (Sponsored by the American Academy of Microbiology), Session 256, Saturday, 8:30 A.M., Room 14, Convention Center

*Agarose Gel Electrophoresis of DNA for the Teaching Laboratory* (Sponsored by the Board of Education and Training), Session 262, Saturday, 8:30 A.M., Room 42, Convention Center

*New Directions in Undergraduate Education* (Sponsored by the Board of Education and Training), Session 263, Saturday, 8:30 A.M., Room 13, Convention Center

*Update '92 III: Microbial Density* (Sponsored by the Board of Education and Training), Session 288, Saturday, 12:00 P.M., Room 13, Convention Center

*Innovative Strategies for Teaching Microbiology* (Sponsored by the Board of Education and Training), Session 294, Saturday, 1:30 P.M., Room 13, Convention Center
1992 GENERAL MEETING WORKSHOPS

The workshop schedule, faculty, and topics are subject to change without notice.

All workshops will be held at the Sheraton New Orleans Hotel, 500 Canal Street, New Orleans, LA 70130.

W1. Plasmids in the Environment: Detection, Recovery, and Amplification Techniques
(Eligible for 6 Category 1 CME credits)

Saturday, 8:30 A.M. (full day), Sheraton New Orleans

Faculty: MONICA A. DEVANAS, Rutgers, The State University, New Brunswick, N.J.; RONALD M. ATLAS, University of Louisville, Louisville, Ky; MICHAEL A. GEALT, Drexel Univ., Philadelphia, Pa.; JOHN H. PAUL, Univ. of South Florida, St. Petersburg; and ROBERT E. SJOGREN, Univ. of Vermont, Burlington.

Audience: The 1-day lecture workshop is directed to individuals interested in environmental sampling who desire to learn about the new molecular methods being implemented in these areas. It is necessary for the participants to have some basic knowledge of microbial ecology and molecular biology methods.

Topics:
- Recovery and amplification of DNA from the environment
- Detection of plasmids in soil and groundwater microbiota
- Plasmids and DNA in seawater: detection and transformation
- Plasmids in sewage sludge and effluent

Objectives: At the completion of the program the participants will be knowledgeable in the possibilities and problems of applying molecular techniques to environmental studies. They will have ample time to discuss particular problems with the faculty regarding their own areas of interest.

W2. Proven and Emerging Techniques in Bioremediation
(Eligible for 7.5 Category 1 CME credits)

Saturday, 8:00 A.M. (full day), Sheraton New Orleans


Audience: This 1-day workshop is directed to microbiologists and engineers who are interested in increasing their general knowledge of applied environmental applications of microbiology and are interested in potential research opportunities in relationship to emerging biological treatment techniques.

Topics:
- Scope of problems and technologies
- Proven technologies involving nutrient stimulation and bioreactors
- Bioaugmentation
- Use of genetically engineered microorganisms

Objectives: At the completion of the program the participants will be knowledgeable in the techniques currently being used for in-situ and ex-situ bioremediation and will gain an awareness of developing techniques and associated research opportunities. The goal will be to increase the level of awareness of opportunities for microbial applications in remediation activities.

W3. Laboratory Biotreatability Studies: Designs, Performance, and Evaluation
(Eligible for 5.25 Category 1 CME credits)

Saturday, 8:00 A.M. (full day), Sheraton New Orleans


Audience: This 1-day lecture program is directed to individuals who are responsible for developing laboratory biotreatability studies on microbial degradation of hazardous or toxic wastes. Persons who must evaluate such studies will also profit from learning what constitutes a good study versus incomplete studies. It is assumed that participants will have some knowledge of basic microbiology and experimental procedures.

Topics:
- Biotreatability studies: problem definition
- Biotreatability studies: project objectives
- Experimental strategies
- Aerobic/anaerobic experimental design
- Experimental methodologies and equipment
- Qualitative and statistical data interpretation
- Proposed EPA biotreatability protocols
- Oil spill biotreatability evaluation protocols

Objectives: At the completion of the program, the participants will be knowledgeable about the design requirements for laboratory treatability studies, their limitations, and how to evaluate them statistically and determine the reliability of the test results.

W4. Aquatic Viral Technology
(Eligible for 5.5 Category 1 CME credits)

Friday, 8:30 A.M. (full day), Sheraton New Orleans

Faculty: JOHN H. PAUL, Univ. of South Florida, St. Petersburg; JED FUHRMAN, USC, Los Angeles, Calif.; ROBERT MILLER, Oklahoma State Univ., Stillwater; CURTIS SUTTLE, Univ. of Texas at Austin, Port Arkansas; FAROOQ AZAM, Scripps Inst. of Oceanography, La Jolla, Calif.; JOHN WATERBURY, Woods Hole Oceanographic Inst., Woods Hole, Mass.; TREVOR BEEBEE, Univ. of Sussex, Falmer Brighton, United Kingdom; and KNUT BORSHEIM, Univ. of Trondheim, Trondheim, Norway.

Audience: This 1-day lecture workshop with demonstration is directed to individuals versed in the basic techniques of aquatic microbiology who are interested in the recently developed
methodology for concentration, enumeration, and general techniques for working with aquatic viruses.

**Topics:**
- Ecological significance of viruses and bacteria
- Viral concentration devices
- Ecological significance of viruses and phytoplankton
- Genetic significance of viruses

**Objectives:** At the completion of the program the participants will be knowledgeable about the various technologies employed for working with natural populations of viruses. They will also have the ability to establish viral research techniques for their own laboratories.

**W5. Preservation, Quality Assurance, and Validation in Cosmetic Microbiology**

*(Eligible for 6.0 Category 1 CME Credits)*

Friday, 8:30 A.M. (full day), Sheraton New Orleans

**Faculty:** DANIEL K. BRANNAN, Abilene Christian Univ., Abilene, Tex.; PATRICIA BOOTH, Ortho Pharmaceutical Corp., Raritan, N.J.; and GAYLE BOROVIAN, Johnson and Johnson, Skillman, N.J.

**Audience:** The 1-day lecture workshop is directed to the product development microbiologist responsible for preservative selection and to the quality assurance manager in the cosmetics industry.

**Topics:**
- Preservation and quality assurance testing: FDA concerns and perceptions
- Preservative challenge testing: methods available
- Quality assurance maintained: good housekeeping, sanitizing, attitudes
- Quality assurance testing: validation of microbial content testing
- Validation concepts in preservative efficacy testing

**Objectives:** At the completion of the program, participants will be knowledgeable about the importance of preservative selection, the methods available for preservative and quality assurance testing, and the importance of validation in these two areas.

**W6. Development of Critical Thinking Skills in the Microbiology Curriculum: Remodeling the Course**

*(Eligible for 6.75 Category 1 CME credits)*

Saturday, 8:00 A.M. (full day), Sheraton New Orleans

**Faculty:** JUDITH KANDEL, California State Univ., Fullerton, and DANIEL BURKE, Seton Hall Univ., South Orange, N.J.

**Audience:** The 1-day lecture workshop is directed to informing undergraduate teaching faculty in the use of critical thinking activities as a central component in the format of their course(s). It is intended for undergraduate faculty teaching introductory-level microbiology to biology or allied health majors at the community college, 4-year college, or university level.

**Topics:**
- Introduction to critical thinking
- Critical analysis of the microbiology course
- Critical thinking in lectures and discussions
- Critical thinking in the laboratory
- Evaluation techniques
- Identifying and overcoming difficulties in changing the course

**Objectives:** At the completion of the workshop the participants will be knowledgeable about identifying key lecture and laboratory concepts and topics for their course(s). They will become familiar with the use of pedagogical techniques that stimulate critical thinking skills. Such techniques include Socratic questioning, problem solving, collaborative learning, critical reading, and writing. They will also develop a series of critical thinking activities for lecture and discussion, laboratory, and individual assignment.

**W7. Disinfectants Testing I: Current Topics in the Evaluation of Disinfectants and Antiseptics**

*(Eligible for 7.0 Category 1 CME credits)*

Friday, 8:00 A.M. (full day), Sheraton New Orleans


**Audience:** This 1-day lecture workshop with demonstraion is directed to individuals with a basic knowledge of microbiology and statistics who are interested in learning about the current methods used for evaluation of disinfectants and antiseptics as well as the relevant EPA and FDA protocols.

**Topics:**
- Introduction and overview of active agents
- Regulatory control of antiseptics and disinfectants
- Test methods for bacterial and viral disinfectants
- Test methods for antiseptics
- Methods for the evaluation of neutralizers
- Alternatives for the evaluation of neutralizers
- Contact lens methodology

**Objectives:** At the completion of this program the participants will be knowledgeable in understanding of methods used to evaluate disinfectants and antiseptics.


*(Eligible for 7 Category 1 CME credits)*

Saturday, 8:00 A.M. (full day), Sheraton New Orleans

**Faculty:** MARY K. BRUCH and DONNA SUCHMANN, MicroBioTest, Inc., Chantilly, Va.; DAN BRANNAN, Abilene Christian Univ., Abilene, Tex.; BONNIE BASKIN, ViroMed Lab., Inc., Minnetonka, Minn.; and JOSEPH RUBINO, Lehn and Fink, Montvale, N.J.
**1992 GENERAL MEETING WORKSHOPS**

**Audience:** This 1-day lecture workshop is directed at individuals involved in disinfectant and other antimicrobial testing or who must meet the requirements of regulatory agencies or those teaching these testing areas.

**Topics:**
- Good Laboratory Practice: history and current requirements
- New AOAC hard surface disinfectant test: comparison with old methods
- Industry self-regulation (CSMA [Chemical Specialty Manufacturers Association])
- EPA collaborative agreement: tuberculocidal test, neutralizers and testing, and virucidal testing

**Objectives:** At the completion of the program, the participants will be knowledgeable about the background and rationale for changes in EPA, AOAC, International, and FDA testing of the effectiveness of disinfectants and the Good Laboratory Practice now required by the regulatory agencies when these tests are performed.

**W9. Use of Gene Probes in the Clinical Microbiology Laboratory**

*(Eligible for 6.5 Category 1 CME credits)*

**Friday, 8:00 A.M. (full day), Sheraton New Orleans**

**Faculty:** GERI S. HALL, Cleveland Clin. Fndn., Cleveland, Ohio; MATTHEW BANKOWSKI, Diagnostic Services, Inc., Naples, Fla.; and RAYMOND KAPLAN, SmithKline Beecham Clin. Lab., Tucker, Ga.

**Audience:** This 1-day lecture workshop is directed to individuals who have knowledge of hybridization principles and probe technologies and are interested in keeping abreast of what is available and of means of implementation of probes in their clinical laboratories.

**Topics:**
- Overview of probe technology
- Methods for hybridization and its detection
- Use of probes in the detection of enteric pathogens
- Use of probes in the detection of pulmonary pathogens
- Polymerase chain reaction (PCR)
- Use of PCR in the clinical laboratory

**Objectives:** At the completion of the program, participants will be knowledgeable in the basic principles of DNA probe technology, including what a probe is and how it is made. Participants will learn about the various methods for hybridization and how hybridization is detected. They should gain information about the current status of commercially available probes and what can be anticipated in the future.

**W10. Rapid Methods in Clinical Microbiology**

*(Eligible for 6 Category 1 CME credits)*

**Saturday, 8:30 A.M. (full day), Sheraton New Orleans**


**Audience:** This 1-day lecture workshop is directed to bench-level microbiologists who are interested in learning the most relevant cost-effective methodologies for the rapid identification of gram-negative bacilli, gram-positive cocci, and Moraxella spp.

**Topics:**
- Automation in the clinical microbiology laboratory
- Isolation, identification, and antimicrobial susceptibility of Moraxella catarrhalis
- Rapid detection of streptococci and related gram-positive cocci
- Rapid and inexpensive isolation and identification of commonly occurring gram-negative bacilli

**Objectives:** At the completion of this program, the participants will be knowledgeable about how to isolate and identify, with minimal criteria, Moraxella catarrhalis and other pathogens from respiratory tract specimens. They will also know how to rapidly identify streptococci and other gram-positive pathogens and how to rapidly and inexpensively identify common gram-negative bacilli. In addition, they will be knowledgeable about how to select instrumentation for rapid identification and susceptibility testing based on economic and noneconomic factors.

**W11. Current Perspectives in Antimicrobial Susceptibility Testing**

*(Eligible for 6.5 Category 1 CME credits)*

**Saturday, 8:30 A.M. (full day), Sheraton New Orleans**

**Faculty:** DANIEL SAHM, Univ. of Chicago, Chicago, Ill.; JANET HINDLER, UCLA, Los Angeles, Calif.; and JANA SWENSON, CDC, Atlanta, Ga.

**Audience:** The 1-day lecture workshop is directed to medical technologists, supervisors, laboratory directors, pathologists, and infectious disease specialists.

**Topics:**
- Emerging antimicrobial resistance patterns: new challenges for in vitro susceptibility testing methods
- Susceptibility testing of staphylococci and enterococci
- National Committee for Clinical Laboratory Standards: an overview
- Susceptibility testing of nonfastidious gram-negative bacilli
- Susceptibility testing of gram-negative cocci and fastidious gram-negative bacilli
- Traditional and nontraditional approaches to quality assurance and quality control of antimicrobial susceptibility testing

**Objectives:** At the completion of the program, participants will have up-to-date information concerning susceptibility testing protocols, procedures, interpretations, and result reporting. Participants will be able to use this information to optimize their approach to susceptibility testing.
W12. Blood-Borne Pathogens in the Clinical Microbiology Laboratory
(Eligible for 4.0 Category 1 CME credits)

Saturday, 8:00 A.M. (half day), Sheraton New Orleans

Faculty: GERRI HALL, KATHLEEN GLEASON-BEAVIS, and BELINDA YEN-LIEBERMANN, Cleveland Clin. Fdn., Cleveland, Ohio.

Audience: This 1/2-day lecture workshop is directed to medical technologists in the clinical laboratory as well as to directors and supervisors of laboratories. This workshop would be of interest to those who handle blood specimens in the clinical microbiology laboratory.

Objectives: At the completion of the program, the participants will be knowledgeable about the many types of pathogens that may be blood borne. They will know about the agents responsible for hepatitis, specifically hepatitis B and hepatitis C viruses; the retroviral agents, human immunodeficiency virus types 1 and 2, and human T-cell lymphotropic virus type I.

Topics:
- Agents responsible for hepatitis, specifically hepatitis B and hepatitis C viruses
- Retroviral agents, human immunodeficiency virus types 1 and 2, and human T-cell lymphotropic virus type I

W13. Instrumentation in Clinical Microbiology
(Eligible for 5 Category 1 CME credits)

Friday, 8:00 A.M. (full day), Sheraton New Orleans


Audience: The 1-day lecture workshop is directed to clinical microbiologists and medical technologists responsible for the general management of microbiology diagnostic equipment. The strengths and weaknesses of current instruments as well as instruments under development will be presented. Additionally, speed, ease of use, and labor reduction will be addressed. It is assumed that participants have a basic understanding of clinical microbiology.

Topics:
- Automated approaches to performing blood cultures
- Automated methods for detection of bacteriuria
- Automated identification and susceptibility systems
- Automated antigen detection methods in infectious disease diagnosis
- Future instrument systems

Objectives: At the completion of the program, participants will be knowledgeable about the instruments available to clinical microbiologists and future systems being developed. Current, comprehensive comparative data on all systems will be available.

W14. Anaerobic Bacteriology for the Clinical Laboratory
(Eligible for 6.5 Category 1 CME credits)

Friday, 8:15 A.M. (full day), Sheraton New Orleans


Audience: The 1-day lecture workshop with laboratory sessions is directed to individuals who wish to enhance and update their knowledge of anaerobic bacteria. It is assumed that participants have a basic knowledge of clinical bacteriology.

Topics:
- Role of anaerobes in infection
- Selection, collection, and transport of specimens; importance of media
- Initial processing methods: toxicity of oxygen
- Identification: rapid and conventional methods
- Taxonomy update
- Susceptibility testing
- Quality assurance for anaerobic media
- Laboratory identification of unknowns

Objectives: At the completion of the program, participants will understand the relevance of anaerobic bacteria in infectious diseases, as well as the methods for isolation, identification, and susceptibility testing of anaerobes.

W15. Update on Sexually Transmitted Diseases
(Eligible for 8.5 Category 1 CME credits)

Saturday, 8:00 A.M. (full day), Sheraton New Orleans

Faculty: VICKI BASELSKI and DAVID SMALLEY, Univ. of Tennessee, Memphis; KAYE COX, Memphis-Shelby County Health Dept., Memphis, Tenn.; and J. CAMERON HALL, Baptist Regional Lab., Memphis, Tenn.

Audience: The 1-day lecture workshop is directed to clinical microbiologists, medical technologists, and physicians who are actively involved in the laboratory diagnosis of sexually transmitted diseases.

Topics:
- Overview of current issues
- Neisseria gonorrhoeae and Haemophilus ducreyi
- Chlamydia trachomatis
- Vaginitis and vaginosis
- Human papillomavirus and herpes simplex virus
- Genital mycoplasmas
- Syphilis
- Clinical laboratory strategies

Objectives: At the completion of the program, participants will be knowledgeable about currently available methods for the diagnosis of important sexually transmitted diseases, including
both conventional and newer rapid methods, and will be able to select appropriate procedures for use in a clinical laboratory.

W16. Quality Improvement in Clinical Microbiology
(Eligible for 3.5 Category 1 CME credits)

Friday, 8:00 a.m. (half day), Sheraton New Orleans


Audience: The program is directed to microbiology technologists, supervisors, doctoral scientists, and physicians who desire to enhance and expand existing quality improvement programs.

Topics:
- Applying quality improvement
- Improving microbiologic testing practice
- Evolution in quality management

Objectives: At the completion of the workshop the participants will be knowledgeable about developing or expanding their current quality improvement (assurance) programs to continuously improve reliability, efficiency, and utilization of clinical microbiology laboratory services.

W17. Descriptive and Inferential Statistics for Microbiologists
(Eligible for 7.0 Category 1 CME credits)

Friday, 8:00 a.m. (full day), Sheraton New Orleans


Audience: This 1-day lecture workshop with demonstration is directed to clinical microbiologists with a basic understanding of the fundamentals, using practical worked examples. The level of teaching is beginning to intermediate. The material may be used as a first course or as a review.

Topics:
- Classification of variables, populations, and sampling
- Frequency distributions, comparison of means, errors, and correlations
- Hypothesis testing, correlation, sensitivity and specificity
- Identification scheme construction and Bayesian statistics

Objectives: At the completion of the program the participants will be knowledgeable about the importance of statistics in the design of experiments and in decisions about the significance of the data. They will be able to objectively select an optimal test set and use probabilistic data to determine likelihood answers using minimal testing.

W18. Tissue-Directed Antibiotic Therapy
(Eligible for 4.5 Category 1 CME credits)

Friday, 1:00 p.m. (half day), Sheraton New Orleans


Audience: The ½-day lecture workshop is directed to physicians and scientists who are interested in the mechanisms of antibiotic activity, pharmacokinetics, and usage. This workshop is geared toward individuals at the graduate and postgraduate levels.

Topics:
- Tissue-directed pharmacokinetics and pharmacodynamics of antibiotics
- Intracellular transport and bioactivity of newer antibiotics
- Intracellular pathogens: antibiotic susceptibility
- Intracellular biology and pharmacotherapy of Chlamydia trachomatis

Objectives: At the completion of the program, the participants will be knowledgeable about the new advances in cellular drug transport, intracellular bioactivity of antibiotics, and pharmacokinetics and pharmacodynamics of tissue-directed antibiotics, and the impact of these factors on the in vitro and in vivo efficacy of antimicrobial agents.

W19. Biological and Chemical Safety in the Workplace: OSHA Regulations
(Eligible for 4.0 Category 1 CME Credits)

Saturday, 8:00 a.m. (half day), Sheraton New Orleans

Faculty: LYNN M. LITTLE and JOHN L. MURAD, Univ. of Texas Southwestern Med. Ctr., Dallas.

Audience: The ½-day lecture workshop is directed to supervisors responsible for personnel, laboratory, and facility safety and individuals who work with hazardous chemicals or blood-borne pathogens.

Topics:
- Specific OSHA regulations: an overview
- Hazard communication standard
- Hazardous chemicals standard: chemical hygiene plan
- Blood-borne pathogens standard: infection control plan
- Ergonomics in the workplace

Objectives: At the completion of the program, the participants will be knowledgeable about the major OSHA safety regulations in the workplace. They will also learn steps in complying with the regulations.
1992 GENERAL MEETING WORKSHOPS

W20. Parasitic Infections in the Immunocompromised Host

(Eligible for 7.5 Category 1 CME credits)

Friday, 8:00 a.m. (full day), Sheraton New Orleans

Faculty: MARILYN BARTLETT and JAMES SMITH, Univ. Hosp., Indianapolis, Ind.; RALPH BRYAN, CDC, Atlanta, Ga.; and WILLIAM CURRENT, Lilly Corporate Ctr., Indianapolis, Ind.

Audience: The 1-day lecture workshop with hands-on laboratory demonstrations is directed to individuals responsible for diagnosing parasitic infections in the immunocompromised host. Emphasis will be on specimen handling and examination for detection, identification of infectious stages, and microscopic examination. Demonstrations will include commercially available kits.

Topics:
- Pneumocystis carinii
- Cryptosporidium parvum
- Laboratory: P. carinii, cryptosporidium staining, examination, demonstrations
- Toxoplasma gondii, Isospora belli, and Strongyloides stercoralis
- Microsporidium spp.
- Laboratory: staining toxoplasma, examination of sections, demonstrations

Objectives: At the completion of the program, participants will be able to process specimens appropriately to detect and identify selected organisms. They will be able to identify organisms in materials stained in class as well as provided in reference slides. They will be able to return with, and implement at their own institutions, protocols provided in the workshop handouts.
**Personal Data Form**

**AMERICAN SOCIETY FOR MICROBIOLOGY PLACEMENT SERVICE**
1325 Massachusetts Ave., N.W., Washington, D.C. 20005-4171

**PERSONAL DATA FORM MUST BE TYPED**

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**SUMMARY**

- Positions in which interested:
  - Academic
  - Government
  - Infectious Diseases
  - Hospital-Clinical
  - Private Practice

- Would you accept a Postdoctoral position?
  - Yes
  - No

- Minority

- Location(s) you would accept:

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**NAME**

Last Name  
First Name  
Middle Name

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**MAILING ADDRESS**

Number and Street

City  
State  
Zip Code

---

**TELEPHONE NO.**

Home  
Business

---

**J.S. Citizen**

Yes  
No

**ASM Member**

Yes  
No  
Number

**DATE AVAILABLE FOR EMPLOYMENT**

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**SALARY DESIRED**

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**TYPE OF WORK DESIRED:**

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**COLLEGES & UNIVERSITIES ATTENDED**

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**CERTIFIED, REGISTERED?**

Yes  
No

**LICENSED?**

Yes  
No

By:

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**PUBLICATIONS (LATEST TWO)**

Journal, Volume, Pages

Number of publications excluding abstracts  
Number of abstracts

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**EMPLOYMENT RECORD or RESIDENCIES**

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**SPECIALIZED TRAINING/EXPERIENCE/ACHIEVEMENTS:**

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**PROFESSIONAL REFERENCES (Give names and addresses.)**

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XXXI
PROCEDURES TO REGISTER

- Include all information requested on the Personal Data Form.
- Complete the “Summary Box” by referring to the keys below.
- Complete the “Type of Work Desired” and “Specialized Training/Experience/Achievements” sections.
- The Personal Data Form MUST BE TYPED. No additional information can be attached or included. Remember: This form represents the first impression you will make on a prospective employer.
- Registration for one year is $40 for ASM members and $100 for non-members. An additional $10 processing fee will be assessed to ASM members who register on-site at an ASM meeting. The fee must accompany the Personal Data Form.
- Please promptly notify the Placement Service of a change of address or availability status. Any other changes or additions to the form require reregistration.

FIELDS OF MICROBIOLOGICAL SPECIALIZATION

List no more than five (5) applicable fields in ORDER OF PREFERENCE

A = Clinical
B = General (including phycology)
C = Genetics and Molecular Biology
D = Immunology
E = Industrial and Applied (including food, dairy, and antibiotic production, etc.)
F = Medical (including infectious disease, parasitology, and chemotherapy)
G = Mycology (general and medical)
H = Physiology and Biochemistry
I = Virology
J = Environmental

GEOGRAPHIC REGIONS

List regions of interest in ORDER OF PREFERENCE

1 = New England - Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont
2 = Middle Atlantic - New Jersey, New York, and Pennsylvania
3 = East North Central - Illinois, Indiana, Michigan, Ohio, and Wisconsin
4 = West North Central - Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota, and South Dakota
5 = South Atlantic - Delaware, District of Columbia, Florida, Georgia, Maryland, North Carolina, South Carolina, Virginia, and West Virginia
6 = East South Central - Alabama, Kentucky, Mississippi, and Tennessee
7 = West South Central - Arkansas, Louisiana, Oklahoma, and Texas
8 = Mountain - Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, Utah, and Wyoming
9 = Pacific - Alaska, California, Hawaii, Oregon, and Washington
10 = No Preference
The following is a listing of session titles by division. Within some of the divisional listings are sessions that originate in another division but may be of common interest. These sessions are designated by an asterisk, and the division in which they originate is shown in parentheses. A dagger indicates a session with a divisional lecture.

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**GROUP IV**

**Cellular Receptors for Animal Viruses**

**Division S**

† Viral Gene Expression

* Discovery and Applications of RNA Packaging Signals (T)

DNA Viruses and the Immune System

Viral Diseases and Diagnostics

Molecular Mechanisms of Viral-Induced Disease

Detection of Viral Nucleic Acids and Antigens

**Division T**

RNA Viruses I

† RNA Viruses II

Discovery and Applications of Viral RNA Packaging Signals

* Molecular Mechanisms of Viral-Induced Disease (S)

Detection of Human Retroviruses

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Advances in Laboratory Diagnosis of Systemic Fungal Infections

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Bacterial Identification Systems

Specimen Collection, Transport, Processing, and Management

Cost-Effective, Clinically Relevant Microbiology for the 1990s

Emerging Pathogens in the Immunocompromised Host

Bacteremia and Fungemia I

Bacteremia and Fungemia II

New Approaches to Molecular Epidemiology

† Practical Problems in Clinical Microbiology

Gastrointestinal Pathogens

Fungi: Detection, Identification, and Antimicrobial Susceptibility Testing

Case Presentations in Clinical Microbiology

Alternative Approaches for Determining MICs

* Quantitative Cultures in Hospital-Acquired Infections (I)

Multidrug-Resistant *Mycobacterium tuberculosis*

Viral Detection I

Viral Detection II

Pitfalls in Antimicrobial Susceptibility Testing

Update on the Implementation of the 1988 Clinical Laboratory Improvement Act Amendments

Molecular Techniques for Detection and Characterization of Organisms of Clinical Significance

Noncultural Detection of Pathogens and Toxins

Blood Culture Practices

* Rapid Diagnosis: New Pathogens and Old (V)

Antimicrobial Susceptibility Testing: Evaluations of New Drugs, Novel Applications, and Experimental Techniques

Detection of Emerging Resistance to Antibiotics

Antimicrobial Susceptibility Test Systems: Evaluations

Epidemiology of Bacterial and Viral Agents I

Clostridium difficile Toxin Detection

Epidemiology of Bacterial and Viral Agents II

Anaerobes: Isolation, Toxin Detection, Identification, and Antibiotic Susceptibility Testing

* Bovine Spongiform Encephalopathy: Mad Cow Disease (G)

Serodiagnosis I

Chlamydia

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You are cordially invited to attend the ASM Opening Reception

supported by a grant from Roerig

Tuesday, May 26, 1992
Immediately following the Opening Session
Aquarium of the Americas

Join the traditional New Orleans style Second Line Parade as we march to the Aquarium with band accompaniments!

...or shuttle bus transportation departs from the Convention Center immediately following the Opening Session. Return transportation provided to all ASM hotels at the end of the function.
**Session 1**

**OFFICIAL OPENING SESSION**

**92ND GENERAL MEETING**

(Eligible for continuing education credit)

Tuesday, 6:00 P.M., Ballroom I, New Orleans Convention Center

Welcome from the General Meeting Program Committee

JOSEPHINE A. MORELLO, Chairman, GMPC

Greetings from ASM and Announcement of Award Recipients

RICHARD L. CROWELL, President, ASM

Introduction of the American Society for Microbiology Lecturer

RICHARD L. CROWELL

The American Society for Microbiology Lecture

(Supported by the Office of Naval Research)

Of Ribosomes and Volcanoes: Molecular Microbial Ecology and Submarine Hydrothermal Vents

NORMAN R. PACE, Indiana Univ., Bloomington

Opening Reception

(Supported by a grant from Roerig)

The annual Opening Reception will be held immediately after this session at the Aquarium of the Americas.

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**Session 2 (C). Seminar**

(Eligible for continuing education credit)

**CRITICAL ASSESSMENT OF THE CURRENT STATUS AND FUTURE PROJECTIONS OF MOLECULAR DIAGNOSTIC METHODS**

Wednesday, 8:30 A.M., Ballroom IA

**Convenors:** PATRICK MURRAY, Washington Univ. Sch. of Med., St. Louis, Mo., and JAMES JORGENSEN, Univ. of Texas Health Sci. Ctr., San Antonio

Comparison of Probes and Other Contemporary Methods for the Identification of Mycobacteria

GLENN ROBERTS, Mayo Clin., Rochester, Minn.

Value of Probes for the Diagnosis of Sexually Transmitted Diseases

KIMBERLE CHAPIN-ROBERTSON, Yale Univ., New Haven, Conn.

Use of Probes and Amplification Techniques for the Diagnosis of Human Immunodeficiency Virus Infections

MAX ARENS, Washington Univ., St. Louis, Mo.

Molecular Techniques for Hospital Epidemiology

MICHAEL MILLER, CDC, Atlanta, Ga.

Future Directions of Molecular Clinical Microbiology

DAVID H. PERSING, Mayo Clin., Rochester, Minn.

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**Session 3. Divisional Group V Symposium**

(Eligible for continuing education credit)

**ADVANCES IN LABORATORY DIAGNOSIS OF SYSTEMIC FUNGAL INFECTIONS**

Wednesday, 8:30 A.M., Room 20


Approaches to Improving the Serologic Diagnosis of Blastomycosis


Recent Information on the Serologic Reagents for Coccidioidomycosis


Status of Urine Antigen Detection in Histoplasmosis


Disseminated Candidiasis: Noncultural Methods of Diagnosis

W. G. MERZ, Johns Hopkins Univ., Baltimore, Md.

Rapid Methods of Species Identification

M. A. PFALLER, Oregon Health Sci. Univ., Portland

Future Directions for the Clinical Mycology Laboratory

G. D. ROBERTS, Mayo Clin., Rochester, Minn.

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**Session 4 (AAM). Seminar**

(Eligible for continuing education credit)

**CHOLERA**

Wednesday, 8:30 A.M., Room 90

**Convenor:** M. M. LEVINE, Univ. of Maryland, Baltimore

The Epidemiology of Cholera: from Snow to Ceviche

R. GLASS, CDC, Atlanta, Ga.

Cholera in Peru, 1991: Extent of the Epidemic, Modes of Transmission, and Impact of the Outbreak on the Country as a Whole

E. SALAZAR LINDO, Ministry of Health, Lima, Peru

Noncultivable *Vibrio cholerae* O1 in Environmental Waters, Zooplankton, and Edible Crustacea: Implications for Understanding the Epidemiologic Behavior of Cholera

R. COLWELL, Univ. of Maryland, College Park

The Molecular Pathogenesis of Cholera: Yet Further Insights


A Primer on the Therapy of Cholera under Epidemic Conditions


Old and New Cholera Vaccines: a 100-Year Perspective

M. M. LEVINE, Univ. of Maryland, Baltimore

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**VISIT THE EXHIBITS**

*VISIT THE EXHIBITS*
Session 5 (H)
CONJUGATIVE TRANSPOSONS AND INTEGRONS
Wednesday, 8:30 A.M., Room 37

Moderators: ANNE O. SUMMERS, Univ. of Georgia, Athens, and DON CLEWELL, Univ. of Michigan, Ann Arbor

8:30 Divisional Lecture
(Eligible for continuing education credit)

Conjugative Transposons
JUNE R. SCOTT, Emory Univ., Atlanta, Ga.

9:30
H1. Analysis of Tn916 Excision Events in Enterococcus faecalis. J. F. KILBRIDGE* and K. MIXTER MAYNE. Vassar Col., Poughkeepsie, N.Y.
H2. The Excisase (Xis-Tn) and Integrase (Int-Tn) of the Conjugative Transposon Tn916. Y. A. SU* and D. B. CLEWELL. Univ. of Michigan, Ann Arbor.
H3. Identification of Factors Involved in the Frequency of Tn916 Conjugative Transposition. D. JAWORSKI. Univ. of Michigan, Ann Arbor.

10:30

Session 6 (H). Seminar
(Eligible for continuing education credit)

ESCHERICHIA COLI AND SALMONELLA TYPHIMURIUM CELL BIOLOGY
Wednesday, 8:30 A.M., Room 39

Convenors: MOLLY B. SCHMID, Princeton Univ., Princeton, N.J., and SARAH FRENCH, Univ. of Virginia, Charlottesville

Session 7 (K). Seminar
(Eligible for continuing education credit)

BIOCHEMISTRY OF METHANOGENESIS FROM METHYL-CONTAINING SUBSTRATES
Wednesday, 8:30 A.M., Room 41

Convenors: LACY DANIELS, Univ. of Iowa, Iowa City, and JOE KRZYCKI, Ohio State Univ., Columbus

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

Methanogenesis from Methanol
GERHARD GOTTSCHALK, Univ. of Gottingen, Gottingen, Germany

Methanogenesis from Acetate
GREG FERRY, Virginia Polytechnic Inst. and State Univ., Blacksburg

Methyl Reductases in Methanogens
R. K. THAUER. Philippus Univ., Marburg, Germany

Methyl Transfer Proteins in Acetate Use by Methanogens
JOE KRZYCKI, Ohio State Univ., Columbus

Methyl Transferases in Methanol Use by Methanogens
JAN KELTJENS, Univ. of Nijmegen, Nijmegen, The Netherlands

Session 8 (C). Seminar
(Eligible for continuing education credit)

DIAGNOSTIC ASPECTS OF CORYNEFORM BACTERIA
Wednesday, 8:30 A.M., Room 26

Convenors: MARIE B. COYLE, Univ. of Washington, Seattle, and ALEXANDER VON GRAEVENITZ, Univ. of Zurich, Zurich, Switzerland

* NO SMOKING IN SESSIONS OR IN POSTER AREA ***
Taxonomic Problems, the Key to Coryneform Identification
MARIÉ B. COYLE, Univ. of Washington, Seattle

Approaches to Identification of Slightly Branching Gram-Positive Rods Including Arcanobacterium and Microaerophilic Actinomycetes
JILL E. CLARRIDGE, VA Med. Ctr., Houston, Tex.

Conventional Approach to the Identification of Coryneforms
DANNIE G. HOLLIS, CDC, Atlanta, Ga.

Cellular Fatty Acid Composition as an Aid To Identify Coryneforms
KATHY BERNARD, Lab. Ctr. for Disease Control, Ottawa, Ontario, Canada

Attempts To Identify Aerobically Growing Gram-Positive Rods in a Routine Laboratory Using Multiple Techniques
ALEXANDER VON GRAEVENITZ, Univ. of Zurich, Zurich, Switzerland

Session 9 (BET). Seminar
(Eligible for continuing education credit)

WHAT SHOULD THE MICROBIOLOGY LABORATORY ACCOMPLISH?

Wednesday, 8:30 A.M., Room 103

Convenors: PHILIP E. STUKUS, Denison Univ., Granville, Ohio, and PAUL G. ENGELKIRK, Univ. of Texas Health Sci. Ctr., Houston

A Diagnostic Microbiology Laboratory Course in a Medical Technology Program
PAUL ENGELKIRK, Univ. of Texas Health Sci. Ctr., Houston

A General Microbiology Laboratory for Large Enrollment Classes
TED JOHNSON, St. Olaf Col., Northfield, Minn.

Research as Teaching at Undergraduate Colleges and Universities
DANIEL BRANNAN, Abilene Christian Univ., Abilene, Tex.

Use of Field Trips and Multimedia Materials in Undergraduate Microbiology Laboratories

Integration of Investigative Laboratories and Semester-Length Project into a Liberal Arts College Microbiology Laboratory Course
PHILIP STUKUS, Denison Univ., Granville, Ohio

Session 10 (L). Seminar
(Eligible for continuing education credit)

ENTEROCOCCI: INCREASING ANTIBIOTIC RESISTANCE AND PREVALENCE AS NOSOCOMIAL PATHOGENS

Wednesday, 8:30 A.M., Room 13


Identification and Susceptibility Testing of Enterococci DANIEL F. SAHM, Univ. of Chicago, Chicago, Ill.

Identification and Susceptibility Testing of Enterococci ROBERT P. GAYNES, CDC, Atlanta, Ga.


Aminoglycoside and β-Lactamase-Mediated Resistance in Enterococci BARBARA E. MURRAY, Univ. of Texas Med. Sch., Houston

Mechanisms of Glycopeptide Resistance among Enterococci DAVID M. SHLAES, VA Med. Ctr. and Case Western Reserve Univ., Cleveland, Ohio

Nosocomial E. faecium and E. faecalis Infections JOHN M. BOYCE, Miriam Hosp. and Brown Univ., Providence, R.I.

Session 11 (D)

BACTERICIDAL ACTIVITIES OF PHAGOCYTES

Wednesday, 8:30 A.M., Room 2

Moderators: DAVID P. SPEERT, Univ. of British Columbia, Vancouver, British Columbia, Canada, and M. T. LABRO, INSERM U.294, Paris, France

8:30


◆ VISIT THE EXHIBITS ◆
The Mechanism by Which Glucose Induces Murine Macrophages To Phagocytose Pseudomonas aeruginosa. S. BARGHOUTH* and D. P. SPEERT. Univ. of British Columbia, Vancouver, British Columbia, Canada.


The Bordetella pertussis Filamentous Hemagglutinin and Fimbriae Share Common Accessory Genes with Sequence Similarities to the papD and papC Gene Families. C. LOCHT,* M.-C. GEOFFROY, and G. RENAULD. Inst. Pasteur, Lille, France.


The Bordetella pertussis Filamentous Hemagglutinin and Fimbriae Share Common Accessory Genes with Sequence Similarities to the papD and papC Gene Families. C. LOCHT,* M.-C. GEOFFROY, and G. RENAULD. Inst. Pasteur, Lille, France.

Isolation of MR/P Fimbrial Gene Sequences from Uropathogenic Proteus mirabilis. F. K. BAHRANT,* D. EDEL.
Session 14 (U). Seminar
(Eligible for continuing education credit)

WHAT MYCOBACTERIOLOGISTS CAN LEARN FROM STUDIES ON OTHER PATHOGENS

Wednesday, 8:30 A.M., Room 27


Molecular Mechanisms of Salmonella Invasion into Cultured Epithelial Cells
JORGE GALAN, SUNY Stony Brook, Stony Brook, N.Y.

Mechanisms of Cell Entry by Legionella and Mycobacteria
MARCUS HORWITZ, UCLA Sch. of Med., Los Angeles, Calif.

Genetic Analysis of Another Facultative Intracellular Bacterial Pathogen (Listeria monocytogenes)
DANIEL PORTNOY, Univ. of Pennsylvania Sch. of Med., Philadelphia

Adenylyl Cyclase Toxin of Bordetella pertussis
ERIK HEWLETT, Univ. of Virginia Sch. of Med., Charlottesville

Macrophage Killing Processes
JAMES KRAHENBUHL, Nat. Hansen's Disease Ctr., Carville, La.

Iron Assimilation in the Pathogenesis of Shigella
SHELLEY PAYNE, Univ. of Texas, Austin

Session 15 (I)
MICROBIAL GROWTH

Wednesday, 8:30 A.M., Room 36

Moderators: M. J. MCINERNEY, Univ. of Oklahoma, Norman, and W. R. KENEALY, Univ. of Wisconsin, Madison

8:30


13. Competitive Dominance by Motile Pseudomonas fluorescens in Dual-Dilution Continuous Culture and Batch Culture. D. R. KORBER, J. R. LAWRENCE, and D. E. CALDWELL.* Univ. of Saskatchewan and NHRI, Environment Canada, Saskatoon, Saskatchewan, Canada.

14. Fractal Growth Model of Bacillus pumilus LM7 Colony. J. SCHINDLER* and T. RATAJ. Inst. of Hygiene and Epidemiology, Prague, Czechoslovakia.

9:30

16. Effects of Temperature and Hydrostatic Pressure on the Growth of Psychrophiles from Sea Sediment Samples. T. HAMAMOTO* and K. HORIKOSHI. Riken Inst. and Deepstar Group, JAMSTEC, Saitama, Japan.


NEW METHODS FOR THE DIAGNOSIS OF MYCOBACTERIAL INFECTIONS

Wednesday, 8:30 A.M., Room 93

Moderators: KATHLEEN D. EISENACH, Univ. of Arkansas for Med. Sci., Little Rock, and ANNE B. MORRISSEY, Univ. Hosp., Case Western Reserve Univ., Cleveland, Ohio

8:30


VISIT THE EXHIBITS
Session 17 (E)

IMMUNE RESPONSES TO MICROBES: LYMPHOCYTE SUBSETS, STRESS PROTEINS, AND SUPERANTIGENS

Wednesday, 8:30 A.M., Room 1

Moderators: THOMAS W. KLEIN, Univ. of South Florida Col. of Med., Tampa, and MALAK KOTB, VA Med. Ctr. and Univ. of Tennessee, Memphis

8:30

E1. Alterations in Lymphocyte Subsets following Primary and Secondary Infection of Mice with Legionella pneumophila. R. WIDEN,* C. NEWTON, J. SMITH, T. KLEIN, and H. FRIEDMAN. Univ. of South Florida, Tampa.


E8. Mapping Antigenic Sites with Synthetic Peptides on the Chlamydia trachomatis Heat Shock Protein 60. Y. YI,* G. ZHONG, and R. C. BRUNHAM. Univ. of Manitoba, Winnipeg, Manitoba, Canada.

Session 18 (S)

VIRAL GENE EXPRESSION

Wednesday, 8:30 A.M., Room 80


8:30 Divisional Lecture

(Eligible for continuing education credit)


* NO SMOKING IN SESSIONS OR IN POSTER AREA **
Use of Microbial Activity To Remove Mercury from Contaminated Water
TAMAR BARKDY and RALPH TURNER, ERL, Gulf Breeze, Fla.

Immobilized Pure Bacterial Cultures for Detoxification of Agricultural Chemical Residues
JULIA HULTMAN, TIMOTHY STEVENS, and RON CRAWFORD, Univ. of Idaho, Moscow

Session 20 (G). Seminar
(Eligible for continuing education credit)

MOLECULAR BIOLOGY OF MYCOPLASMAS

Wednesday, 8:30 A.M., Room 33

Convenors: ALAIN BLANCHARD, Univ. of Alabama, Birmingham, and CHRIS F. MINION, Iowa State Univ., Ames

Mycoplasma recA Genes
KEVIN DYBVIG, Univ. of Alabama, Birmingham

Molecular Genetic Basis of Mycoplasma Surface Antigenic Variation
KIM S. WISE, Univ. of Missouri, Columbia

A Novel Translation Initiation Region from Mycoplasma genitalium That Functions in Escherichia coli
PING-CHUAN HU, Univ. of North Carolina, Chapel Hill

Construction and Use of Promoter Probe Vectors in Mycoplasmas
KEVIN L. KNUDTSON, Iowa State Univ., Ames

Development and Use of Mycoplasmal Cloning Vectors
KENDALL W. KING, Univ. of Alabama, Birmingham

Session 21 (P). Seminar
(Eligible for continuing education credit)

RECENT ADVANCES IN THE RECOVERY OF FOOD-BORNE PATHOGENS

Wednesday, 8:30 A.M., Room 97

Convenors: STEPHEN KNABEL, Pennsylvania State Univ., University Park, and CATHERINE DONNELLY, Univ. of Vermont, Burlington

Microbial Injury: Does It Have a Future in Food Microbiology?
BIBEK RAY, Univ. of Wyoming, Laramie

Resuscitative Recovery of Injured Food-Borne Salmonella Organisms
WALLACE ANDREWS, FDA, Washington, D.C.

Presence of Viable but Nonculturable Vibrio vulnificus in Oysters
JAMES OLIVER, Univ. of North Carolina, Charlotte

Injury and Repair of Listeria monocytogenes following Exposure to Heat, Freezing, and Sanitizers
CATHERINE DONNELLY, Univ. of Vermont, Burlington

VISIT THE EXHIBITS
Optimizing the Recovery of Heat-Injured Listeria monocytogenes from Foods
STEPHEN KNABEL, Pennsylvania State Univ., University Park

Recovery of Bacterial Pathogens from Foods for Detection by Modern, Rapid Assays
MICHAEL CURIALE, Silliker Labs Group Inc., Chicago Heights, Ill.

**Session 22 (O). Seminar**
(Eligible for continuing education credit)

ADVANCES IN MOLECULAR GENETICS OF SECONDARY METABOLISM

Wednesday, 8:30 A.M., Room 82


Enzymes of Macrolide Antibiotic Biosynthesis in Bacteria
C. RICHARD HUTCHINSON, Univ. of Wisconsin, Madison

Molecular Regulation of Aflatoxin Biosynthetic Pathway

A Molecular Genetic Approach to Understanding Aflatoxin B1 Biosynthesis in Aspergillus parasiticus
JOHN E. LINZ, Michigan State Univ., E. Lansing

Molecular Genetics of Erythromycin Biosynthesis
LEONARD KATZ, Abbot Lab., Abbot Park, Ill.

Molecular Genetics of Cyclic Peptide Synthesis in the Maize Pathogen Cochliobolus carbonum
J. S. SCOTT-CRAIG, D. G. PANACCIONE, and J. D. WALTON, Michigan State Univ., E. Lansing

Genetics of Trichothecene Biosynthesis in Fusarium

**Session 23 (N). Seminar**
(Eligible for continuing education credit)

MICROBIOLOGICALLY INFLUENCED CORROSION

Wednesday, 8:30 A.M., Room 87

**Convenors:** TIM FORD, Harvard Univ., Cambridge, Mass., and MARC MITTELMAN, Univ. of Tennessee, Knoxville

Role of Biofilm: Microenvironment Mosaic Structures in Microbially Induced Corrosion

Mineralogical Fingerprints for Microbially Influenced Corrosion
BRENDA LITTLE, Naval Oceanographic and Atmospheric Res. Lab., Stennis Space Center, Miss.

Effects of Biofilm Processes on the Integrity of Thin Metal Films
GILL GEESEY and PHILIP J. BREMER, Montana State Univ., Bozeman

Microbiologically Influenced Deterioration of Coated Metals
MARIANNE WALCH and JOANNE M. JONES, Naval Surface Warfare Ctr., Silver Spring, Md.

Methods for Localizing Electrochemical and Microbial Activity in MIC
J. GUEZENNEC and DAVID C. WHITE, Univ. of Tennessee, Knoxville

**Session 24 (J). Seminar**
(Eligible for continuing education credit)

STRUCTURE AND FUNCTION OF BACTERIAL “COMPARTMENTS”

Wednesday, 8:30 A.M., Room 38

**Convenors:** S. F. KOVAL, Univ. of Western Ontario, London, Ontario, Canada, and G. D. SPROTT, Nat. Res. Council of Canada, Ottawa, Ontario, Canada

“Compartment” in the Bacterial Cell and Their Enzymes
F. MAYER, Georg-August-Univ. Göttingen, Göttingen, Germany

Periplasmic Space and the Concept of the Periplasm
T. J. BEVERIDGE and L. L. GRAHAM, Univ. of Guelph, Guelph, Ontario, Canada

Buoyancy and Its Regulation in Gas-Vacuolate Cyanobacteria
A. E. KONOPKA, Purdue Univ., West Lafayette, Ind.

Photosynthetic Membrane Complexes and Membrane Structure in Rhodobacter sphaeroides
S. KAPLAN, Univ. of Texas Med. Sch., Houston

**POSTER SESSIONS**

Wednesday, 9:00–10:30 A.M., Exhibit Hall C
(Board numbers in parentheses)

**Session 25 (Q). WATER QUALITY**

**Q1.** Bacteriological Analysis of Swimming Pool Waters in Mexico City. (001) P. RAMIREZ,* B. MARTINEZ, E. ROBLES, A. DURAN, and V. RIVERA. ENEP-Iztacala, UNAM, Mexico.

**Q2.** Use of Bacterial Indicators To Monitor the Movement of Sewage Discharged into the Ocean. (003) C. WU,* R. FUJIOKA, and C. FUJIOKA. Univ. of Hawaii, Honolulu.

**Q3.** Assessing the Recreational Quality and Sources of Fecal Indicator Bacteria in Kaelepulu Stream. Hawaii. (005) B. ROLL,* and R. FUJIOKA. Univ. of Hawaii, Honolulu.

**Q4.** Inactivation of Vibrio cholerae Biotype El Tor and Biotype Classical by Chlorination. (007) C. H. JOHNSON, M. E.


Session 26 (Q). BIOTRANSFORMATION AND DEGRADATION I: AROMATICS AND HALOGENATED AROMATICS


Q32. Environmental Factors Affecting Reductive Dechlorination of Chlorinated Aromatics by Microorganisms or Vitamin B$_2$. (063) L. NIES* and T. M. VOGEL. Univ. of Michigan, Ann Arbor.


Q34. Characterization of Genes Involved in 2,4,5-Trichlorophenoxyacetic Acid Degradation by Pseudomonas cepacia
Session 27 (H). NOVEL REGULATORY PROTEINS


H10. Analysis of the lux Regulatory Region from the Squid Light Organ Symbiont Vibrio fischeri ES114. (095) K. GRAY. Univ. of Iowa, Iowa City.

H11. Analysis of phoA Fusions Suggests that the Vibrio fischeri LuxR Protein Is a Membrane-Associated Luminescence Gene Activator. (097) D. KOLIBACHUK and E. P. GREENBERG. Cornell Univ., Ithaca, N.Y., and Univ. of Iowa, Iowa City.


H13. 1,2-Propanediol-Dependent Transcription of the cob and pda Genes in Salmonella typhimurium Is Abolished by Mutations in the cpx Locus. (101) M. R. RONDON* and J. C. ESCALANTE-SEMERA. Univ. of Wisconsin, Madison.

H14. Regulation of Transcription of the Streptococcus gordonii Glucosyltransferase Gene by rgg. (103) M. C. SULAVIK* and D. B. CLEWELL. Univ. of Michigan, Ann Arbor.


H16. Differential Expression of M Protein and C5a Peptidase Genes, Members of the vir Regulon, by Streptococcus pyogenes. (107) A. PODBIELNSKI, J. PETERSON, and P. CLEARY. Univ. of Minnesota, Minneapolis.


Session 28 (H). MUTAGENESIS AND RECOMBINATION


H30. Introduction of Tn916 into Clostridium perfringens Strains by Electroporation of the pAM120 Delivery Vehicle. (135) H. P. BLASCHEK, L. GAINES,* S. ALLEN, and A. Y. KIM. Univ. of Illinois, Urbana.


H34. Mutations in the rec-2 Gene of Haemophilus influenzae Lead to a Defect in Phage Recombination as Well as Genetic Transformation. (143) D. M. KUPFER* and D. MCCARTHY. Univ. of Oklahoma, Norman.


H36. Recombination between the hsdL Genes of Salmonella typhimurium LT7 and hsdL of Other Salmonella Species. (147) L. R. BULLAS* and O. IVACHTCHOOK. Loma Linda Univ., Loma Linda, Calif.


H38. Interaction of the RecA Protein of Escherichia coli with Single-Stranded Deoxyoligonucleotides. (151) P. R. BIANCO* and G. M. WEINSTOCK. Dept. of Biochemistry, Univ. of Texas Med. Sch., Houston.


Session 29 (T). RNA VIRUSES I

T1. Detection of Hepatitis C Virus RNA in Experimentally Infected Chimpanzees by Polymerase Chain Reaction. (157) F. MEEKS,* M. BEACLI, L. MIMMS, K. KRAWCZYNKI, and D. W. BRADLEY. Hepatitis Branch, Nat. Ctr. for Infectious Diseases, CDC, Atlanta, Ga., and Hepatitis R&D, Abbott Lab., Abbott Park, Ill.


T9. Isolation and Phenotypic Evaluation of ca B/AA/1/66 PAR#1518, a Natural Revertant of an Influenza Virus Vaccine Donor Strain. (173) B. M. MITCHELL* and D. C. DEBORDE. Univ. of Montana, Missoula.


T12. Phenotypes Expressed by Clones of Cold-Adapted Parainfluenza Virus Type 3 Vaccines and Their Parent Seed Viruses. (179) F. NEWMAN,* L. WELLS, and R. BELSHE. Saint Louis Univ., St. Louis, Mo.


VISIT THE EXHIBITS
Session 30 (C). BACTERIAL IDENTIFICATION SYSTEMS

C1. 2- to 3-h Identifications of Common Clinical Pathogens with the Vitek GNI and GPI Cards. (215) N. S. MOSS,* C. COOPER, and J. P. GAYRAL. BioMerieux Vitek, Inc., St. Louis, Mo.


A9. Site-Specific Mutations of Highly Conserved Residues in Aminoglycoside 3'-Phosphotransferase II [APH(3')-II]: Phenotypic and Structural Analysis of Mutant Enzymes. (283) S. KOCABEYIK* and M. PERLIN. Univ. of Louisville, Louisville, Ky.


A16. Use of Two-Dimensional Gels To Analyze the Postantibiotic Effect of Quinolones on Escherichia coli. (297) L. GUAN,* J. C. BURNHAM. Med. Coll. of Ohio, Toledo.

Session 32 (A). ANTIBIOTIC RESISTANCE


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Session 33 (Q). MICROBIAL INTERACTIONS WITH SULFUR COMPOUNDS

Q47. Phototrophic Growth on Mercaptonomalate, an Organolithothrophic Substrate. (002) P. T. VISSCHER* and B. F. TAYLOR. Univ. of Miami, Miami, Fla.


Q51. Microbial Hydrogenation of Coal and Model Compounds by Desulfovibrio desulfuricans and Sulfobolus brieleri. (010) M. V. S. MURTY,* D. BHATTACHARYYA, and M. I. H. ALEEM. Sch. of Biol. Sci. and Dept. of Chemical Engineering, Univ. of Kentucky, Lexington.

Q52. Analyses of Monohydroxyl Biphenyl Production from Dibenzoate by New Desulfurizing Bacteria. (012) P. WANG* and S. KARMER. Lehigh Univ., Bethlehem, Pa.

Q53. Aerobic Microbial Cometabolism of Methylbenzenophenes by Bacterial Cultures. (014) P. M. FEDORAK,* S. SAFTIC, and J. T. ANDERSSON. Univ. of Alberta, Edmonton, Alberta, Canada, and Univ. of Münster, Münster, Germany.


Q57. Production of Blackening and Odor in Kaolin Clay by Sulfate-Reducing Bacteria. (022) H. HUANG and H. W. REED, SR.* Emory Univ., Atlanta, Ga., and Georgia Col., Milledgeville.
**Session 34 (N). MICROBIAL ECOLOGY: SOIL AND WATER**


**Session 35 (H). SIGMA FACTORS AND PROMOTERS**


H42. Structure and Function Analysis of *Bacillus subtilis* Sigma Factors. (064) J. D. HELLMANN,* Y. F. CHEN, Y. L. JUANG, L. CHEN, and S. WILLIAMS. Cornell Univ., Ithaca, N.Y.


H47. Regulation of a Negative Regulator: Studies of the *flgM* Gene in *Salmonella typhimurium.* (074) K. GILLEN* and K. HUGHES. Univ. of Washington, Seattle.


H50. Iron-Mediated Transcriptional Regulation of Enterobactin Transport Genes in *Escherichia coli.* (080) C. CHRISTOFFERSEN,* T. BRICKMAN, and M. MCINTOSH. Univ. of Missouri, Columbia.

H51. Nutritional Analysis of the Promoter-Regulatory Region for the *fdhGH* (Formate Dehydrogenase-N) Operon in *Escherichia coli* K-12. (082) J. LI* and V. STEWART. Cornell Univ., Ithaca, N.Y.

H52. Comparative Analysis of the Seven RNA Promoters of *Escherichia coli.* (084) C. CONDON,* C. SQUIRES, and C. SQUIRES. Columbia Univ., New York, N.Y.

H53. Transcriptional Studies with Promoters Containing Curved DNA Using RNA Polymerase from *Escherichia coli* and *Bacillus subtilis.* (086) D. J. STEMKE, C. A. NICKERSON,* and E. C. ACHBERGER. Louisiana State Univ., Baton Rouge.

◆ VISIT THE EXHIBITS ◆
Session 36 (H). PLASMIDS: REPLICATION AND CONJUGATION


H67. Nucleotide Sequence of the traA and oriT Region of Enterococcus faecalis Plasmid pAD1. (115) F. Y. AN and D. B. CLEWELL. Univ. of Michigan, Ann Arbor.


H77. Occurrence of Duplicate Lysyl-tRNA Synthetase Genes in Escherichia coli and Other Prokaryotes. (126) M. V. SALUTA and I. N. HIRSFIELD. St. John’s Univ., Jamaica, N.Y.

H78. Reduced Copy Number of tRNA Genes in the Luminous Bacterial Symbiont of Kryptophananon alfredi Relative to Culturable Luminous Bacteria. (127) C. WOLFE and M. HAYGOOD. Scripps Inst. of Oceanography, Univ. of California-La Jolla.

Session 37 (H). MOLECULAR TAXONOMY AND EVOLUTION


H81. Occurrence of Duplicate Lysyl-tRNA Synthetase Genes in Escherichia coli and Other Prokaryotes. (130) M. V. SALUTA and I. N. HIRSFIELD. St. John’s Univ., Jamaica, N.Y.

H82. Reduced Copy Number of tRNA Genes in the Luminous Bacterial Symbiont of Kryptophananon alfredi Relative to Culturable Luminous Bacteria. (131) C. WOLFE and M. HAYGOOD. Scripps Inst. of Oceanography, Univ. of California-La Jolla.

NO SMOKING IN SESSIONS OR IN POSTER AREA

H84. rRNA Restriction Patterns as a Taxonomic Tool within Flavobacterium meningosepticum. (148) H. COLDING, J. BANGSOBORG, N. E. FIEHN, T. BENNEKO, and B. BRUUN. Inst. of Med. Microbiol. and Rigshospitalet, Univ. of Copenhagen, Copenhagen, Denmark.


H86. rDNA Restriction Patterns as a Taxonomic Tool within Z. HARA and D. R. HARRIS. Ohio State Univ., Columbus, and Mem. Sloan-Kettering Cancer Ctr., New York, N.Y.


H89. Restriction Fragment Length Polymorphism and Polymerase Chain Reaction-RAPD Analysis of Genomic DNA from the Fungus Entomophaga mali. (158) S. R. A. WALSH* and C. S. SILVER. Div. of Life Sci., Scarborough Campus, Univ. of Toronto, Scarborough, Ontario, Canada.

H90. rDNA Restriction Fragment Length Polymorphisms and the Species Concept in Saccharomyces cerevisiae. (160) F. I. MOLINA*, T. INOUE, and S.-C. JONG. American Type Culture Collection, Rockville, Md., and Yamazaki Baking Co., Ltd., Tokyo, Japan.


H94. Cloning, Primary Structure, and Analysis of the Large Chromosome of Histoplasma capsulatum. (182) C. MEADE. Nat. Inst. of Allergy and Infectious Diseases, Bethesda, Md.


Session 38 (F). MOLECULAR BIOLOGY AND MOLECULAR EPIDEMIOLOGY OF FUNGI

F1. Analysis of a Pneumocystis carinii Alpha-Tubulin Gene and a Neighboring Short Repetitive DNA Sequence. (174) J. ZHANG* and J. R. STRINGER. Univ. of Cincinnati, Cincinnati, Ohio.


F3. Analysis of the Transcription Factor IIID Gene of Pneumocys-
istis carinii. (178) S. M. SUNKIN*, J. ZHANG, and J. R. STRINGER. Univ. of Cincinnati, Cincinnati, Ohio.


F5. Localization of a Yeast-Phase-Specific Protein to the Cell Wall in Histoplasma capsulatum. (182) C. WEAVER, K. SHEEHAN, and E. KEATH*. St. Louis Univ. and Washington Univ., St. Louis, Mo.


F10. Mini-hromosome of Cryptococcus neoformans: Origin. (192) A. VARMA* and K. J. KWON-CHUNG. Nat. Inst. of Allergy and Infectious Diseases, Bethesda, Md.

F11. Characterization of a Family of Repetitive DNA Elements in Cryptococcus neoformans. (194) E. D. SPITZER and S. G. SPITZER. SUNY at Stony Brook, Stony Brook, N.Y.

F12. Probe for Typing Strains of Cryptococcus neoformans. (196) A. VARMA* and K. J. KWON-CHUNG. Nat. Inst. of Allergy and Infectious Diseases, Bethesda, Md.


F15. Evaluation of Pulse-Field Gel Electrophoresis and Arbitrarily Primed Polymerase Chain Reaction To Analyze the Genome of Clinical Isolates of Candida parapsilosis. (202) R. J. KUYKENDALL* and B. A. LASKER. CDC, Atlanta, Ga.

Session 39 (C). SPECIMEN COLLECTION, TRANSPORT, PROCESSING, AND MANAGEMENT


C34. Initial Testing of a Novel Urine Cultural Device. (220) M. ROSENBERG,* S. BERGER, M. BANKI, S. GOLDBERG, A. FINK, and A. MISKIN. Tel Aviv Univ., Tel Aviv, Israel.

C35. Analysis of the Uriscreen Rapid UTI Test. (222) V. REKASIUS, P. HERRERA,* J. DIZIKES, and C. R. LIBERTIN. Loyola Univ. of Chicago, Maywood, Ill.


C41. Clinical Value of Sputum Cultures in Patients with Acceptable Samples by Microscopic Examination. (234) L. G. REIMER. VA Med. Ctr. and Univ. of Utah, Salt Lake City.

C42. QA and Sputum Screening: Reliability of Interpretation of Gram-Stained Smears and Comparison of Different Screening Criteria. (236) K. SCHOFER,* A. MCGEEF, and N. CLERKE. Princess Margaret Hosp., Toronto, Ontario, Canada.


C52. Career Plateauing in the Clinical Microbiology Laboratory: A Challenge for the '90s and Beyond. (256) C. BOODRAM. Provincial Lab. of Publ. Health (PLNA), Univ. of Alberta, Edmonton, Alberta, Canada.

Session 40 (E). VACCINES AND IMMUNE RESPONSES


E22. Recognition of an 18-kDa Outer Membrane Glycoprotein as a Cholera Protective Antigen. (278) C. V. SCIORTINO, J. R. VA and Univ. of Louisville Sch. of Med., Louisville, Ky.


E29. The 37-kDa Protein of Streptococcus pneumoniae Protects Mice Against Fatal Challenge. (292) D. F. TALKINGTON,* A. KOENIG, and H. RUSSELL. CDC, Atlanta, Ga.


Session 41 (B). EXOTOXINS: BORDETELLA, CORYNEBACTERIUM, PSEUDOMONAS


B14. Binding of Pertussis Toxin to Glycolipids. (300) S. Z. HAUSMAN* and D. L. BURNS. Div. of Bacterial Products, FDA, Bethesda, Md.

B15. Characterization of a Mutant of Bordetella pertussis Having Reduced Levels of Pertussis Toxin in the Culture Supernatant. (302) F. D. JOHNSON,* A. A. WEISS, and D. L. BURNS. Div. of Bacterial Products, FDA, Bethesda, Md., and Virginia Commonwealth Univ., Richmond.


VISIT THE EXHIBITS
B27. Use of Synthetic Peptides To Identify a Region of Diphtheria Toxin Associated with ADP-Ribosyltransferase Activity. (326) J. OLSON. Med. Univ. of South Carolina, Charleston.


B29. Evidence that the Diphtheria Toxin-Associated Nuclelease Activity Is Intrinsic to the A Subunit and that the Amino-Terminal Region Is Involved. (330) S. LIEB, NICK,* L. CHAU, and B. WISNIESKI. UCLA, Los Angeles, Calif.


B31. Transcription Analysis of tox Promoter/Operator Mutants of Corynebacteriophage β. (334) A. E. KRAFFT. Uniformed Services Univ. of the Health Sci., Bethesda, Md.


B37. Cloning of a DNA Region of Pseudomonas aeruginosa Involved in Exotoxin A Regulation. (346) A. K. SAMPLE* and S. E. H. WEST. Univ. of Wisconsin, Madison.

B38. Activity of the regAB P1 Promoter Is Restored in Fe18, a Hypertoxin-Producing Mutant of Pseudomonas aeruginosa PA01. (348) J. Y. ALI* and D. G. STOREY. Univ. of Calgary, Calgary, Alberta, Canada.


Session 42 (B). HEMOLYSIN, UREASE, PHOSPHATASE, PROTEASE, LIPASE


B43. Hemolysis of Sheep Erythrocytes by Eikenella corrodens. (358) J. T. HELBER* and R. HIRSCHBERG. Univ. of Missouri, Kansas City.

B44. Calcium-Dependent Cytotoxicity of Escherichia coli Hemolysin against Polymorphonuclear Leukocytes. (360) A. K. MCCUNE* and D. F. BOEHM. Calif. Univ. of Pennsylvania, California, Pa.


B47. Intraperitoneal Hemoglobin Does Not Increase the Growth Rate of Hemolytic Escherichia coli. (366) M. SPENGLER,* A. MAY, D. GROSCHEL, and T. PRUETT. Univ. of Virginia, Charlottesville.

B48. Heme Acquisition and Hemolysin Production by Campylobacter jejuni. (368) E. PESCI* and C. PICKETT. Univ. of Kentucky, Lexington.


B54. Identification of Putative Regulatory Genes in the Plasmid-Encoded Urease Gene Cluster of Enterobacteriaceae. (380) S. E. D'ORAZIO* and C. M. COLLINS. Dept. of Microbiol. and Immunology, Univ. of Miami Sch. of Med., Miami, Fla.

Session 43 (Committee on General Meeting Planning, BET). Seminar
(Eligible for continuing education credit)

UPDATE '92 I

Wednesday, 12:00 Noon, Room 103

Convenors: JOHN M. LAMMERT, Gustavus Adolphus Col., St. Peter, Minn., and JOHN CLAUSZ, Carroll Col., Waukesha, Wis.

Update '92 in Regulatory T Lymphocytes
PHILLIP BAKER, Nat. Inst. of Allergy and Infectious Diseases, Rockville, Md.

Session 44 (C). Seminar
(Eligible for continuing education credit)

COST-EFFECTIVE, CLINICALLY RELEVANT MICROBIOLOGY FOR THE 1990s

Wednesday, 1:30 P.M., Ballroom IA

Convenors: RAYMOND C. BARTLETT, Hartford Hosp., Hartford, Conn., and JAMES C. MCLAUGHLIN, Univ. of New Mexico Med. Ctr., Albuquerque

Historical Overview
RAYMOND C. BARTLETT, Hartford Hosp., Hartford, Conn.

Culture Methods in Bacteriology
SUSAN E. SHARP, Mount Sinai Med. Ctr., Miami, Fla.

Non-Culture Methods
MARIO J. MARCON, Children's Hosp., Columbus, Ohio

Virology
LISA A. WEYMOUTH, Univ. of Rochester Med. Ctr., Rochester, N.Y.

Role of Computers
MARK A. DYKSTRA, Res. Med. Ctr., Kansas City, Mo.

Implementing Change
ANN ROBINSON, Hartford Hosp., Hartford, Conn.

Session 45 (C). Seminar
(Eligible for continuing education credit)

EMERGING PATHOGENS IN THE IMMUNOCOMPROMISED HOST

Wednesday, 1:30 P.M., Ballroom IB


Mycobacterium haemophilum
TIMOTHY E. KIEHN, Mem. Sloan-Kettering Hosp., New York, N.Y.

Microsporidia
RALPH T. BRYAN, CDC, Atlanta, Ga.

Human Herpesvirus 6
DONALD CARRIGAN, Med. Col. of Wisconsin, Milwaukee

Mycoplasma fermentans (incognitus Strain)
SHYH-CHING LO, Armed Forces Inst. of Pathology, Washington, D.C.

Blue-Green Algae
EARL G. LONG, CDC, Atlanta, Ga.

VISIT THE EXHIBITS
Session 46 (V). Seminar  
(Eligible for continuing education credit)

STRATEGY OF ISOLATION AND DETECTION OF HUMAN IMMUNODEFICIENCY VIRUS TO ACHIEVE ACCURATE DIAGNOSIS

Wednesday, 1:30 P.M., Room 10


Overview
NARAYAN C. KHAN, Braton Biotech, Inc., Rockville, Md.

Isolation of Human Immunodeficiency Virus (HIV): a Confirmatory Procedure for HIV Detection
SUSAN GARTNER, Henry M. Jackson Fndn., Rockville, Md.

Supplementary Assays To Evaluate Human Immunodeficiency Virus Antigen/Antibody-Positive and -Negative Specimens
SUSHIL G. DEVARE, Abbott Lab., Abbott Park, Ill.

Analysis of Indeterminate Human Immunodeficiency Virus Western Blots
STEVE ALEXANDER, Cambridge Biotech, Rockville, Md.

Polymerase Chain Reaction for Human Immunodeficiency Virus Detection: How To Ensure Correct Analysis
GEORGE H. KELLER, Cambridge Biotech, Rockville, Md.

Session 47 (R). Seminar  
(Eligible for continuing education credit)

MOLECULAR EVOLUTION AND SYSTEMATICS OF FUNGI

Wednesday, 1:30 P.M., Room 37


Evolution and Identification of Human Pathogenic Ascomycetes
JOHN W. TAYLOR, Univ. of California, Berkeley

Perithecial Ascomycetes: Their Association with Insects
MEREDITH BLACKWELL and JOSEPH W. SPATAFORA, Louisiana State Univ., Baton Rouge

Differences in Rates and Modes of Evolution between Homologous Regions of Nuclear and Mitochondrial Small Subunit rRNA in Fungi
THOMAS D. BRUNS, Univ. of California, Berkeley

Evolution of Ribosomal DNA Internal Transcribed Spacers in Fusarium and Other Fungi

Systematics of Fungi in the Rhizoctonia Complex
RYTAS J. VILGALYS, Duke Univ., Durham, N.C.

Evolutionary Relationships of Ascomycetous Yeasts

Session 48. Divisional Group II Symposium  
(Eligible for continuing education credit)

MICROBIAL DEVELOPMENT

Wednesday, 1:30 P.M., Room 39


Aerial Mycelium Formation in Streptomyces

Intercellular Signals Controlling Sigma Factor Activity during Sporulation in Bacillus subtilis
PATRICK STRAGIER, Inst de Biol. Physico-Chimique, Paris, France

Control of Spatial Organization and Asymmetry in Caulobacter
LUCY SHAPIRO, Stanford Univ. Sch. of Med., Stanford, Calif.

Regulated Gene Expression for an Intracellular Pathogen
DAN PORTNOY, Univ. of Pennsylvania, Philadelphia

Rhizobium Genes and Molecular Signals Controlling Symbiotic Development
SHARON LONG, Stanford Univ., Stanford, Calif.

Session 49 (U). Seminar  
(Eligible for continuing education credit)

MOLECULAR BIOLOGY IN THE DIAGNOSIS AND EPIDEMIOLOGY OF TUBERCULOSIS: FROM BENCH TO BEDSIDE

Wednesday, 1:30 P.M., Room 100

Convenors: THOMAS M. DANIEL, Case Western Reserve Univ., Cleveland, Ohio, and JACK T. CRAWFORD, CDC, Atlanta, Ga.

Molecular Biology and Tuberculosis: an Overview
THOMAS M. SHINNICK, CDC, Atlanta, Ga.

Mycobacterium tuberculosis and the Polymerase Chain Reaction
KATHLEEN D. EISENACH, McClellan Mem. VA Hosp., Little Rock, Ark.

Mycobacterium tuberculosis and DNA Fingerprinting
JACK T. CRAWFORD, CDC, Atlanta, Ga.

Clinical Epidemiology and the Diagnosis of Tuberculosis
THOMAS M. DANIEL, Case Western Reserve Univ., Cleveland, Ohio

Molecular Biology and the Epidemiology of Tuberculosis
PHILIP C. HOPEWELL, Univ. of California, San Francisco

NO SMOKING IN SESSIONS OR IN POSTER AREA
Session 50 (BET). Round Table
(Eligible for continuing education credit)

CRITICAL THINKING OR PROBLEM SOLVING SKILLS

Wednesday, 1:30 P.M., Room 103


As educators, we all agree that it is important to teach our students critical thinking and problem solving skills. The difficulty is in developing strategies for the effective instruction of these skills. In this session we will address the use of "writing in the curriculum," "concept mapping," "case studies," and "problem solving exercises" in both lecture and laboratory situations.

In addition, there will be a presentation about the nature of educational materials prepared for this type of instruction and the expectations of employers as to the types of skills they would like microbiology undergraduates to possess. The participants will discuss strategies they are using in lecture and laboratory situations at institutions ranging from large universities to two-year colleges and for the development of educational materials.

The session will begin with an introductory statement about critical thinking and problem solving skills. The difficulty in teaching these skills. In this session we will address the use of "writing in the curriculum," "concept mapping," "case studies," and "problem solving exercises" in both lecture and laboratory situations.

Participants: SALLY S. DEGROOT, LISA S. DONOHUE, THOMAS J. HAGEN, LORINDA S. MEYERS, and STEPHEN R. KARR

Session 51 (D)

MOLECULAR BIOLOGY OF TREPONEMES AND OTHER SPIROCHETES

Wednesday, 1:30 P.M., Room 2

Moderators: THOMAS FITZGERALD, Univ. of Minnesota, Duluth, and RONALD J. LIMBERGER, New York State Dept. of Health, Albany

1:30


D12. Cloning and Sequencing of the 16S rRNA Gene from Treponema pallidum. P. KEBRIAIEI* and V. V. TRYON. Univ. of Texas Health Sci. Ctr., San Antonio.


Health. Albany, and Dept. of Microbiol. and Immunology, West Virginia Univ., Morgantown.

2:30

D15. Cloning and Characterization of Spirochae avansia Periplasmic Flagellar Filament Genes. J. PARALES* and E. P. GREENBERG. Univ. of Iowa, Iowa City.


D17. Comparative Molecular Analysis of Virulent and Avirulent Strains of Borellia anserina. E. D. TULLSON,* B. C. ZINGG, and R. B. LEFEBVRE. Univ. of California, Davis.


3:30


Session 52 (B). Seminar
(Eligible for continuing education credit)

MOLECULAR BIOLOGY OF BACTERIAL RESPIRATORY DISEASES

Wednesday, 1:30 P.M., Room 5

Convenors: SUSAN FROSHAUER and CATHERINE P. REESE, Pfizer Inc., Groton, Conn.

Bacterial Adhesins, Leukocyte Adhesion Molecules, and Pneumonia
ELAINE TUOMANEN, Rockefeller Univ., New York, N.Y.

Tracheal Cytokinin and the Respiratory Pathology of Pertussis
WILLIAM E. GOLDMAN, Washington Univ., St. Louis, Mo.

VISIT THE EXHIBITS
Leukotoxin Negative Mutant of Pasteurella haemolytica
GEORGE M. WEINSTOCK, Univ. of Texas Med. Sch., Houston

Determinants of Pseudomonas aeruginosa Respiratory Tract Colonization
STEPHEN LORY, Univ. of Washington, Seattle

Molecular Pathogenesis of Legionnaires Disease
HOWARD SHUMAN, Columbia Univ., New York, N.Y.

Session 53 (D). Seminar
(Eligible for continuing education credits)

MODEL SYSTEMS IN SEXUALLY TRANSMITTED DISEASE RESEARCH: FROM TISSUE CULTURE TO EXPERIMENTAL HUMAN INFECTION

Wednesday, 1:30 P.M., Room 21


Chlamydia-Like Polarized Human Cells In Vitro
PRISCILLA B. WYRICK, Univ. of North Carolina Sch. of Med., Chapel Hill

Interactions of the Pathogenic Neisseriae with Eukaryotic Cells
MAGDALENE SO, Oregon Health Sci. Univ., Portland

Investigation of the Pathogenesis of Chancroid: Possibilities and Problems
ERIC J. HANSEN, Univ. of Texas Southwestern Med. Ctr., Dallas

Immunoregulation in Experimental Rabbit Syphilis: Applications to Vaccine Development
THOMAS J. FITZGERALD, Univ. of Minnesota Sch. of Med., Duluth

Dynamics of Gonococcal Opacity Protein during Experimental Human Infection
ANN JERSE, Univ. of North Carolina Sch. of Med., Chapel Hill

Session 54 (F). Seminar
(Eligible for continuing education credits)

FUNGAL ENZYMES AS MARKERS OF DISEASE ACTIVITY

Wednesday, 1:30 P.M., Room 27


β-Glucosidase of Coccidioides immitis
GARRY T. COLE, Univ. of Texas, Austin

Aspartyl Protease of Candida albicans
CHRISTINE J. MORRISON, CDC, Atlanta, Ga.

Phenol Oxidase of Cryptococcus neoformans

18-kDa Ribotoxin of Aspergillus fumigatus

Endolase of Candida albicans

 Catalase of Histoplasma capsulatum and Collagenase of Cryptococcus neoformans
ANDREW J. HAMILTON, Guy's Hosp., London, England

Session 55 (E). Seminar
(Eligible for continuing education credits)

ENDOTOXIN EFFECTS ON SIGNAL TRANSDUCTION

Wednesday, 1:30 P.M., Room 16


Signal Transduction in Hepatic and Alveolar Macrophages in Endotoxemia
JUDY A. SPITZER, Louisiana State Univ. Med. Ctr., New Orleans

Role of Serum Proteins in Responses to Endotoxin
SAMUEL D. WRIGHT, Rockefeller Univ., New York, N.Y.

Activation of Neutrophils by Lipopolysaccharide (LPS): Inactivation of LPS by Neutrophils
MICHAEL J. PABST, Univ. of Tennessee, Memphis

Role of Novel Purino-Receptors in Endotoxin-Mediated Macrophage Activation
RICHARD A. PROCTOR, Univ. of Wisconsin, Madison

Lipopolysaccharide (LPS) Antagonists and Their Relationships to LPS Receptors
DOUGLAS GOLENBOCK, Boston City Hosp., Boston, Mass.

Genetic Analysis of Lipopolysaccharide Action in B Lymphocytes
CAROL H. SIBLEY, Univ. of Washington, Seattle
Session 56 (I). Seminar
(Eligible for continuing education credit)

CENTRAL PHYSIOLOGICAL PROCESSES
PERFORMED BY PHOTOTROPHIC BACTERIA

Wednesday, 1:30 P.M., Room 36

Convenors: TIMOTHY DONOHUE and PAUL LUDDEN, Univ. of Wisconsin, Madison

Molecular Biology and Biochemistry of Photosynthetic Carbon Dioxide Assimilation
ROBERT TABITA, Ohio State Univ., Columbus

Genetics and Physiology of the Rhodopseudomonas Viridis Carbon Monoxide Dehydrogenase System
ROBERT KERBY, Univ. of Wisconsin, Madison

Integrating Nitrogen Metabolism in Phototrophs: ADP Ribosylation of Nitrogenase and Glutamine Synthetase in Rhodospirillum rubrum
PAUL LUDDEN, Univ. of Wisconsin, Madison

Session 57 (T)
RNA VIRUSES II

Wednesday, 1:30 P.M., Room 93


1:30 Divisional Lecture
(Eligible for continuing education credit)

Replication of Alphaviruses: Engineering Transient Gene Expression Vectors Using a Positive-Strand RNA Virus
CHARLES RICE, Washington Univ. Sch. of Med., St. Louis, Mo.

2:30


T34. Protective Role of CD8+ T Cells In Vivo against Murine Retrovirus-Induced Neurological Disorders and Immunodeficiency Is Enhanced by the Presence of CD4+ T Cells. K. SAHA* and P. K. Y. WONG. Univ. of Texas-M.D. Anderson Cancer Ctr., Smithville.


Session 58 (E)
MECHANISMS OF PROTECTIVE IMMUNITY:
CYTOKINES AND ISOTYPE-SPECIFIC ANTIBODY RESPONSES

Wednesday, 1:30 P.M., Room 1

Moderators: SUZANNE M. MICHALEK, Univ. of Alabama, Birmingham, and CHRISTOPHER E. TAYLOR, Nat. Inst. of Allergy and Infectious Diseases, Rockville, Md.

1:30


E32. Effects of Gamma Interferon on the Antibody Response to Pseudomonas aeruginosa Lipopolysaccharide. C. E. TAYLOR* and M. B. FAUNTLEROY. Lab. of Immunogenetics, Nat. Inst. of Allergy and Infectious Diseases, Rockville, Md.


2:30


* V: HIT THE EXHIBITS *


E40. Tick-Infected Hamsters Fail To Produce Early Antibody to the Outer Surface Proteins of *Borrelia burgdorferi*. J. ROEHRING, J. PIESMAN, A. HUNT, M. KEEN,* C. HAPP, and B. JOHNSON. Div. of Vector-Borne Infectious Diseases, Nat. Ctr. for Infectious Diseases, CDC, Fort Collins, Colo.

Session 59 (N). Seminar
(Eligible for continuing education credit)

ASPECTS OF DRINKING WATER MICROBIAL ECOLOGY

Wednesday, 1:30 P.M., Room 80


Measurement of Biodegradable Organic Carbon in Drinking Water

New Methods for Detection of Viruses and Protozoa in Drinking Water
JOAN B. ROSE, Univ. of South Florida, Tampa

Reliability of Water Potability Assessment Methods: Past, Present, and Future
BARRY PYLE and GORDON MCFETERS, Montana State Univ., Bozeman

Water System Biofilms
DONALD J. REASONER, U.S. EPA, Cincinnati, Ohio

Session 60 (Q). Seminar
(Eligible for continuing education credit)

ASSESSING THE USE OF NONINDIGENOUS MICROORGANISMS IN BIOREMEDIATION II

Wednesday, 1:30 P.M., Room 19

Convenors: MICHAEL V. WALTER, Texaco Inc., Beacon, N.Y., and JAMES G. MUELLER, SBP Inc. Atlanta, Ga.

Degradation of Vapor Phase Trichloroethylene
BURT ENSLEY, Envirogen, Princeton, N.J.

Bioreactor Technology for the Degradation of Creosote and Pentachlorophenol: Pilot-Scale Demonstration under the U.S. EPA Site Demonstration Program

Aerobic Polychlorinated Biphenyls Biodegradation Field Test in the Hudson River
DANIEL A. ABRAMOWICZ, GE Res. & Development Ctr., Schenectady, N.Y.

Degradation of Polychlorinated Biphenyls on Soil by Genetically Engineered Bacteria
FRANK MONDELLO, GE Res. & Development Ctr., Schenectady, N.Y.

Constitutive Degradation of Trichloroethylene in Removable Bioactive Cassettes and Tricking Biofilters
M. SHIELDS, R. SCHAUBHAUTS, M. REAGIN, B. HUGHES, J. CHERRY, and D. LANG, Univ. of West Florida, Tech. Resources Inc., and Univ. of Waterloo, SBP Tech., Gulf Breeze, Fla.


Session 62 (Committee on International Activities in Microbiology, PSAB; AAM). 
Round Table

**MICROBIOLOGY: FOOD AND WATER QUALITY CONCERNS IN DEVELOPING COUNTRIES**

Wednesday, 1:30 P.M., Room 95

*Convenors:* RITA COLWELL, Univ. of Maryland, College Park; MOSELLIO SCHAECHTER, Tufts Univ. Sch. of Med., Boston, Mass.; and DAVID PRAMER, Rutgers Univ., Piscataway, N.J.

Conservation of human health and development, particularly in the developing countries, requires regular monitoring and assessment of the quality of available food and water resources. Water and food, absolute necessities for life, are also vectors of disease and significant factors in endemic and epidemic scourges. Readily available, safe, and reliable food and water supplies make possible a hygienic environment that is conducive to human resources development. As will be discussed by representatives of the Microbial Recourses Centres (MIRCENs), quality management practices and constant monitoring of the use of microbiological standards constitute effective tools in conserving public health and the human environment.

**Participants:** M. N. MAGDOUB, TIBO DEAK, R. COLWELL, P. ATTHASAMPUNNA, JEAN-CLAUDE PANISSE, DAVID PRAMER, B. ORUKO, and M. SCHAECHTER

**Session 63 (Q)**

**MOLECULAR PROBES IN MICROBIAL ECOLOGY**

Wednesday, 1:30 P.M., Room 97

**Moderators:** DAVID A. STAHL, Univ. of Illinois, Urbana, and MICHAEL P. SHIARIS, Univ. of Massachusetts, Boston

1:30 Divisional Lecture

(Eligib. for continuing education credit)

Microbial Ecology and the Direct Identification of Microorganisms in Natural Habitats: an Historical Perspective

NORBERTO J. PALLERONI, NYU Med. Ctr., New York, N.Y.

2:30


Q61. Use of an Oligonucleotide Hybridization Probe Designed from Environmentally Derived 16S rRNA Sequences To Monitor Enrichment and Isolation of Sulfate-Reducing Bacteria. L. K. POULSEN, M. D. KANE,* and D. A. STAHL. Univ. of Illinois, Urbana.


Q63. Comparative Genetic Analysis of Phenanthrene-Degrading Bacteria and Their Response to Phthalate or Salicylate Induction. C. A. MCSORLEY and O. A. OGUNSEITAN.* Univ. of California, Irvine.

3:30

Q64. Application of Bioluminescent Reporter Technology as a Tool To Investigate the Involvement of the NAH System in the Catabolism of Different Polyaromatic Hydrocarbons. B. APPLEGATE,* J. MCPHERSON, F. MENN, and A. HEIT-
ZER. Dept. of Microbiol., Ctr. for Environmental Biotechnology, Univ. of Tennessee, Knoxville.

Q65. Differentiation and Grouping of Phenanthrene-Degrading Bacteria by DNA-DNA Hybridization with Multiple DNA Probes. Y. YANG.* M. WALSH, and M. SHARIS. Univ. of Massachusetts, Boston.


Q67. Quantitation of Catabolic mRNA as a Measure of Biodegradation in Contaminated Soils. J. T. FLEMING* and G. S. SAYLER. Ctr. for Environmental Biotechnology, Univ. of Tennessee, Knoxville.

Session 64 (O). Seminar
(Eligible for continuing education credit)

INDUSTRIAL-SCALE MICROBIAL AND ENZYMATIC PRODUCTION OF SPECIALTY CHEMICALS
(Dedicated to the Memory of Robert W. Detry)

Wednesday, 1:30 p.m., Room 82


Enzyme-Catalyzed Production of Phenolic Resins
ALEXANDER R. POKORA, Mead Res., Chillicothe, Ohio

Enzymatic Processes for the Production of Acrylamide
TORU NAGASAWA, Nagoya Univ., Iikusa Nagoya, Japan

Enzymatic Production of Glyoxylic Acid
DAVID ANTON and ROBERT DICOSIMO, DuPont, Wilmington, Del.

Enzymatic Acylation/Resolution of a Key Intermediate in the Synthesis of Loracarbe, a New β-Lactam Antibiotic
MILTON J. ZMIJEWSKI, JR., and JEFFREY LEVY, Lilly, Indianapolis, Ind.

Production of Novel Chemicals Using Industrial-Scale Biocatalysis
CHRIS EVANS, RAY MCCAGUE, and RICHARD WISDOM, Enzymatix, Cambridge, England

Session 65 (P). Round Table
(Eligible for continuing education credit)

HOW MUCH LISTERIA MONOCYTOGENES IS TOO MUCH?

Wednesday, 1:30 p.m., Room 87


It is proving to be difficult to prevent the occasional occurrence of Listeria monocytogenes in our food supply. This difficulty is due in part to the reasonably widespread presence of this organism in nature and raw foods, the moderate resistance of the cells to commonly used methods to reduce or prevent growth of food-borne microorganisms, and the ability of the organism to grow at refrigeration temperatures. The infective dose of this pathogen is not known but certainly differs significantly for different segments of the population. This round table will address varying viewpoints on the requirements for providing safe foods with respect to L. monocytogenes. Participants will present their personal or institutional perspective concerning to what extent L. monocytogenes can be tolerated in our food supply and whether or not all foods should be subject to the same regulations intended to prevent human illness due to food-borne L. monocytogenes. Panelists include representatives from industry and industrial associations, U.S. regulatory agencies, the Canadian government, Europe, and academia.

Participants: D. BERNARD, J. CAROSELLA, L. COX, J. FARBER, J. M. JAY, KVENBERG, and J. MARSDEN

POSTER SESSIONS

Wednesday, 1:30-3:00 p.m., Exhibit Hall C

Session 66 (C). BACTEREMIA AND FUNGEMIA I


CS7. 5-Day versus 7-Day Protocol for Blood Cultures Using the BacT/Alert Blood Culture Instrument in a University Medical Center (009) L. M. MANN,*. T. QUON, and D. A. BRUCKNER, UCLA Med. Ctr., Los Angeles, Calif.


CS9. Recovery and Detection of Clinically Important Microorganisms with the BacT/Alert Pediatric Culture Bottle. (013) S. B. WILKINS, and T. C. THORPE, Organon Teknika Corp., Durham, N.C.

CS60. Comparison of BacT/Alert with BACTEC 460 for Time to Detection of a Wide Variety of Microorganisms at Very Low Concentrations in Blood. (015) A. E. CASIANO-COLON,* B. B. HULBERT, P. C. MIGNEAULT, and D. J. HARDY, Univ. of Rochester Med. Ctr., Rochester, N.Y.

**Session 67 (V). SERODETECTION OF BACTERIAL, PARASITIC, AND MISCELLANEOUS ANTIGENS**


**V2. Comparison of Eight Commercial Kits for Detection of Antibodies to Borrelia burgdorferi.** (047) J. L. SCHMITZ,* C. POWELL, and J. D. FOLDS. Univ. of North Carolina Hosp., Chapel Hill.


**V4. Antibodies to Borrelia burgdorferi in Sera of Patients with Spirochete-Associated Oral Disease: Reactivities with 41-kDa (Flagellar) and 66-kDa Antigens.** (051) D. C. MALLOY, K. K. NAUMAN,* and R. K. NAUMAN. Maryland Med. Lab., Inc., and Univ. of Maryland Dent. Sch., Baltimore.


**V10. Evaluation of Direct Immunofluorescence as a Complementary Test for the Diagnosis of Chlamydia trachomatis by Enzyme Immunoassay.** (063) P. BAYARDELLE* and E. SETTECASI. Hôpital Honoré Mercier, Saint-Hyacinthe, and Hôpital Notre-Dame, Univ. de Montréal, Montreal, Quebec, Canada.


**V13. Immunoglobulin A (IgA) and IgG Subclasses Responses to the Lipopoligosaccharide of Bordetella pertussis in Serum Samples from Pertussis Patients and Controls.** (069) G. N. SANDEN* and P. K. CASSIDAY. CDC, Atlanta, Ga.

**V14. Comparison of Two Agglutination Assays and a Radioimmunoassay for the Detection of Anti-Thyroglobulin and Anti-Thyroid Peroxidase Antibodies.** (071) M. M. TAMASHIRO.*
Session 68 (G). MOLLICUTES AND DISEASE: ETIOLOGY, DIAGNOSIS, AND ANTIMICROBIAL SUSCEPTIBILITY


• NO SMOKING IN SESSIONS OR IN POSTER AREA •
Session 69 (D). PHYSIOLOGY AND STRUCTURE OF PATHOGENIC BACTERIA


D29. Immunological Reactivity of Brucella abortus Hsp 60. (135) J. LIN, R. SMITH III, L. G. ADAMS, and T. A. FICHET. Texas A&M Unv./Texas Agricultural Exp. Station, College Station.


D31. Stress-Induced Protein from Group B Neisseria meningitidis. (139) G. ARAKERE* and C. E. FRASCH. Div. of Bacterial Products, Ctr. for Biologies Evaluation and Res., FDA, Bethesda, Md.


D34. Cysteine Acquisition of Legionella pneumophila. (145) M. T. POCH* and W. JOHNSON. Univ. of Iowa, Iowa City.


D42. Cloning of the Restriction Modification Genes from Yersinia enterocolitica 8081. (161) S. A. KINDER,* E. BRYANT, J. PEPE, and V. L. MILLER. UCLA, Los Angeles, Calif.


Session 70 (B). GENETICS OF VIRULENCE OF PATHOGENIC BACTERIA


B70. Dissecting Escherichia coli K1 Pathogenesis by Chromosome Replacement with K-12 DNA. (173) C. BLOCH* and C. RODE. Univ. of Michigan, Ann Arbor.


B73. How Genes Are Required for Cloacin DF13 Susceptibility in Escherichia coli Expressing the Aerobactin/Cloacin DF13 Receptor IutA. (179) J. A. THOMAS* and M. A. VALVA-N0. Dept. of Microbiol. and Immunology, Univ. of Western Ontario, London, Ontario, Canada.

B75. A Novel Locus for In Vivo Down-Regulation of Yersinia enterocolitica Virulence. (183) M. SKURNIK,* A. AL-HENDY, and P. TOIVANEN. Turku Univ., Turku, Finland.


B78. Two Effects of lerD Mutations in Yersinia pestis. (189) G. V. PLANO* and S. C. STRALEY. Univ. of Kentucky, Lexington.


B80. The AlgR Binding Sites within the algD Promoter Comprise a Set of Inverted Repeats Separated by 340 bp. (193) C. D. MOHR,* J. LEVEAU,* and N. S. HIBLER. Univ. of Texas Health Sci. Ctr., San Antonio.


B84. Pseudomonas aeruginosa Population Transcript Accumulation in the Sputum of Patients with Cystic Fibrosis. (201) D. G STOREY,* E. E. UIJACK, and H. R. RABIN. Univ. of Calgary, Calgary, Alberta, Canada.


B86. A Nonmotile Transposon Mutant of Listeria monocytogenes with Pleiotropic Effects. (205) S. KATHARIOU and X. OU.* Univ. of Hawaii, Honolulu.

B87. Genetic Characterization of Pleiotropic Mutations of Listeria monocytogenes Associated with Deficiencies in Multiple Virulence-Related Factors. (207) V. OSHIRO,* F. QUINN, and S. KATHARIOU. Univ. of Hawaii, Honolulu, and CDC, Atlanta, Ga.


Session 71 (Q). MICROBIAL INTERACTIONS WITH METALS: RESISTANCE, RECOVERY, AND TOXICITY


Q70. Removal and Recovery of Cu(II) from Industrial Effluent by Immobilized Cells of Pseudomonas Species. (223) P. K. WONG* and C. M. SO. Dept. of Biol., Chinese Univ. of Hong Kong, Shatin, N.T., Hong Kong.


Q73. Transformation of Pb II to Lead Colloid by Moraxella bovis. (229) B. L. SAIZ* and L. L. BARTON. Dept. of Biol., Univ. of New Mexico, Albuquerque.


Q75. Communication of Tributyltin Resistance among Freshwater Sediment Bacteria. (233) C. E. MILLER* and R. M. PFISTER. Ohio State Univ., Columbus.

Q76. Genetic Basis of Increased Hg2+ Resistance in Pseudomonas aeruginosa PU21 (Rip64). (235) O. A. OGUNSEITAN. Univ. of California, Irvine.

Q77. Prokaryotic Metallothionein as Exemplified by Cyanobacterial Metallothionein. (237) M. RHODES,* S. RHODES, and S. SILVER. Dept. of Microbial and Immunol. Univ. of Illinois, Chicago.

Q78. Cadmium and Zinc Resistance in a Strain of Pseudomonas putida. (239) S. FRACKMAN* and K. H. NEALSON. Ctr. for Great Lakes Studies, Univ. of Wisconsin, Milwaukee.

Q79. Correlation of SO42- Reduction with Hg2+ Methylation in Anoxic Aquatic Sediments. (241) S.-C. CHOI* and R. BAR-THA. Rutgers Univ., New Brunswick, N.J.


Q81. Analysis of Structural Responses of Anabaena dolioiun (Cyanophyceae) to Aluminum: Morphometric and X-Ray Microanalysis Study. (245) E. JONES, T. E. JENSEN, and W. A. CORPE.* Lehman Col. of City Univ. of New York and Columbia Univ., New York, N.Y.

Q82. The Toxicological Response of Synechococcus leopiolens (Cyanophyceae) to Cadmium: Morphometric and X-Ray Mi-
Session 72 (H). DNA REPLICATION AND MODIFICATION


H100. New Essential Cell Division Gene Isolated as Dosage-Dependent Suppressor of an ftsA Temperature-Sensitive Mutation. (257) K. DAI* and J. LUTKENHAUS. Univ. of Kansas Med. Ctr., Kansas City.


H103. Use of Polymerase Chain Reaction-Coupled In Vivo Transcription/Translation To Study Thermotolerant Bacterial DNA Polymerases. (263) P. A. LANDRE* and D. H. GELFAND. PCR Div., Cetus Corp., Emeryville, Calif.


H108. Construction of pCAK1 Phage-Plasmid Hybrid (Phasmid) and Its Replication in Escherichia coli. (273) A. Y. KIM* and H. F. BLASCHER. Univ. of Illinois, Urbana.


H111. Modulation of McrBC Restriction by a 33-kDa Protein. (279) T. P. BEARY* and E. C. ACHBERGER. Louisiana State Univ., Baton Rouge.


Session 73 (I). ARCHAEABACTERIA I: PHYSIOLOGY AND MOLECULAR BIOLOGY


II5. The Product of the mcgD Gene Is Involved in Methanogenesis. (289) D. STROUP* and J. N. REEVE. Dept. of Microbiol., Ohio State Univ., Columbus.


II7. Regulation of a Novel Methanogen Enzyme by Phosphorylation. (293) M. F. ROBERTS,* N. RAO, K. SASTRY, and A. LEONARD. Univ. of Hawaii, Hilo.


I22. Purification of Corrinoid Proteins Metylated by Acetate from Methanosarcina barkeri. (303) J. D. KREMER,* X. CAO, and J. A. KRZYCKI. Ohio State Univ., Columbus.

I23. Inhibition of Methanogenesis in Methanobacterium thermoautotrophicum by Lumazine. (305) K. R. NAGAR-ANTHAL,* and D. P. NAGLE, JR. Univ. of Oklahoma, Norman.


I26. Glycine Betaine and Potassium Are the Major Compatible Solutes in the Extreme Halophilic Methanogen Methanohalo-

VISIT THE EXHIBITS
Session 74 (F). EPIDEMIOLOGY OF FUNGAL INFECTIONS


F18. Outbreak of Fungemias Due to Candida parapsilosis from a Multidose Bottle of Liquid Glycerin in a Neonatal Intensive Care Unit. (004) S. WELBEL,* M. MCNEIL, A. PRAMANIK, and T. LOTT. CDC, Atlanta, Ga., and Louisiana State Med. Ctr., Shreveport.


F22. Can the Safety of Fungi Associated with Crops Be Managed through Fungal Domestication? (012) P. LOBEL, P. MCDONALD, and J. TORRETTE. Ancona, Italy.


Session 75 (C). BACTEREMIA AND FUNGEMIA II


Wednesday, 3:00-4:30 p.m., Exhibit Hall C (Board numbers in parentheses)


Session 76 (A). SUSCEPTIBILITY OF FUNGI AND OTHER MICROORGANISMS


A35. Inhibition of Toxoplasma gondii Protein Synthesis by Azithromycin. (078) J. BLAIS,* V. GARNEAU, and S. CHAMBERLAND. Ctr. de Recherche du Ctr. Hosp. de l'Univ. Laval, Quebec, Quebec, Canada.


A40. Inhibition of Cell Wall Biosynthesis in Candida albicans by Extracts of Marine Organisms. (088) P. J. MCCARTHY* and T. A. PETERSON. Harbor Branch Oceanographic Inst., Fort Pierce, Fla.


Session 77 (A). MISCELLANEOUS: ANTIMICROBIAL ACTIVITY


A49. Diverse Tobramycin Efficacy on Ca" and Mg"-Treated Pseudomonas aeruginosa Biofilms. (106) B. D. HOYLE* and C. K. W. WONG. Biofilm Group, Dept. of Biol. Sci., Univ. of Calgary, Calgary, Alberta, Canada.


A51. Effects of Metal and Nonmetal Electrodes and Media Composition on Microbial Population Reduction and Killing by L- Roterphoresis. (110) C. P. DAVIS,* N. M. WAGLE, M. D.

VISIT THE EXHIBITS

A53. Effects of Temperature and Specific Nutrients on Fluoride Resistance in Streptococcus mutans. (114) R. P. STORY and T. A. KRAL.* Univ. of Arkansas, Fayetteville.


A67. Stress Protein Induced by Antibiotic Treatment in Streptococcus pneumoniae. (142) P. MOREILLON* and A. TOMASZ. Rockefeller Univ., New York, N.Y.

A68. Survivorship of Enterococcus faecalis or Staphylococcus aureus Exposed to Vancomycin with or without Gentamicin. (144) L. R. BARTHOLOMEW* and R. K. FORSTER. King Khalid Eye Specialist Hosp., Riyadh, Kingdom of Saudi Arabia.


A74. Postantibiotic Effect of Selected Antibiotic Tested in Milk and K. M. HENRICKSON. Baylor Col. of Med., Houston, and G. LANCZ. Univ. of South Florida, Tampa.


Session 78 (Q). BIODEGRADATION OF LIGNIN AND POLYAROMATIC HYDROCARBONS

Q84. Reduction of Pentachlorophenol Toxicity to Growth of a Selected Microbial Consortium by Pretreatment with Phanerochaete chrysosporium and Fenton’s Reagent. (162) L. E. KOVACH,* S. H. LEE, and J. B. CARBERRY. ICi Pharmaceuticals, Wilmington, Del., and Univ. of Delaware, Newark.

Q85. A DNA Probe for Peroxidase Genes in Actinomycetes. (164) B. MAHADEVAN* and D. L. CRAWFORD. Univ. of Idaho, Moscow.

Q86. Enzymatic Biotransformation of Chlorinated and Nonchlorinated Aromatic Compounds. (166) D.-M. LI,* A. R. SIAHFUSH, R. F. HICKEY, and H. WANG. Michigan Biotechnology Inst., Lansing, and Dept. of Chemical Engineering, Univ. of Michigan, Ann Arbor.


Q88. Effect of Nitrogen Concentration on Lignin Degradation by Mycorrhizal Fungi. (170) P. K. DONNELLY* and J. A. ENTRY. Univ. of Idaho, Moscow, and Oregon State Univ., Corvallis.

Q89. Role of Extracellular Fungal Sheaths in Wood Biodegradation: A Cytochemical Investigation. (172) M. NICOLI F.* H.
CHAMBERLAND, J. P. GEIGER, J. VALERO, N. LECOURS, and G. B. OUELLETTE. Orstom/Forets Canada, Ste-Foy, Quebec, Canada.


Q94. The Role of Yeasts in Biotransformation and Bioavailability of Phenanthrene in Coastal Sediments. (182) A. R. MACGILLIVRAY* and M. P. SHIARIS. Univ. of Massachusetts, Boston.


Session 79 (H). PLASMIDS: NOVEL PROPERTIES


H117. Genetic Analysis of Transposable Mercury Resistance Encoded by the OCH Plasmid (212) C.-S. WANG* and D. A. BAEYENS, and M. MERGEAY. Lab. of Genetics and Biotechnology, Flemish Inst. of Technological Res. (VITO-SCK/CEN), Mol, Belgium.

H118. Regulation of Plasmid-Borne 2,4-Dichlorophenoxycetic Acid Catabolic Genes Involves Multiple Regulatory Genes (214) I.-S. YOU. Dept. of Biol., California State Univ., Fresno.


H121. Molecular Analysis of Plasmids from \textit{Thiobacillus ferroxidans}. (220) T. J. ZUPANCIC,* L. CHAKRAYARY, B. BAKER, J. D. KITTLER, I. FRY, D. T. PALMER, and O. H. TUOVINEN. Battelle, Columbus Laboratories, and Ohio State Univ., Columbus.


for Food and Animal Res., Agriculture Canada, Ottawa, Ontario, Canada.


Session 80 (1). ARCHAEBACTERIA II: DIVERSITY AND STRUCTURE

I27. Isolation and Characterization of a Methane-Producing Bacterium from a Hypersaline Pond in Southern New Mexico. (240) S. WATTS* and L. P. JONES. Univ. of Texas, El Paso.


I29. Isolation and Enumeration of H2O2-Utilizing Methanogenic Bacteria from the Rumen of a High-Grain-Fed Steer. (244) B. J. WILSEY* and D. M. SCHAFFER. Univ. of Wisconsin, Madison.


Session 81 (K). EUKARYOTIC MICROBIAL METABOLISM

K1. Kinetic Analysis of the 55-kDa Form of Phosphatidylinositol 4-Kinase from Saccharomyces cerevisiae. (256) R. J. BLUEDA* and G. M. CARMAN. Rutgers Univ., New Brunswick, N.J.

Session 83 (Committee on Ethical Practices).  
Round Table  
(Eligible for continuing education credit)

**A STAMPEDE OF ZEBRAS: A STAGED READING OF A PLAY ABOUT SCIENTIFIC MISCONDUCT BY ROBERT G. MARTIN**

Wednesday, 8:00 p.m., Room 20


A new postdoctoral fellow in the laboratory can't repeat experiments from the lab's recent paper. Is it the usual problems of inexperience, a new lab, and a new project? Have some of the materials gone bad, mutated, or died? Or is there something seriously wrong? How to proceed when there are other really hot experiments crying to get done? A group of professional actors present a reading of a play by molecular biologist Robert G. Martin that explores this situation and the consequences of making hurried choices. After the play, the Committee on Ethical Practices will provide some written suggestions for further discussion of the issues raised by the play.

Limited shuttle service will be provided from ASM hotels to the Convention Center for Session 83. Please consult shuttle schedules posted in hotel lobbies for complete service information.

Session 84 (C). Seminar  
(Eligible for continuing education credit)

**NEW APPROACHES TO MOLECULAR EPIDEMIOLOGY**

Thursday, 8:30 A.M., Ballroom IA


Choosing Molecular Techniques for Your Microbiology Laboratory  
FRED C. TENOVER, CDC, Atlanta, Ga.

Field Inversion and Pulse Field Gel Electrophoresis  
RICHARD V. GOERING, Creighton Univ., Omaha, Nebr.

Molecular Epidemiology of Emerging Bacterial Pathogens Revealed by Multilocus Enzyme Electrophoresis  
JAMES M. MUSSER, Baylor Univ., Houston, Tex.

Restriction Fragment Length Polymorphism Analysis of Bacterial Pathogens  
JOHN OGLE, Univ. of Colorado Health Sci. Ctr., Denver

Ribotyping and Polymerase Chain Reaction Ribotyping  
TERRENCE L. STULL, Med. Col. of Pennsylvania, Philadelphia

Session 85 (C). Round Table  
(Eligible for continuing education credit)

**PRACTICAL PROBLEMS IN CLINICAL MICROBIOLOGY**

Thursday, 8:30 A.M., Ballroom IB


8:30 Divisional Lecture  
Becton-Dickinson Award Lecture  
Evolving Technology and Changing Needs in Clinical Microbiology  
JAMES J. JORGENSEN, Univ. of Texas Health Sci. Ctr., San Antonio

9:15 Sonnenwirth Memorial Lecture  
The Clinical Microbiologist: Past, Present, and Future  
PAUL D. ELLNER, Columbia Univ. Col. of Physicians and Surgeons, New York, N.Y.

Round Table

Each of the six speakers will address a practical problem in clinical microbiology that involves the deduction of appropriate methods, strategies, or reporting. The idea is that some of these conclusions might lead to the establishment of new standards of performance and interpretation of microbiology tests.

Participants: PATRICK R. MURRAY, JOSEPHINE A. MORELLO, PAUL A. GRANATO, CAROL SPIEGEL, JOSEPH L. STANECK, and GERRI S. HALL

Session 86 (V). Seminar  
(Eligible for continuing education credit)

**HEPATITIS VIRUSES FROM A TO F**

Thursday, 8:30 A.M., Room 10


Introduction  
ISA K. MUSHAHWAR, Abbott Lab., North Chicago, Ill.

Hepatitis A Update  
ROBERT H. PURCELL, NIH, Bethesda, Md.

Hepatitis B Update  
ADRIAN M. DIBISCEGLIE, NIH, Bethesda, Md.

Hepatitis C Update  
RICHARD R. LESNIEWSKI and GEORGE G. SCHILLER, Abbott Lab., North Chicago, Ill.

Hepatitis D Update  
JOHN L. GERIN, Georgetown Univ., Rockville, Md.

VISIT THE EXHIBITS
Hepatitis E Update
GREGORY REYES and GEORGE J. DAWSON, Gene'abs, Redwood City, Calif., and Abbott Lab., North Chicago, Ill.

Hepatitis F
DANIEL W. BRADLEY, CDC, Atlanta, Ga.

Session 87 (H). Seminar
(Eligible for continuing education credit)
DNA RECOMBINATION: BIOLOGY AND BIOCHEMISTRY

Thursday, 8:30 A.M., Room 43
dif. a recA-Independent Recombination Site in the Terminus Region
PETER L. KUEMPPEL, Univ. of Colorado, Boulder
The Mechanism of Hin Recombination
REID C. JOHNSON, UCLA Sch. of Med., Los Angeles, Calif.
Tn7. Target Site-Specific Transposon
NANCY L. CRAIG, Johns Hopkins Sch. of Med., Baltimore, Md.
Human Immunodeficiency Virus DNA Integration
FREDERIC BUSHMAN, NIH, Bethesda, Md.
In Vitro Studies on the Mu DNA Strand Transfer Reaction
GEORGE CHACONAS, Univ. of Western Ontario, London, Ontario, Canada

Session 88 (R). Seminar
(Eligible for continuing education credit)
EXPERIMENTAL STUDIES IN POPULATION GENETICS AND EVOLUTION

Thursday, 8:30 A.M., Room 37
Convenors: DANIEL E. DYKHUIZEN, Univ. of Stony Brook, Stony Brook, N.Y., and LIN CHAO, Univ. of Maryland, College Park
Metabolic Basis of Natural Selection: a lac of Hyperbole
Development and Maintenance of Polymorphisms in Populations of Microorganisms Evolving in a Simple Unstructured Environment
JULIAN P. ADAMS, Univ. of Michigan, Ann Arbor
DNA Damage and Evolution of Sex in Bacteria
JUDITH MONGOLD, Univ. of Massachusetts, Amherst
Evolution of Sex in RNA Viruses
LIN CHAO, Univ. of Maryland, College Park

Session 89 (M). Seminar
(Eligible for continuing education credit)
ANALYSIS OF PROKARYOTIC GENOMES

Thursday, 8:30 A.M., Room 39
Convenors: JAMES R. LUPSKI, Baylor Col. of Med., Houston, Tex., and GEORGE WEINSTOCK, Univ. of Texas Med. Sch., Houston
Informatic Analysis of the Escherichia coli Genome
KENNETH RUDD, NIH, Bethesda, Md.
Transposon- and Polymerase Chain Reaction-Based Sequencing Methods
DOUGLAS BERG, Washington Univ., St. Louis, Mo.
Bacterial Genomes: Mapping and Stability
GEORGE WEINSTOCK, Univ. of Texas Med. Sch., Houston
Distribution of Repetitive Sequences in Eubacterie and Application to Fingerprinting of Bacterial Genomes
JAMES R. LUPSKI, Baylor Col. of Med., Houston, Tex.
High Specificity, Semisynthetic, Site-Specific DNA Cleavage Agent: Application to Genome Analysis
RICHARD EBRIGHT, Waksman Inst., Rutgers Univ., New Brunswick, N.J.
Sequencing of Large Genomes without Conventional Cloning
WACLAW SZYBALSKI, Univ. of Wisconsin, Madison

Session 90 (K). Seminar
(Eligible for continuing education credit)
DIAZOTROPHIC SYMBIONTS: GENETICS AND METABOLISM

Thursday, 8:30 A.M., Room 41
Convenors: JAIME MORA, Ctr. de Investigacion sobre Fijacion de Nitrogeno, Cuernavaca, Mor., Mexico, and JUDY D. WALL, Univ. of Missouri, Columbia
Divisional Lecture
Structure and Dynamics of the Rhizobium Genome
RAFAEL PALACIOS, Ctr. de Investigacion sobre Fijacion de Nitrogeno, Cuernavaca, Mor., Mexico
Signals and Circuits: Regulation of the Rhizobium meliloti nod Genes
SHARON LONG, Stanford Univ., Stanford, Calif.
Genetic Analyses of Nodule Invasion and Development
GRAHAM WALKER, MIT, Cambridge, Mass.
Nitrogen and Carbon Metabolism in Free-Living and Symbiotic Diazotrophs
JAIME MORA, Ctr. de Investigacion sobre Fijacion de Nitrogeno, Cuernavaca, Mor., Mexico
Nitrogen Fixation in Association with Gramineae
JOHANNA DOBEREINER, EMBRAPA, Programa Nacional de Pesquisa em Biol. de Solo, Rio de Janeiro, Brazil

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Session 91 (BET)

MICROBIOLOGY EDUCATION: ELEMENTARY SCHOOL THROUGH COLLEGE

Thursday, 8:30 A.M., Room 103

Moderators: LYNNE SECHRIST, SUNY at Potsdam, Potsdam, N.Y., and WILLIAM H. COLEMAN, Univ. of Hartford, West Hartford, Conn.

8:30 Education Lecture
(Eligible for continuing education credit)

The Art of Biography and the Science of Microbiology
JOAN BENNETT, Tulane Univ., New Orleans, La.

9:30

BET1. Designing Ability-Level-Specific Programs To Spark Interest in Microbiology. L. LAATSCH. Marquette Univ., Milwaukee, Wis.


10:30


BET7. Test Scores Are Improved by Changing Initial Answers on Answer Sheets and on Test Pages Used as Optional Worksheets. F. WHITEHOUSE, JR.,* and W. K. DAVIS. Univ. of Michigan, Ann Arbor.

BET8. Writing as a Basis for Scientific Inquiry and Research: Medical Microbiology as an Undergraduate Writing Intensive Course. W. H. COLEMAN* and B. EMMEL. Dept. of Biol. and Dept. of English, University of Hartford, West Hartford, Conn.

11:30


VISIT THE EXHIBITS
Session 93 (L). Seminar
(Eligible for continuing education credit)

THE CONCEPT OF STERILIZATION:
VARYING DEFINITIONS AND RISKS

Thursday, 8:30 A.M., Room 27

Convenors: MARTIN S. FAVERO and WILLIAM R. JARVIS, CDC, Atlanta, Ga.

Development of Sterility Assurance Levels (SALs) in the Medical Device Industry
ROBERT F. MORRISSEY, Johnson and Johnson, New Brunswick, NJ.

The Role of Medical Devices in Nosocomial Infections
WILLIAM R. JARVIS, CDC, Atlanta, Ga.

Sterility Assurance Levels Applied to Transplantable Tissues
CARL W. BRUCH, St. Jude Hosp., St. Paul, Minn.

The Sterilization Double Standard between Industry and Health Care Facilities
MARTIN S. FAVERO, CDC, Atlanta, Ga.

Harmonization of European and United States Requirements Affecting SALs
PHILIP LEGLISE, Becton Dickinson Europe, Meylan Cedex, France

Session 94 (D). Seminar
(Eligible for continuing education credit)

WHAT IS THE SIGNIFICANCE OF SALMONELLA, LISTERIA, AND CAMPYLOBACTER IN FOODS?

Thursday, 8:30 A.M., Room 85

Convenors: MORRIS POTTER, CDC, Atlanta, Ga., and NORMAN J. STERN, USDA Agricultural Res. Service, Athens, Ga.

What Is Epidemiology and Why Is It Important?
RICHARD DICKER, CDC, Atlanta, Ga.

Epidemiology of Salmonella
ROBERT TAUXE, CDC, Atlanta, Ga.

Epidemiology of Listeria
JAY D. WENGER, CDC, Atlanta, Ga.

Epidemiology of Campylobacter
GEORG KAPPERUD, Nat. Inst. of Publ. Health, Oslo, Norway

Epidemiology and Microbiology in Science Policy
GAIL CASSELL, Univ. of Alabama, Birmingham

Session 95 (I)

CHEMOTAXIS AND MOTILITY

Thursday, 8:30 A.M., Room 36

Moderators: J. C. ENSIGN, Univ. of Wisconsin, Madison, and M. S. JOHNSON, Loma Linda Univ., Loma Linda, Calif.

8:30


9:30

139. Characterization of the Pseudomonas aeruginosa pilI Locus Involved in Pilus Retraction and Twitching Motility. P. TRUAX and A. DARZINS.* Dept. of Microbiol., Ohio Univ., Columbus.


10:30

143. Presence of Chemotactic Receptors in Chemolithotrophic Acidophilic Bacteria. J. ROJAS, J. ACUNA, and C. A. JEREZ.* Univ. de Chile, Santiago, Chile.

Session 96 (T, S). Seminar
(Eligible for continuing education credit)

DISCOVERY AND APPLICATIONS OF VIRAL RNA PACKAGING SIGNALS

Thursday, 8:30 A.M., Room 93

Convenors: MARY ESTES, Baylor Coll. of Medicine, Houston, Tex., and REED WICKNER, NIH, Bethesda, Md.

Assembly of the L-A Double-Stranded RNA Virus of Saccharomyces cerevisiae: the Packaging Signal and the Packaging Protein
REED WICKNER, NIH, Bethesda, Md.
Identification and Analysis of a Coronavirus Packaging Signal

SHINJI MAKINO, Univ. of Texas, Austin

Specific Interactions between Sindbis Virus RNAs and the Viral Capsid Protein

BARBARA WEISS, Washington Univ. Sch. of Med., St. Louis, Mo.

Retroviral Packaging: In Vitro Assays with Human Immunodeficiency Virus Type 1

JEREMY LUBAN, Columbia Univ. Sch. of Med., New York, N.Y.

Session 97 (B)

PATHOGENIC NEISSERIA

Thursday, 8:30 A.M., Room 1

Moderators: H. S. SEIFERT, Northwestern Univ., Chicago, Ill., and D. W. DYER, SUNY at Buffalo, Buffalo, N.Y.

8:30


B96. Gonococcal Attachment to Human Leukocytes Is Enhanced by Complement C1q. S. NOWICKI* and M. MARS-TENS. Univ. of Texas Med. Branch, Galveston.

9:30


10:30


B102. Meningococci Make Different Lipooligosaccharides as They Grow and Divide: Analysis of Single Cells by Fluorescence-Activated Cell Sorting. M. ESTABROOK,** W. C. HYUN, and J. M. GRIFFISS. Univ. of California, San Francisco

B103. Molecular and Genetic Analysis of Lipooligosaccharide Biosynthesis in Neisseria gonorrhoeae. R. C. SANDLIN,** M. A. APICELLA, and D. C. STEIN. Univ. of Maryland, College Park, and SUNY, Buffalo, N.Y.

Session 98 (U). Seminar

(Eligible for continuing education credit)

IMMUNOPATHOGENESIS OF MYCOBACTERIUM AVIUM COMPLEX DISEASE

Thursday, 8:30 A.M., Room 80

Convenors: PATTISAPU R. J. GANGADHARAM, Univ. of Illinois Sch. of Med., Chicago, and JOSEPH FALKINHAM, Virginia Polytechnic Inst and State Univ., Blacksburg

Transposable Genetic Elements and Opaque and Transparent Colony Variants of Mycobacterium avium Complex

JOSEPH O. FALKINHAM III, Virginia Polytechnic Inst and State Univ., Blacksburg

Pathobiological Significance of Colony Morphology of M ycobacterium avium Complex

M. VENKATA REDDY, Univ. of Illinois Sch. of Med., Chicago

Mycobacterium avium Surface Antigens: Biomedical and Genetic Analysis of Their Synthesis

JOHN T. BELISLE, Colorado State Univ., Fort Collins

Host Factors in the Pathogenesis of Mycobacterium avium Complex Disease

PATTISAPU R. J. GANGADHARAM, Univ. of Illinois Sch. of Med., Chicago

Role of Lymphokine-Activated Killer Cells in the Pathogenesis of Mycobacterium avium Complex Disease

D. KAY BLANCHARD, Univ. of South Florida, Tampa

Session 99 (G). Seminar

(Eligible for continuing education credit)

MYCOPLASMAS IN VETERINARY MEDICINE

Thursday, 8:30 A.M., Room 19

Convenors: MARY B. BROWN, Univ. of Florida, Gainesville, and MARY C. DEBEY, Iowa State Univ., Ames

Capsular Polysaccharide of Mycoplasma dispar and Its Role as a Virulence Determinant in Bovine Pneumonia

RICARDO ROSENBUSCH, Iowa State Univ., Ames
Association of Mycoplasma with Upper Respiratory Disease in an Endangered Species, the Desert Tortoise
MARY B. BROWN, Univ. of Florida, Gainesville

Genomic Variability in Porcine Mycoplasmas
MARK MCINTOSH, Univ. of Missouri, Columbia

Pathogenic Mechanisms of Mycoplasma hyopneumoniae in Swine
MARY C. DEBEY, Iowa State Univ., Ames

Genital Mycoplasmosis in Sprague-Dawley Rats
DONNA A. STEINER, Univ. of Florida, Gainesville

Session 100 (N)
MICROBIAL ECOLOGY: GROUNDWATER AND SUBSURFACE

Thursday, 8:30 A.M., Room 33

Moderators: AARON L. MILLS, Univ. of Virginia, Charlottesville, and WILLIAM F. GUERIN, Michigan State Univ., E. Lansing

8:30 Divisional Lecture
(Eligible for continuing education credit)

Advances in Microbial Ecology
JAMES TIEDJE, Michigan State Univ., E. Lansing

9:30


10:30


11:30

Session 101 (Committee on International Activities, PSAB). Round Table
(Eligible for continuing education credit)

MOLECULAR BIOLOGY AND BIOCHEMISTRY OF ACIDOPHILIC CHEMOLITHOTROPHS: APPLICATIONS ON BACTERIAL LEACHING OF ORES

Thursday, 8:30 A.M., Room 95

Convenors: CARLOS A. JEREZ, Univ de Chile, Casilla, Chile, and EMILIO GARCIA, Lawrence Livermore Nat. Lab., Livermore, Calif.

Bacterial leaching is a process by which acidophilic microorganisms dissolve refractory sulfide ores to release their mineral content as an effluent. This biodegradation of ores is of great industrial importance since it may contribute about 10% to yearly world copper production, and it is also important for the recovery of gold, uranium, and other metals. This biological process is preferred since it can be applied to low- or high-grade ores, it has lower adverse environmental effects compared to smelting, and it generally has a lower cost.

In recent years, successful pilot plants have been set up in a number of countries, such as Brazil, Canada, Chile, Mexico, Peru, the Soviet Union, South Africa, and the United States. Although bacterial leaching occurs naturally, researchers are currently examining ways to optimize this process. This can be done by identifying the bacteria best suited to each biomining process and the conditions needed for optimum leaching such as acidity, temperature, and nutrient requirements. The specific topics covered during this round table will include the role played by different chemolithotrophs in the bioleaching processes and some of the present approaches to study gene expression and to develop genetic systems for future improvement of the acidophiles involved by genetic manipulation.

Participants: DAVID HOLMES, OMAR ORELLANA, F. F. ROBERTO, ROBERT BLAKE II, and OLLI H. TUOVINEN

Session 102 (U)
MYCOBACTERIAL GENES AND GENE PRODUCTS AND THEIR ROLES IN PATHOGENESIS

Thursday, 8:30 A.M., Room 97

L. WILLIAMS, Gillis W. Long Hansen's Disease Ctr., Carville, La.

8:30


9:30


10:30


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**Session 103 (Q). Round Table**

(Eligible for continuing education credit)

**MICROBIAL CULTURE PRODUCTS FOR ENVIRONMENTAL APPLICATIONS: SNAKE OIL OR SCIENCE?**

Thursday, 8:30 a.m., Room 82

Convener: DENNIS RAY SCHNEIDER, Micro-Bac Internat., Austin, Tex., and SUE MARKLAND DAY, Univ. of Tennessee, Knoxville.

Microbial culture products for use in remediating various types of industrial waste problems are meeting with increasing commercial success in a variety of areas. With the increased use of these products, a variety of issues have surfaced in regard to establishing scientific criteria for quality standards, marketing claims, and use protocols. The importance of setting standards for such products grows as a new industry establishes itself. Concerns of manufacturers and users of such products will be discussed along with possible actions to address such concerns.

Participants: A. ASHER, J. L. BRICE, I. DAVIS, S. M. DAVIES, S. JENSEN, and D. R. SCHNEIDER

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**Session 104 (O)**

**NATURAL PRODUCT DISCOVERY: NEW LEADS AND METHODS**

Thursday, 8:30 a.m., Room 87


8:30


9:30


10:30


Session 105 (K)

BACTERIAL TRANSPORT: ATPase, PTS, PERMEASES

Thursday, 8:30 A.M., Room 38

Moderators: ROBERT J. BROOKER, Univ. of Minnesota, St. Paul, and R. W. HUTKINS, Univ. of Nebraska, Lincoln

8:30

K17. Galactose-Proton Symport Decreases Aciduride of Streptococcus mutans GS-5. W. A. BELL* and R. E. MARQUIs. Univ. of Rochester, Rochester, N.Y.


K19. Sodium as the Coupling Ion for the ATPase of Acetobacterium woodii. R. HEISE* and V. MULLER. Inst. für Mikrobiologie, Göttingen, Germany.


9:30


10:30


K27. Molecular and Biochemical Characterization of Salmonella typhimurium Adenylyl Kinase Mutants Sensitive to Glycine Betaine. J. A. GUTIERREZ* and L. N. CONOCA. Purdue Univ., West Lafayette, Ind.


POSTER SESSIONS

Thursday, 9:00-10:30 A.M., Exhibit Hall C

(Boad numbers in parentheses)

Session 106 (O). GENE CLONING AND EXPRESSION OF FERMENTATION ENZYMES


O14. Use of an Avermectin Gene Cluster Probe To Isolate Genes Involved in Nemadectin Biosynthesis. (007) P. H. GIBBONS,* D. J. MACNEIL, F. FOOR, K. M. GEWAIN, J.


O17. Characterization and Chemical Activities of Barvory cinerea Laccase. (013) D. SLOMCZYSKI,* J. P. NAKAS, and S. W. TANENBAUM. SUNY Coll. of Environmental Sc. and Forestry, Syracuse, N.Y.


O27. Invertase B from Zymomonas mobilis: Purification and Gene Cloning. (033) P. O’MULLAN* and T. CHASE, JR. Rutgers Univ., New Brunswick, N.J.


O30. Activity of a Model Heterologous Protein in Proteinase Mutants of Saccharomyces cerevisiae. (039) J. M. WINGFIELD* and J. R. DICKINSON. Univ. of Wales Coll. of Cardiff, Cardiff, Wales.


Session 107 (N). MICROBIOLOGICAL WATER QUALITY


N33. Seasonal Variation in Actinomyces Levels in a Water Reservoir and Treatment System. (057) M. LAMAGDINE, D. OPHEIM,* and D. SMITH. Quinnciap Col. Hamden, Conn., and SCCRW, New Haven, Conn.


N35. Population Dynamics of Indicator Bacteria Associated with Combined Sewer Overflows and Bed Sediment in the Buffalo River, New York. (061) G. W. PETTIBONE* and K. N. IRVINE. SUNY at Buffalo, Buffalo, N.Y.


Session 108 (H). GLOBAL REGULATION: CARBON, NITROGEN, AND IRON


Session 109 (L). EPIDEMIOLOGIC TYPING: MISCELLANEOUS NOSOCOMIAL INFECTIONS


C99. Modified Mallory's Phosphotungstic Acid-Hematoxylin Permanent Stain Used for Parasitologic Examination of Stool. (151) C. S. PETERS,* L. HERNANDEZ, J. MONTGOMERY, F. DORIGAN, and F. E. KOCKA, Cook County Hosp., Chicago, III.


C103. Two New Phenotypic Tests Useful for Differentiation of Campylobacter Species. (159) A. P. Burnens* and J. Nicolet. Univ. of Berne, Berne, Switzerland.


Session 111 (B). IRON: TRANSFERRIN AND HEMOGLOBIN BINDING, SIDEROPHORES, AND OUTER MEMBRANE PROTEINS

B104. Comparative Analysis of Primate Transferrin Binding by Pathogenic Bacteria. (197) S. D. GRAY-OWEN* and A. B. SCHRYVERS. Univ. of Calgary, Calgary, Alberta, Canada.


B106. Distribution and Heterogeneity of the Transferrin-Binding Proteins in Actinobacillus pleuropneumoniae. (201) G.-F. GERLACH*, S. KLASCHINSKY, C. ANDERSON, A. A. POTTER, and P. J. WILLSON. Vet. Infectious Disease Organization, Univ. of Saskatchewan, Saskatoon, Saskatchewan, Canada.


B111. The Pyocin Sa Receptor of Pseudomonas aeruginosa Is Associated with Ferri-Pyoverdine Uptake. (211) P. H. HIRST, K. GENSBERG, K. HUGHES, and A. W. SMITH* Aston Univ., Birmingham, U.K.

B112. A Tn5 lac Insertion Which Impairs Siderophore Production by Bordetella bronchiseptica. (213) L. AGIATO* and D. W. DYER. SUNY at Buffalo, Buffalo, N.Y.


B116. Use of the Vibrio cholerae fur Gene as a Probe To Detect Homologous DNA in Other Pathogenic Bacteria and To Map the fur Gene of Vibrio vulnificus. (221) C. M. LITWIN* and S. B. CALDERWOOD. Massachusetts Gen. Hosp., Boston.


B119. Membrane Protein Expression by Actinobacillus actino- mycetemcomitans in Response to Iron Availability. (227) J. L. WINSTON*, C. K. WAIN, and M. E. NEIDERS. SUNY at Buffalo, Buffalo, N.Y.


B122. Comparison of Siderophore- and Desferrioxamine-Mediated Iron Acquisition in Yersinia enterocolitica. (233) C. E. CHAMBERS* and P. A. SOKOL. Univ. of Calgary, Calgary, Alberta, Canada.


B126. Utilization of Hemin as an Iron Source by *Vibrio cholerae*. (241) D. P. HENDERSON* and S. M. PAYNE. Univ. of Texas, Austin.


B128. 2,3-Dihydroxybenzoate-Promoted Iron Uptake in *Brucella abortus*. (245) I. LOPEZ-GONI* and J. B. NEILANDS. Univ. of California, Berkeley.


Session 112 (B). EXOTOXINS

B130. Shiga Toxin-Associated Hemolytic Uremic Syndrome: Combined Cytotoxic Effects of Lipopolysaccharide and Shiga Toxin on Human Vascular Endothelial Cells In Vitro. (249) C. LOUISE* and T. OBRIG. Univ. of Rochester, Rochester, N.Y.


B133. Pathogenesis of Shiga-Like Toxin Type II-Related Toxins in an Orally Infected Murine Model. (255) S. W. LINDGREN,* J. E. SAMUEL, C. K. SCHMITT, and A. D. O'BRIEN. Uniformed Services Univ. of the Health Sci., Bethesda, Md.


B135. Comparison of the Relative Pathogenicity of Shiga-Like Toxins Type I and Type II in Mice. (259) V. L. TESH,* V. M. GORDON, J. A. BURRIS, and A. D. O'BRIEN. Uniformed Services Univ. and Section of Comparative Pathology, NIH, Bethesda, Md.


B139. RTX-Related Cytolysins of *Actinobacillus equuli* and *Actinobacillus lignieresi*. (267) L. L. BURROWS* and R. Y. C. LO. Dept. of Microbiol., University of Guelph, Guelph, Ontario, Canada.


B151. Activation of the Hemolytic Lethal (a) Toxin of *Clostridium septicum* Occurs via Proteolytic Cleavage. (291) J. BALLARD* and R. K. TWETEN. Dept. of Microbiol. and Immunology, Univ. of Oklahoma Health Sci. Ctr., Oklahoma City.


B154. Localization of the 1-ect Specificity Domain of the *Bacillus thuringiensis* subspp. *israelensis* Endotoxin. (297) M.

VISIT THE EXHIBITS ➤

THURSDAY


Session 113 (B). VIRULENCE AND INVASION OF SALMONELLA AND ESCHERICHIA COLI


B161. katF Influences the Expression of a Salmonella Plasmid-Encoded Virulence Gene. (311) F. FANG,* S. LIBBY, N. BUCHMEIER, and D. GUINEY. Univ. of California, San Diego.


B163. The Salmonella typhimurium Virulence Plasmid Affects the Growth Rate of Salmonella in Mice, Probably within Infected Host Cells. (315) P. A. GULIG* and T. J. DOYLE. Univ. of Florida Coll. of Med., Gainesville.

B164. Identification and Molecular Characterization of a Salmonella typhimurium Gene Involved in Triggering the Internalization of Salmonellae into Cultured Epithelial Cells. (317) C. GINOCCHIO,* J. PACE, and J. GALAN. Dept. of Microbiol., SUNY Stony Brook, Stony Brook, N.Y.

B165. Osmoregulation of Salmonella typhi Invasion of Henle 407 Intestinal Epithelial Cells. (319) C. TARTERA,* E. S. METCALF. Uniformed Services Univ. of the Health Sci., Bethesda, Md.

B166. Interaction of Salmonella typhimurium with Cultured Epithelial Cells Is Accompanied by a Rise in Free Intracellular Calcium Levels. (321) J. PACE* and J. GALAN. Dept. of Microbiol., SUNY Stony Brook, Stony Brook, N.Y.


B181. Epithelial Cell Invasion by the Enterotoxigenic Escherichia coli tib Locus Is Associated with a 118-kDa Outer Membrane Protein. (351) E. A. ELSINGHORST. Walter Reed Army Inst. of Res., Washington, D.C.


D45. Sequence Analysis of Pseudomonas aeruginosa DNA Containing the Alginate Gene algT Reveals the Adjacent Gene nadB Encoding Aspartate Oxidase. (359) W. A. WOOD-RUFF, D. J. HASSETT, and D. E. OHMAN. Univ. of Tennessee and VA Med. Ctr., Memphis, and Univ. of North Carolina. Chapel Hill.

D46. Transcriptional Activation of lasR. (361) A. M. ALBUS* and B. H. IGLEWSKI. Univ. of Rochester, Rochester, N.Y.

D47. Identification, Cloning, and Sequencing of a las Homolog (lasI) from Pseudomonas aeruginosa. (363) J. M. COOK* and B. H. IGLEWSKI. Univ. of Rochester, Rochester, N.Y.

D48. Analysis of the Pseudomonas aeruginosa Elastase (lasB) Regulatory Region. (365) L. RUST* and B. H. IGLEWSKI. Univ. of Rochester Sch of Med. and Dent., Rochester, N.Y.


D52. The Preopetide of Pseudomonas aeruginosa Elastase Acts as an Elastase Inhibitor. (373) E. KESSLER* and M. SAFRIN. Goldscheider Eye Inst., Tel Aviv Univ., Sheba Med. Ctr., Tel Hashomer, Israel.


D56. Evidence of Free Phosphotyrosine in the Flagella of Pseudomonas aeruginosa. (381) S. L. SOUTH,* K. KELLY-WINTENBERG, W. B. SLOAT, and T. C. MONTIE. Univ. of Tennessee, Knoxville.

D57. Chemotaxis to Oligopeptides by Pseudomonas aeruginosa. (383) K. KELLY-WINTENBERG* and T. C. MONTIE. Univ. of Tennessee, Knoxville.


D59. Characterization of Bacterial Ligands Involved in the Nonopsonic Phagocytosis of Pseudomonas aeruginosa. (387) E. MAHENTHIRALINGAM* and D. P. SPEERT. Univ. of British Columbia, Vancouver, British Columbia, Canada.


D64. Effects of Prednisolone Treatment on Bacterial Clearance and Corneal Response in a Murine Pseudomonas aeruginosa-Induced Keratitis Model. (397) K. A. KERNACKI,* M. J. PRESTON, and R. S. BERK. Dept. of Immunology/Microbiol., Wayne State Univ., Detroit, Mich.

**VISIT THE EXHIBITS**

**POSTER SESSIONS**

Thursday, 10:30–Noon, Exhibit Hall C

(Boar numbers in parentheses)

Session 115 (P). CHARACTERIZATION AND DETECTION OF GRAM-NEGATIVE BACTERIA IN FOODS


Session 116 (Q). BIODEGRADATION OF PETROLEUM AND ITS COMPONENTS


Q112. Microbial Degradative Activity in Groundwater at a Chemical Waste Disposal Site. (052) H. M. HWANG* and R. E. HODSON. Jackson State Univ., Jackson, Miss., and Univ. of Georgia, Athens.

Q113. Microbial Scrubbing of Benzene-Toluene-Xylene Solvent Mixtures and Chlorinated Solvents from Air. (054) Y. S. OH* and R. BARTHA. Rutgers Univ. New Brunswick, N. J.


Q119. Changes in Acute Toxicity during On-Site Bioremediation of Soil Contaminated by No. 2 Fuel Oil. (066) I. SHEN* and R. BARTHA. Rutgers Univ., New Brunswick, N. J.

Session 117 (K). METABOLISM OF PHENOLICS AND HALOGENATED ORGANICS


K53. Inactivation of Ammonia Oxidation

K52. Identification of Aldehyde Dehydrogenases Involved in Virginia Polytechnic Inst. and State Univ., Blacksburg, 1


K45. Analysis of the Gene Encoding 3-Ketoadipate Succinyl-Coenzyme Transferase. (126) D. WILLIAMSON.


K42. Nucleotide Sequence of the Region of the Pseudomonas putida TOL Plasmid pDK1 and Expression of the Encoded Toluolate-1,2-Dioxygenase in Escherichia coli. (092) D. R. HARES,* E. AZADPOUR, and R. C. BENJAMIN. Dept. of Biol. Sci., Univ. of North Texas, Denton.


K36. Identification of Aldehyde Dehydrogenases Involved in Virginia Polytechnic Inst. and State Univ., Blacksburg, 1


Session 119 (C). FUNGI: DETECTION, IDENTIFICATION, AND ANTIMICROBIAL SUSCEPTIBILITY TESTING


C127. Prospective Comparison of Latex Agglutination Test with Enzyme Immunoassay for Detection of Cryptococcal Antigen in Patients with Cryptococcal Disease. (160) D. SHAPIRO,* W. KELLY, K. WAIT, and P. GILLIGAN. Univ. of North Carolina Hosp., Chapel Hill.


Session 120 (F). FUNGAL BIOLOGY AND PATHOGENESIS


F54. Endospore Differentiation in Coccioidioides immitis. (204) K. SESHAN* and G. COLE. Univ. of Texas, Austin.


F57. Conditions Affecting the Adherence of Cryptococcus neoformans to Glial and Lung Epithelial Cells. (210) G. J.
E41. Production of Tumor Necrosis Factor Alpha by Resting Macrophages from BALB/c Mice Is Increased by Serum Albumin. (216) Z.-M. ZHENG* and S. SPECTER. Dept. of Med. Microbiol. and Immunology, Univ. of South Florida Col. of Med., Tampa.

E42. Potentiation of Interferon-Mediated Induction of Indoleamine 2,3-Dioxygenase in Human Macrophages. (216) B. HISSONG, E. F. CHASE, Jr., and J. D. MACMILLAN. Cook Col., Rutgers Univ., New Brunswick, N. J.


E52. In Situ Studies of Cytokine mRNA Production in the Livers of Mice Infected with Listeria monocytogenes (238) D. WAGNER* and C. CZUPRYSKNI. Univ. of Wisconsin Sch of Vet. Med., Madison.


E54. Delta-9-Tetrahydrocannabinol Treatment Results in Decreased Numbers of Interleukin-2 Receptors in Human and Murine Lymphocytes. (242) K. TRISLER* and S. SPECTER. Dept. of Med. Microbiol. and Immunology, Univ. of South Florida, Col. of Med., Tampa.


E64. Production of Antibodies to Antibiotics by Using Liposomes as Adjuvants. (262) M. RAVAOARINORO* and E. TOMA. Hôtel-Dieu de Montreal and Univ. of Montreal, Montreal, Quebec, Canada.


Session 121 (E). CYTOKINE AND INFLAMMATORY HOST RESPONSES TO INFECTIONS

VISIT THE EXHIBITS


D69. Chlamydia trachomatis Is Auxotrophic for Three of the Four Nucleoside Triphosphates. (274) G. TIPPLES* and G. A. MCCRARY. Univ. of Manitoba, Winnipeg, Manitoba, Canada.

D70. Chlamydia Strains Synthesize Folate De Novo. (276) H. FAN* G. A. MCCRARY, and R. C. BRUNHAM. Univ. of Manitoba, Winnipeg, Manitoba, Canada.

D71. A Promoter-Detecting Transposable Element That Employs Bacterial Luciferase and Has a Host Range That Includes Chlamydia trachomatis. (278) J. E. TAM* and P. B. WYRIC. Dept. of Microbiol. and Immunology, Univ. of North Carolina, Chapel Hill.

D72. Cloning and Sequence Analysis of a 41-kDa Polypeptide from Chlamydia trachomatis. (280) R. KAUL,* R. U. MEUSER, and W. M. WENMAN. Dept. of Pediatrics, Univ. of Alberta, Edmonton, Alberta, Canada.


D75. Expression of the 18-kDa Chlamydial Histone Analog in Escherichia coli. (286) C. E. BARRY III* and T. HACKSTADT. Lab. of Intracellular Parasites, Rocky Mountain Lab., Nat. Inst. of Allergy and Infectious Diseases, Hamilton, Mont.


D77. Phospholipase A2 Activity Associated with Immediate Cytotoxicity of Chlamydia. (290) S. AWASTHI,* H. SU, and T. HACKSTADT. Lab. of Intracellular Parasites, Rocky Mountain Lab., Nat. Inst. of Allergy and Infectious Diseases, Hamilton, Mont.

D78. Indoleamine 2,3-Dioxygenase Induction in Macrophages Infected with Chlamydia psittaci. (292) A. M. PAGUIRIGAN* and J. M. CARLIN. Miami Univ., Oxford, Ohio.


D82. Expression and Immunological Characterization of a Synthetic Gene Coding for the Major Outer Membrane Protein of Chlamydia trachomatis. (300) H. M. JONES* and R. S. STEPHENS. Univ. of California, San Francisco.


Session 123 (D). INTRACELLULAR PATHOGENS: RICKETTSIA, COXIELLA, AND EHRlichIA


Session 124 (A). SUSCEPTIBILITY TO QUINOLONES

A77. Comparative In Vitro Activity of New Fluorinated Quinolones, CI-960 and PD-131628, against Staphylococi.
GENERAL MEMBERSHIP MEETING

Thursday, 12:00 Noon, Room 5

All Society members are urged to attend and take part in the discussion of Society activities and business.

Session 127 (I). Symposium
(Eligible for continuing education credit)

CYSTIC FIBROSIS: A GENETIC DISEASE AND ITS IMMUNOLOGICAL AND MICROBIOLOGICAL CONSEQUENCES

Thursday, 1:30 P.M., Room 10


Structure and Function of CFTR Proteins
MICHAEL WELSH, Univ. of Iowa, Iowa City

New Therapeutic Approaches to the Treatment of Cystic Fibrosis
ROBERT J. BEALL, Cystic Fibrosis Fndn., Bethesda, Md.

Inflammation and Local Immune Dysfunction in Cystic Fibrosis
MELVIN BERGER, Case Western Reserve Univ., Cleveland, Ohio

Pseudomonas aeruginosa Infections and Virulence Factors
BARBARA H. IGLEWSKI, Univ. of Rochester, Rochester, N.Y.

Environmental Regulation of Pseudomonas aeruginosa Alginate and Potential Alginate Inhibitors
ANANDA CHAKRABARTY, Univ. of Illinois Col. of Med., Chicago

Session 128 (H). Seminar
(Eligible for continuing education credit)

PROTEIN EXPORT IN ESCHERICHIA COLI: THE GENETIC APPROACH

(Organized by Phil Bassford and dedicated to his memory)

Thursday, 1:30 P.M., Room 37


The Role of SecB in Maltose-Binding Protein Export
SHARON STROBEL and PHIL BASSFORD, Univ. of North Carolina, Chapel Hill

Novel Activities of the SecA ATPase and Their Relevance to Protein Export
DON OLIVER, Wesleyan Univ., Middletown, Conn.

Integral Membrane Components of the Sec Pathway

The Protein Secretion Pathway Revealed by Suppressors
TOM SILHAVY, Princeton Univ., Princeton, N.J.

Structure, Function, and Membrane Assembly of Leader Peptidase
ROSS DALBY, Ohio State Univ., Columbus

Session 125 (C). Round Table
(Eligible for continuing education credit)

CASE PRESENTATIONS IN CLINICAL MICROBIOLOGY

Thursday, 1:30 P.M., Ballroom IB


Twelve clinical cases will be presented by the panelists in the areas of bacteriology, parasitology, mycology, mycobacteriology, and virology. Following the presentation of each case, one of the panelists or the audience will attempt to identify the mystery pathogen or explain the unusual laboratory findings. The audience will be encouraged to contribute their own experiences with like cases. The cases presented will highlight common problems in clinical microbiology and "tricks of the trade" to take home and use in one's own laboratory setting.

Participants: JOSEPH CAMPOS, ROBERTA CAREY, PETER GILLIGAN, KARIN MCGOWAN, DAVID WELCH, and MARY YORK

Session 126 (C). Seminar
(Eligible for continuing education credit)

ALTERNATIVE APPROACHES FOR DETERMINING MICs

Thursday, 1:30 P.M., Room 20

Convenors: DANIEL AMSTERDAM and THERESA LAWRENCE, SUNY at Buffalo, Buffalo, N.Y.

The MIC: Myth and Reality
DANIEL AMSTERDAM, SUNY at Buffalo, Buffalo, N.Y.

Disk Diffusion Susceptibility Tests with Anaerobic Bacteria

The BIOMIC Antimicrobial System

The E Test
JOHN A. WASHINGTON II, Cleveland Clin. Fndn., Cleveland, Ohio

The Spiral Gradient Endpoint System
HANNAH M. WEXLER, VA Wadsworth Med. Ctr., Los Angeles, Calif.
PHYSIOLOGICAL STUDIES OF LIVING BACTERIAL BIOFILMS

Thursday, 1:30 P.M., Room 39

Convenors: J. W. COSTERTON, Univ. of Calgary, Calgary, Alberta, Canada, and M. R. W. BROWN, Aston Univ., Birmingham, U.K.

Use of Specific Probes and Confocal Scanning Microscopy To Study the Physiology of Living Biofilms In Situ
D. E. CALDOWELL, Univ. of Saskatchewan, Saskatoon, Saskatchewan, Canada

Use of Physicochemical Methods To Study the Physiology of Living Biofilms
G. G. GEENEHY, Montana State Univ., Bozeman

Variations in the Growth Rates of Biofilm Bacteria: Their Physiological Corollaries
P. GILBERT, Univ. of Manchester, Manchester, England

Killing Biofilm Bacteria with a Combination of Antibiotics and Electrical Fields
J. W. COSTERTON, Univ. of Calgary, Calgary, Alberta, Canada

MICROBES IN THE ENVIRONMENT

Thursday, 1:30 P.M., Room 41

Moderators: J. S. POINDEXTEER, Barnard Col., New York, N.Y., and MARY ALLEN, Florida State Univ., Tallahassee

1:30 Divisional Lecture
(Eligible for continuing education credit)

Microbial Life in Diverse Subsurface Environments
DAVID RALKWILL, Florida State Univ., Tallahassee

2:30


3:30


164. Limit of Survival of Azotobacter spp. in Dry Soils Stored in the Laboratory. V. NEVAREZ and R. VEIA. Univ. of North Texas, Denton.

165. Use of Autoradiography To Determine Viable but Nonculturable Helicobacter pylori in Water. M. SHAHMA and U. L. CONVENTIONS. Univ. of Cincinnati, Cincinnati, Ohio.

VISIT THE EXHIBITS
Session 132 (BET). Round Table
(Eligible for continuing education credit)

UNSOLVED PROBLEMS IN TEACHING MICROBIOLOGY

Thursday, 1:30 P.M., Room 103

Convenors: JUDITH KANDEL, California State Univ., Fullerton, and JILL ADLER-MOORE, California Polytechnic Inst., Pomona

Microbiology educators face the task of communicating scientific concepts, developing laboratory skills, and stimulating critical thinking skills as they relate to microbiology. We face a diverse population of students in courses ranging from introductory microbiology to upper-division and graduate specialty courses. Faculty members and students often complain that the traditional approaches to teaching microbiology do not achieve the course objectives. The participants will briefly discuss some techniques that have improved their courses. The session then will be opened for discussions of basic problem areas. Attendees are encouraged to present problems specific to their courses. The panel and audience will attempt to solve these problems.

Participants: J. P. ADLER-MOORE, J. REENNERT, D. BURKE, R. A. CALDERONE, J. S. KANDEL, and J. E. LENNOX

Session 133 (V). Seminar
(Eligible for continuing education credit)

NEW THERAPEUTIC ADVANCES IN INFECTIOUS DISEASES AND MALIGNANCY

Thursday, 1:30 P.M., Room 13

Session 135 (E). Seminar
(Eligible for continuing education credit)

SUPERANTIGENS AND THE IMMUNE
SYSTEM

Thursday, 1:30 P.M., Room 21


Antigens and Superantigens for T-Cell Responses
CHARLES A. JANEWAY, JR., Yale Univ. Sch. of Med., New Haven, Conn.

Structural Basis for the Interaction of Staphylococcal Enterotoxins with the Major Histocompatibility Complex and the T-Cell Receptor
HOWARD M. JOHNSON, Univ. of Florida, Gainesville

Role of Interleukin-1 and Interleukin-6 in the Stimulation of T-Cells by Staphylococcal Enterotoxin B

Polyclonal B-Cell Activation In Vivo and Triggering of Autoimmune Disease by the Mycoplasma arthritidis Superantigen (MAM)
BARRY C. COLE, Univ. of Utah Sch. of Med., Salt Lake City

Signal Transduction by Microbial Superantigens via Major Histocompatibility Complex Class II Molecules

Session 136. Divisional Group III Symposium
(Eligible for continuing education credit)

APPLICATIONS OF MODELING IN MICROBIOLOGY

Thursday, 1:30 P.M., Room 27

Convenors: CHRISTON J. HURST, U.S. EPA, Cincinnati, Ohio, and MARYLYNN V. YATES, Univ. of California, Riverside

Mathematical Modelers versus Experimental Biologists: Can Common Ground Be Found?

Microbial Risk Assessment
JOAN B. ROSE, Univ. of South Florida, Tampa

Modeling Growth in Food Systems

Modeling Microbial Processes in the Subsurface: Experiment with a Microbial Process To Recover Oil
MICHAEL J. MCINERNEY and ROY M. KNAPP, Univ. of Oklahoma, Norman

Session 137 (C). Seminar
(Eligible for continuing education credit)

MULTIDRUG-RESISTANT MYCOBACTERIUM TUBERCULOSIS

Thursday, 1:30 P.M., Room 16

Convenors: MICHAEL H. CYNAMON, VA Med Ctr., Syracuse, N.Y., and SALLY P. KLEMENS, SUNY Health Sci Ctr., Syracuse, N.Y.

Epidemiology of Multidrug Resistance in the United States
SAMUEL W. DOOLEY, CDC, Atlanta, Ga.

Impact of Multidrug Resistance at an Urban Hospital
MICHAEL H. GRIECO, St. Lukes-Roosevelt Hosp. Ctr., New York, N.Y.

Use of DNA Fingerprints as Markers for the Epidemiologic Study of Multiply Drug-Resistant Tuberculosis
GERALD MAZUREK, Univ. of Texas Health Ctr, Tyler

Rapid Diagnosis and Susceptibility Testing
EDWARD DESMOND, California Dept. of Health Services, Berkeley

Mechanisms of Resistance and Future Prospects for Therapy
MICHAEL H. CYNAMON, VA Med Ctr., Syracuse, N.Y.

Session 138 (PSAB). Round Table
(Eligible for continuing education credit)

THE DISCOVERY PROCESS

Thursday, 1:30 P.M., Room 85


The purpose of this meeting is to induce members of the audience to be more introspective about the way they go about their research. Seminars and publications rarely discuss personal events leading to a discovery. However, these events frequently play just as important a role as accumulation and analysis of scientific data. Therefore, in order to appreciate and perhaps stimulate the discovery process, the human side should be kept in mind as we pursue our own and manage others' R&D activities. The meeting will bring out interesting events that were essential to several diverse discoveries and their development. After a brief introduction to the meeting by the convenor, each participant will discuss how a discovery evolved. The subjects covered are: Augmentin, microbiology of an oil spill, magnetotactic bacteria, CellCap, and polymerase chain reaction. After the last talk, the meeting will be open to discussion and comments from the audience.

VISIT THE EXHIBITS
Session 139 (Q)

STAVATION, SURVIVAL, AND RECOVERY OF MICROORGANISMS

Thursday, 1:30 p.m., Room 36

Moderators: J. E. PEPPER, Univ. of Arizona, Tucson, and VICKY L. MCKINLEY, Roosevelt Univ., Chicago, Ill

1:30

Q120. Comparison of Media and Techniques for the Recovery and Enumeration of Aerotolerant Heterotrophic Groundwater Bacteria. A. T. MIKELL, JR.* and J. C. RICHARDSON, Univ. of Missouri, University.


Q122. Effects of Phosphorus Limitation and Predation on Biodegradation of Substrates in Mixtures. W. S. STEFFENSEN* and M. ALEXANDER, Cornell Univ., Ithaca, N.Y.


2:30


3:30


Q129. Inability of Polymerase Chain Reaction To Detect Starved Cells of Vibrio vulnificus. D. ROBERTS,* L. BRAUNS, and J. OLIVER, Univ. of North Carolina, Charlotte.

Q130. Use of Fourier Transform Infrared Spectroscopy To Study the Physiological Status of Bacillus Species. T. R. ANDERSON,* D. E. NIVENS, and D. WHITE, Ctr. for Environmental Biotechnology, Univ. of Tennessee, Knoxville.

Session 140 (S). Seminar

DNA VIRUSES AND THE IMMUNE SYSTEM

Thursday, 1:30 p.m., Room 93

Conveners: DENNIS J. O'CALLAGHAN, Louisiana State Univ. Med. Ctr., Shreveport, and MARK E. SHINSKEY, Univ. of Iowa Sch. of Med., Iowa City

Adenovirus Proteins That Prevent Cytolysis by CD4 and Tumor Necrosis Factor and That Down Regulate the NF- kappa B Receptor. WILLIAM S. WOUD, St. Louis Univ. Sch. of Med., St. Louis, Mo.


Role of Polyoma Host Range, Complement-like Genes, and Serpent-like Genes in Pathogenesis. RICHARD W. MOYER, Univ. of Florida Sch. of Med., Gainesville.


Session 141 (D). Seminar

PELVIC INFLAMMATORY DISEASE: IMMUNITY AND PATHOGENESIS

Thursday, 1:30 p.m., Room 1

Conveners: JANET N. ARNO, Indiana Univ Sch. of Med., Indianapolis, and GARY L. CORBY, Univ. of Nebraska, Omaha

Divisional Lecture

Overview and Animal Models of Chlamydial Pelvic Inflammatory Disease. JULIUS SCHACHTER, Univ. of California, San Francisco.

Pathogenesis of Chlamydial Salpingitis. DOROTHY I. PATTON, Univ. of Washington, Seattle.

Role of the T Cell in Response to Chlamydial Genital Infections in the Guinea Pig and Mouse Models. ROGER G. RANK, Univ. of Arkansas, Little Rock.

Role of Lipopolysaccharide in Gonococcal Genital Infection. MICHAEL A. APICELLA, SUNY at Buffalo, Buffalo, N.Y.

Contact-Inducible Invasion of an Endometrial Cell Line by Neisseria gonorrhoea. VIRGINIA CLARK, Univ. of Rochester, Rochester, N.Y.

NO SMOKING IN SESSIONS OR IN POSTER AREA
Session 142 (O). Seminar
(Eligible for continuing education credit)

NOVEL MOLECULAR GENETIC APPROACHES
FOR THE PRODUCTION OF NEW
METABOLITES IN STREPTOMYCETES

(In honor of Robert L. Hamill)

Thursday, 1:30 p.m., Room 80

Convenors: BURTON M. POGELL, Univ. of Maryland, Laurel, and PAUL ENGEL, USDA, New Orleans, La.

Divisional Lecture

Microbial Metabolites: Products, Pitfalls and Profits
ROBERT L. HAMILL, Lilly Res. Lab., Indianapolis, Ind.

Genetic Engineering in Saccharopolyspora erythrea for New Macrolide Antibiotics

Cloning Nimmocycin Genes Using Transposon Tagging
PAUL ENGEL, USDA, New Orleans, La.

A Structure-Function-Based Approach towards Engineering Novel Aromatic Polyaldehydes
GIANTAN KHOSLA, John Innes Inst., Norwich, United Kingdom

Molecular Genetics of Macrolide Antibiotic Biosynthesis
BRIGITTE SCHONER, Lilly Res. Lab., Indianapolis, Ind.

Session 143 (B). Seminar
(Eligible for continuing education credit)

AGAINST THE ODDS: SALMONELLA SURVIVAL STRATEGIES

Thursday, 1:30 p.m., Room 19

Convenors: JOHN W. FOSTER, Univ. of South Alabama Col. of Med., Mobile, and BRETT FINLAY, Univ. of British Columbia Col. of Med., Vancouver, British Columbia, Canada

OxyR-Regulated Defenses against Oxidative Stress
GIISLA STORZ, Nat. Inst. of Child Health and Human Development, Bethesda, Md.

Life after the Feast: Starvation Survival and Gene Expression
MICHAEL P. SPECTOR, Univ. of South Alabama, Mobile

How Salmonella Resists Cationic Microbicidal Peptides
EDUARDO GROISMAN, Washington Univ., St. Louis, Mo.

Proton Wars: Salmonella's Acid Tolerance Response
JOHN W. FOSTER, Univ. of South Alabama Col. of Med., Mobile

Salmonella as a Bioprobe of the Intracellular Parasite Environment
BRUTT FINLAY, Univ. of British Columbia Col. of Med., Vancouver, British Columbia, Canada

Salmonella Proteins Required for Survival within Macrophages
NANCY BUCHMEIER, Univ. of California, San Diego

Session 144 (B)

LYME BORRELIOIS

Thursday, 1:30 p.m., Room 84


1:30


2:30


3:30

B192. Molecular Characterization of Borrelia burgdorferi Isolates from Various Sources. B. C. ZINGG, A. BISTRUP, and R. B. LEFEBVRE. Univ. of California, Davis.


Session 145 (U)

**MYCOBACTERIAL INFECTIONS AND AIDS**

Thursday, 1:30 P.M., Room 95

**Moderators:** C. ROBERT HORSBURGH, CDC, Atlanta, Ga., and MICHAEL CYNAMON, VA Med. Ctr., Syracuse, N.Y.

1:30


2:30


3:30


U33. Epidemiologic Impact of Tuberculosis Vaccination in Human Immunodeficiency Virus-Prevalent Populations. J. S. SUEN and T. M. DANIEL.* Case Western Reserve Univ., Cleveland, Ohio.

Session 146 (P)

**ADVANCES IN DETECTION OF PATHOGENIC BACTERIA IN FOODS**

Thursday, 1:30 P.M., Room 97

**Moderators:** NELSON COX, USDA, Agricultural Res. Service, Russell Res. Ctr., Athens, Ga., and PAUL HALL, Kraft General Foods, Glenview, Ill.

1:30 Divisional Lecture

(Eligible for continuing education credit)

Shedding New Light on Food Microbiology

GORDON S. A. B. STEWART, Sutton Bonington, Loughborough, Leicestershire, U.K.

2:30

P20. Molecular Heterogeneity of Hemolysin BL from *Bacillus cereus*. D. J. BEECHER* and J. D. MACMILLAN. Univ. of Wisconsin, Madison, and Rutgers Univ., New Brunswick, N.J.


3:30


66

* NO SMOKING IN SESSIONS OR IN POSTER AREA *
Comparative Evaluation of Phenol and Methane for In Situ Biotransformation of Chlorinated Solvents

PERRY MCCARTY, LEWIS SEMPRINI, and GARY HOPKINS, Stanford Univ., Stanford, Calif.

In Situ Bioremediation of CCl4- and NO3-Contaminated Groundwater at the U.S. Department of Energy's Hanford Site


In Situ Bioremediation Demonstrations at the U.S. Department of Energy's Savannah River Site

TERRY HAZEN, Westinghouse Savannah River Site, Aiken, S.C.

In Situ Bioremediation of a Pentachlorophenol-Contaminated Site Using Nitrate as the Electron Acceptor


RNA POLYMERASE: PROMOTER INTERACTIONS

Thursday, 1:30 p.m., Room 38

Convenors: WILLIAM T. MCALLISTER, SUNY at Brooklyn, Brooklyn, N.Y., and ALEX GOLDFARB, Columbia Univ., New York, N.Y.

Study of Transcription Initiation Using RNA Polymerase Mutants

ALEX GOLDFARB, Columbia Univ., New York, N.Y.

Sigma:DNA Interactions

ALICIA DOMBROSKI, Univ. of Wisconsin, Madison

Roles of Sigma Factors in Multiple Steps of Promoter Utilization

CHARLES MORAN, Emory Univ. Sch. of Med., Atlanta, Ga.

Virion RNA Polymerase: Promoter Interactions

LUCIA ROTHMAN-DENES, Univ. of Chicago, Chicago, Ill.

Interactions of T7 RNA Polymerase with Its Promoters

WILLIAM T. MCALLISTER, SUNY at Brooklyn, Brooklyn, N.Y.

POSTER SESSIONS

Thursday, 1:30-3:00 p.m., Exhibit Hall C

(Board numbers in parentheses)

Session 150 (C). VIRAL DETECTION


C141. Detection of Retinitis Induced by Herpes Simplex Virus, Human Cytomegalovirus, or Varioicella-Zoster Virus Using Polymerase Chain Reaction (003) T. FENNERT, J. GAR- WEG, A. KROPEC, M. BOEHNEKE, and H. SCHMITZ.
U42. Reproducibility of the Lysis-Centrifugation Technique for Quantification of Mycobacterium avium Complex Bacteria. (057) D. HAVLIR, C. A. KEMPER,* S. DERESINSKI, and THE CALIFORNIA COLLABORATIVE TREATMENT GROUP. Univ. of California, San Diego, and Santa Clara Valley Med. Ctr., San Jose, Calif.


U49. Effect of Aggregation or Pelleting on the Metabolic Activity of Mycobacterium leprae In Vitro. (071) E. HARRIS* and R. HASTINGS. G. W. Long Hansen's Disease Ctr., Carville, La.

U50. Use of Low Temperature for Efficient Uptake of DNA by Mycobacterium smegmatis Spheroplasts. (073) S. A. NASER* and C. M. MCCARTHY. New Mexico State Univ., Las Cruces.


Session 152 (B). PROTOZOAN PATHOGENS

B196. The Enigma of Trichomonas vaginalis: Contact Dependent Cytotoxicity. (087) F. J. PINDAK,* M. MORA DI PINDAK, and W. A. GARDNER. JR Univ. of South Alabama, Mobile.


B204. Characterization of Sulhydryl-Dependent Hydrolase Released by Tritrichomona mobilis. (103) R. W. HAMP- TON,* D. J. WELLS, P. DEMES, and W. A. GARDNER. JR. Univ. of South Alabama, Mobile.


B210. Leishmania variegata: Colony Expression on Agar and Enumeration by Turbidimetric Assay. (115) R. I. KRAMER* and D. R. BESSETTE. Dept. of Biol., Providence Coll., Providence, R.I.

VISIT THE EXHIBITS


Session 153 (O). APPLIED MICROBIOLOGY


O38. The Role of Sugars in Molluscicidal Activity of Bacillus brevis SS86-4. (137) S. SINGER, T. B. BAIR, and T. B. HAMMILL. Western Illinois Univ., Macomb.

O39. Azetate and Calcium Magnesium Acetate Production by a Mutant Strain of Clostridium thermoaceticum ATCC 49707. (139) M. CHERYAN and S. PAREKH* Dept. of Food Sci., Agricultural Bioprocess Lab., Univ. of Illinois, Urbana.

O40. Production of a Siderophore from Corynebacterium glutamicum ATCC 13058 and Growth Parameters under Iron-Limited Conditions. (141) A. SEIFFERT* and H. ZAHNER. Dept. of Microbiol. J. Univ. of Tübingen, Tübingen, Germany.

O41. Relationship of Acetyl Composition to Rheological Functions in Arthrobacter Heteropolysaccharides. (143) J. S. NOVAK*, S. W. TANENBAUM, and J. P. NAKAS SUNY Col. of Environmental Sci. and Forestry, Syracuse, N.Y.

O42. Extracellular Acidic Heteropolysaccharide Production from Wood Hydrolysates (145) M. J. MEADE*, S. W. TANENBAUM, and J. P. NAKAS SUNY Col. of Environmental Sci. and Forestry, Syracuse, N.Y.


O46. A Positive Effect of par Sequence on the Growth Rate of Recombinant Escherichia coli. (153) J. Y. KIM* and D. Y. RYU. Microbiol. Graduate Group and Dept. of Chemical Engineering, Univ. of California, Davis.

O47. Removal of Mycoplasmas from Biological Fluids by Filtration using Mycotrap, a Receptor Analog Solid-Phase Support. (155) L. A. PLOSILA* and H. C. KRIVAN MicroCarb Inc., Gaithersburg, Md.


Session 154 (Q). NITRATE REMOVAL AND BIODEGRADATION OF NITROAROMATICs AND AZO-DYES


Q138. Intermediary Metabolism during Anaerobic Degradation of Trinitrotoluene (TNT) from Munitions-Contaminated Soil. (173) D. J. ROBERTS*, S. B. FUNK, and R. A. KORUS. Univ. of Idaho, Moscow.

Q139. Bioremediation of 2,4,6-Trinitrotoluene (TNT) by a Mixed Microbial Ecosystem. (175) M. MONDECAR, J.
Session 156 (H). GENE REGULATION IN ANAEROBIOsis AND IN PHOTOSYNTHESIS


H146. Role of Heme in Regulation of Respiratory Pathway Operons in Escherichia coli. (237) P. A. COTTER* and R. P. GUNSAULUS. UCLA, Los Angeles, Calif.

H147. Integration Host Factor Is Involved in Regulation of Escherichia coli Nitrate Reductase (narGHJ) Operon Expression. (239) J. SCHRODER* and S. DAIRE UCLA, Los Angeles, Calif.


H152. arsA (fur) Suppressors Which Restore Anaerobic Induction in spoT Mutants. (249) M. J. LOMBARDO,* J. JANCZAK, and C. G. MILLER. Univ. of Illinois, Urbana.


H154. Gene Regulation in Halobacterium halobium: Possible Involvement of DNA Supercoiling in Oxygen Regulation. (253) C.-F. YANG* and S. DASSARMA. Univ. of Massachusetts, Amherst.

H155. Cyclic AMP (cAMP)-cAMP Receptor Protein-Dependent Anaerobic Induction of a Mutant pepF Gene. (255) A. A. MANTIA* and C. G. MILLER. Univ. of Illinois, Urbana.


H159. Analysis of a Locus in Rhodobacter sphaeroides 2.4.1 Involved in Regulation of Photosynthetic Functions. (263) J. M. ERASO* and S. KAPLAN. Univ. of Texas Health Sci. Ctr., Houston.


H161. Genetic Characterization of δ-Aminolevulinate-Dependent Regulation of Cytochrome c5 Gene Expression in Rhodobacter sphaeroides. (267) B. SCHILKE* and T. J. DONOHUE. Univ. of Wisconsin, Madison.


Session 157 (H). TRANSLATION

H164. Effect of Temperature on Protein Chain Elongation Rate in Escherichia coli. (273) A. FARREWELL* and F. C. NEIDHARDT. Univ. of Michigan, Ann Arbor.


H166. Phosphorylation Control of Bacterial Translation. (277) E. S. ROBERTSON and A. W. NICHOLSON. Wayne State Univ., Detroit, Mich.


H174. Analysis of the 5' End of the recA mRNA. (293) X. JIN* and G. M. WEINSTOCK. Univ. of Texas Med. Sch., Houston.

H175. Expression of the Overlapping Genes for an Arginine tRNA (argU) and a Defective Prophage Integrase of Escherichia coli. (295) D. F. LINDSEY and J. R. WALKER.* Univ. of Texas, Austin.

Session 158 (S). VIRAL DISEASES AND DIAGNOSTICS


S15. Crude Extracts from Guiera senegalensis Exhibit Antiviral Activity against Herpes Simplex Virus Type 2 In Vitro. (307) G. B. MULAMBA,* M. R. KARIM, and G. N. K. MBUY. West Chester Univ., West Chester, Pa., and Univ. of Minnesota, Duluth.


Apologies, the provided text seems to be a page from a scientific publication discussing various research studies on different viruses and detection methods. It includes references to polymerase chain reaction (PCR) for detection of herpes simplex virus, evaluation of different virus detection kits, and other diagnostic methods. The page also contains a section on poster sessions with session information and abstracts of presentations.

Here's a breakdown of the content:


**C161. Survey of Clinical Specimens for Herpesvirus DNA Sequences by Polymerase Chain Reaction.** (004) M. J. ESPY* and T. F. SMITH. Mayo Clin. and Frnd., Rochester, Minn.

**C162. Comparison of the New Ortho Herpes Simplex Virus Antigen Enzyme Immunoassay on Direct Specimens and Spin-Enhanced Cultures versus Traditional Cell Culture.** (006) I. PATTERSON and K. REKRUT,* Kaiser Permanente Regional Virus Lab., N. Hollywood, Calif.


**C165. Evaluation of a New Monoclonal Antibody Stain for Detection of Herpes Simplex Virus from Clinical Specimens.** (012) S. L. JOHNSTON. Virology Lab., St. Vincent Hosp., Green Bay, Wis.

**C166. Evaluation of an Improved Enzyme-Linked Immunosorbent Assay for Direct Detection of Herpes Simplex Virus and/or Culture Confirmation after Growth in Spin-Amplified**
Session 160 (E). IMPROVED METHODS OF PROTECTIVE IMMUNITY: GENETICALLY ATTENUATED ORGANISMS AND CONJUGATE VACCINES


E68. Phase II Clinical Study with an Anti-Haemophilus influenzae Type b (Hib) Conjugate Vaccine Containing CRM 197 as Carrier for Capsular Hib Oligosaccharide. (048) P. COSTANTINO, S. VITI, A. PODDA, M. G. GALLI, C. LAZZERONI, L. NENCIONI,* and R. RAPPUOLI. Scelavo Res. Center, Siena, Italy, and Inst. of Hygiene, Univ. of Milan, Milan, Italy.


E70. Preparation and Characterization of Oligosaccharide-Protein Conjugates to Neisseria meningitidis Lipooligosaccharide. (052) X.-X. GU* and C.-M. TSAI. Ctr. for Biologics Evaluation and Research, FDA, Bethesda, Md.


E72. Cholera Toxin B-Subunit Expression by ctxA Vibrio cholerae O1 Deletion Mutants. (056) P. A. FOXALL, A. P. D. SILVEIRA, and R. H. HALL.* Div. of Infectious Diseases, Univ. of Maryland Sch. of Med., Baltimore, and Div. of Microbiol., FDA, Washington, D.C.

E73. Protecting Fish against Vibriosis by Immunization with Genetically Attenuated Live Vibrio anguillarum. (058) J. T. SINGER,* K. A. SCHMIDT, and C. A. HOPPER. Univ. of Maine, Orono.


E77. Comparative Studies of Adherence and Invasiveness of Salmonella typhi Ty 2 and Its Temperature-Sensitive Deriva-

E78. Effect of Salmonella Carrier in Modulating Host Responses to Expressed Cloned Surface Protein Antigen A (SPA) of Salmonella sobrinus. (068) T. K. REDMAN,* C. C. HARMON, G. J. RICHARDSON, N. K. CHILDERS, and S. M. MICHALEK. Univ. of Alabama, Birmingham.


Session 161 (N). PLANT-MICROBE INTERACTIONS


N50. Evidence of Conjugation of the IAA Plasmid of Pseudomonas syringae subsp. savastanoi. (080) S. E. SILVERSTONE. California State Univ., Bakersfield.


N52. Use of TnphoA Mutagenesis To Probe Interactions between Pseudomonas putid a GR12-2 and Canola. (084) C. BAYLISS,* G. BROWN, B. LASBY, and J. M. WOOD. Univ. of Guelph, Guelph, Ontario, Canada, and ESSO Ag Biologicals, Saskatoon, Saskatchewan, Canada.

N53. Comparative Analysis of Fatty Acid and Protein Profiles of Potato Seed-Inducing Bacteria. (086) E. PARADIS, C. N. HODGE, R. E. STALL, and C. BEAULIEU.* Univ. of Sherbrooke, Sherbrooke, Quebec, Canada, and Univ. of Florida, Gainesville.


N55. Do Bacteriocins Affect the Succession of Bacteria Infecting Newly Injured Cactus Tissue? (090) J. L. M. FOSTER* and J. C. FOGLEMAN. Metropolitan State Col. of Denver and Univ. of Denver, Denver, Colo.


Session 162 (Q). GENERAL ENVIRONMENTAL MICROBIOLOGY


Q170. mRNA Analysis of Rubisco Gene Expression and Carbon Fixation in Natural Marine Phytoplankton Populations. (102) S. L. PICHARD,* M. E. FRISCHER, and J. H. PAUL. Univ. of Southern Florida, St. Petersburg.


Q174. Regulation of Bacterial Penetration by the Geophysicochemical Environment. (110) P. K. SHARMA. Univ. of Oklahoma, Norman.


Q177. Comparison of Microbial Mass and Activity in Aerobically and Anaerobically Incubated Solid Waste. (116) D. R. JONES* and R. J. MURPHY. Univ. of South Florida, Tampa.


Q185. Oxygen Sources for In Situ Subsurface Bioremediation. (132) S. J. VESPER, W. DAVIS-HOOVER,* and L. C. MURDOCH. Dept. of Civil and Environmental Engineering, Univ. of Cincinnati, and U.S. EPA, Center Hill Lab., Cincinnati, Ohio.


Session 163 (Q). BIOTRANSFORMATION AND DEGRADATION II: AROMATICS AND HALOGENATED AROMATICS


Q195. Effects of Heavy Metals on Reductive Dechlorination of Chlorophenols in Anoxic Freshwater Sediment. (152) I.-C.
Session 164 (H). GENOME STRUCTURE AND ANALYSIS


H178. Macrosterect Mapping of the Pseudomonas cepacia 17616 Genome. (194) H. CHENG* and T. G. LESSIE. Univ. of Massachusetts, Amherst.


Session 165 (K). ENZYMES


VISIT THE EXHIBITS

K57. Site-Directed Mutagenesis of Phosphoaminoesterase GDP-Manoscose Phosphorylase Involved in the Biosynthesis of Alginate by Macrocystis pyrifera. (217) T. B. MAY* D. SHINABARGER, and A. BOYD Univ. of Illinois, Chicago


K67. ADP-Ribosylation of Proteins in Mycobacterium smegmatis. (238) M. H. SERRES* and J. C. ENSIGN. Univ. of Wisconsin, Madison.

K68. Low-Molecular-Weight Thiols in Phototrophic Anoxygenic Bacteria. (240) W. M. HIPP* and H. G. TRUPPER. Univ. of Bonn, Inst. of Microbiol. and Biotechnology, Bonn, Germany.


K72. Purification and Characterization of Selenate Reductase from a Selenate-Respiring Organism. (248) S. RECH* and J. MACY. Univ. of California, Davis.

K73. Molecular Structure of Katalas for Sulfate Reductase Protein I. A Yeast Exo Peptide Has High Malate Binding Activity. (250) H SHIMIZU, Y. HIGASHI, N. OMURA, and M. TATSUMI. Nihon University of Science, Tokyo, Japan.

K74. 1-1 Mandleate Dehydrogenase from Rhodobacter eutropha. Is a Flavodoxin Homologue. (252) M. YASIN and C. A. EWSON. Univ. of Glasgow, Glasgow, Scotland.


K77. Methanobacterium thermoautotrophicum Has Two Methyltransfer Hydrogenase Activities. (258) G. J. WOO, A. WASSERFALLEN, and R. S. WOLFE. Univ. of Illinois, Urbana, and Microbiological Inst., Zurich, Switzerland.


Session 166 (H). ENVIRONMENTAL SENSING: PRESSURE AND HEAT

H188. omrY, a New Hypersmotically Induced Gene in Escherichia coli. (276) H. H. YIM* and M. R. VILLARIO. Univ. of California, Davis.

H189. Genetic Mapping of the omrR and omrA-like omrR Gene of Pseudomonas aeruginosa. (278) D. SHORTRIDGE and H. P. SCHWEIZER. Dept. of Microbiol. and Immunology, Univ. of Colorado, Denver, and Dept. of Microbiol. and Infectious Diseases, Univ. of Calgary, Calgary, Alberta, Canada.

NO SMOKING IN SESSIONS OR IN POSTER AREA
H190. Signal Transduction in Alginate Synthesis: Phosphorylation of the Response Regulator AlgR1 and AlgR2 (280) S ROYCHOWDHURY, K. SAKAI, and A. M. CHAKRABARTY. Univ. of Illinois Col. of Medicine, Chicago.

H191. omrl Regulation of Expression of the pH-Induced Amino Acid Decarboxylases Encoded by cadA and adi (282) X. SHI, B. WAASDORP, and G. N. BENNETT Rice Univ., Houston, Tex.


H193. Isolation and Characterization of KdpE, an Effector Protein ThatCoupled Reduced Turgor Pressure to Expression of the kdpABC Operon of Escherichia coli (286) L. BRANDON and W. EPSTEIN. Univ. of Chicago, Chicago, Ill.

H194. Regulation of omplI Gene Expression by Hydrostatic Pressure in a Deep-Sea Photobacterium spp., SS9 (288) E. CHIP and D. H. BARTLETT. Scripps Inst. of Oceanography, Univ. of California-San Diego, La Jolla.

H195. Pressure Stress Response in Escherichia coli (290) T. WELCH and D. H. BARTLETT. Scripps Inst. of Oceanography, Univ. of California-San Diego, La Jolla.


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**Session 167**

(Eligible for continuing education credit)

**Virus-Receptor Interaction in Poliovirus Entry and Pathogenesis**

VINCENT R. RACANIello, Columbia Univ. Col. of Physicians and Surgeons, New York, N.Y.

Thursday, 4:45 p.m., Ballroom 1B

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**Session 168**

(Eligible for continuing education credit)

**PRESIDENT'S FORUM**

(Sponsored by the New Brunswick Scientific Company)

**BIOLOGICAL WARFARE: AN OLD PROBLEM AND FUTURE CONCERNS**

Thursday, 8:00 p.m., Grand Ballroom, Sheraton New Orleans

DAVID L. HUXSOll, Louisiana State Univ., Baton Rouge

MATTHEW S. MESELsoHN, Harvard University, Cambridge, Mass.

NANCY CONNEll, Albert Einstein Col. of Med., Bronx, N.Y.


The President's Reception follows immediately in the Pontchartrain Ballroom of the Sheraton New Orleans.

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**Session 169** (L, Society of Hospital Epidemiology of America). Seminar

(Eligible for continuing education credit)

**Protecting Workers/Protecting Patients: An Infection Control Dilemma for the 1990s**

Friday, 8:30 a.m., Ballroom 1A


Introduction: an Overview of Infectious Risks to Health Care Workers in the 1990s

MICHAEL L. TAPPER, Lenox Hill Hosp., New York, N.Y.

Tuberculosis and the Health Care Worker

DIXIE SNIDER, CDC, Atlanta, Ga.

Hepatitis and the Health Care Worker

CRAIG SHAPIRO, CDC, Atlanta, Ga.

Human Immunodeficiency Virus and the Health Care Worker

DAVID BELL, CDC, Atlanta, Ga.

The Role of the State Health Department

DALE L. MORSE, New York State Dept. of Health, Albany

Legal Issues and Health Care Worker Risks

MARK BARNES, New York Law Sch., New York, N.Y.

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**LAST DAY TO VISIT THE EXHIBITS**
Session 170 (C). Seminar
(Eligible for continuing education credit)

PITFALLS IN ANTIMICROBIAL SUSCEPTIBILITY TESTING

Friday, 8:30 A.M., Ballroom 1B


The Actinomycetes and Rapidly Growing Mycobacteria

The Streptococci, Enterococci, and Staphylococci
DANIEL SAHM, Univ. of Chicago Med. Ctr., Chicago, Ill.

The Fastidious Microorganisms
JAMES JORGENSEN, Univ. of Texas Health Sci. Ctr., San Antonio

The Anaerobes
KENNETH ALDRIDGE, Louisiana State Univ. Med. Ctr., New Orleans

The Fungi
MICHAEL RINALDI, Univ. of Texas Health Sci. Ctr., San Antonio

The Enterics and Other Gram-Negative Bacilli
STEPHEN JENKINS, Baptist Med. Ctr., Jacksonville, Fla.

Session 171 (F)

MYCOSES: EPIDEMIOLOGY, HOST RESPONSE, AND TREATMENT

Friday, 8:30 A.M., Room 10

Moderators: RICHARD HAMILL, Baylor Univ. Med. Sch., Houston, Tex., and DAVID W. DENNING, Univ. of Manchester, Manchester, England

8:30

F69. Heterogeneity of Pneumocystis Isolates by Pulsed-Field Gradient Electrophoresis. M. T. CUSHION,* M. KASELIS, and J. ZHANG. Univ. of Cincinnati Col. of Med., Cincinnati, Ohio

F70. Electrophoretic Karyotypes of Coccidioides immitis. S. PAN* and G. COLE. Univ. of Texas, Austin


Session 172 (H). Seminar
(Eligible for continuing education credit)

TRANSCRIPTION ACTIVATION: ACTIVATOR-RNA POLYMERASE CONTACTS

Friday, 8:30 A.M., Room 43


Transcription Activation by CAP: Identification and Characterization of the Activation Surface
RICHARD H. EBRIGHT, Rutgers Univ., New Brunswick, N.J.

Transcription Activation by CAP: Mapping of Contact Sites on Polymerase Subunits
AKIRA ISHIHAMA, Nat. Inst. of Genetics, Shizuoka, Japan
**Session 173 (R)**

**SYSTEMATICS AND MOLECULAR DIVERSITY OF PROKARYOTES**

*Eligible for continuing education credit*

**Friday, 8:30 A.M., Room 37**

**Moderators:** DAVID STAHL, Univ. of Illinois, Urbana, and DAVID P. LABEDA, USDA, Agricultural Res. Service, Nat. Ctr. for Agricultural Utilization Res., Peoria, Ill.

**8:30 Divisional Lecture**

*Eligible for continuing education credit*

Interrelationships of Genomic DNA and rRNA Similarity Values

JOHN L. JOHNSON, Virginia Polytechnic Inst., Blacksburg

**9:30**

**R1.** Proposal for a New Genus: *Alicyclobacillus* gen. nov., Based on 16S rRNA (rDNA) Phylogeny Analyses on the *Bacillus* Group IV Thermoacidophiles. P. JURTSHUK, JR.* J. D. WISOTZKEY, G. E. FOX, G. DEINHARD, and K. PORALLA. Univ. of Houston, Houston, Tex., and Univ. of Tübingen, Tübingen, Germany.


**10:30**

**R5.** Characterization of an Etiologic Agent of Chronic Otitis Media by Fatty Acid Analysis, DNA-DNA Hybridization, and 16S rRNA Sequencing. G. BOSLEY,* S. O’CONNOR, W. MOSS, M. DANESHVAR, and R. FACKLAM. CDC, Atlanta, Ga.

**Session 174 (K, 1). Seminar**

*Eligible for continuing education credit*

**IRON AND SULFUR CHEMOLITHOTROPHY**

**Friday, 8:30 A.M., Room 41**

**Convenors:** JESSUP M. SHIVELY, Clemson Univ., Clemson, S.C., and ROBERT C. BLAKE II, Meharry Med. Col., Nashville, Tenn.

**Leptospirillum ferrooxidans or Thiobacillus ferrooxidans: Who Contributes More to Microbial Metal Leaching?**

W. SAND, Hamburg Univ., Hamburg, Germany

Enzymes of Respiratory Iron Oxidation


Microbial Diversity and Interactions in Iron-Rich Acidic Waters

D. B. JOHNSON, Univ. of Wales, Bangor, United Kingdom

Aerobic and Anaerobic Metabolism of Formic Acid by *Thiobacillus ferrooxidans*

J. T. PRONK, J. P. VAN DIJKEN, P. BOS, and J. G. KUENEN, Delft Univ. of Technology, Delft, The Netherlands

Oxidation of Elemental Sulfur by *Thiobacillus ferrooxidans*

S. C. LORBACH and J. M. SHIVELY, Clemson Univ., Clemson, S.C.

Metabolism of Soluble Sulfur Compounds by *Thiobacillus acidophilus*

R. MEULENBERG, J. T. PRONK, W. HAZEU, P. BOS, and J. G. KUENEN, Delft Univ. of Technology, Delft, The Netherlands

**LAST DAY TO VISIT THE EXHIBITS**
**Session 175 (C). Round Table**

(Eligible for continuing education credit)

**UPDATE ON THE IMPLEMENTATION OF THE 1988 CLINICAL LABORATORY IMPROVEMENT ACT AMENDMENTS**

Friday, 8:30 A.M., Room 26


The implementation of the regulations of the 1988 amendments to the Clinical Laboratory Improvement Act (CLIA '88) will affect all clinical laboratories. The proposed regulations published in 1990 resulted in greater than 50,000 comments and the shifting of responsibility for developing revised regulations from the Health Care Financing Administration to the Centers for Disease Control. The revised regulations will address personnel standards, proficiency testing, and levels of clinical microbiology testing. This session will review what is anticipated to be final published regulations. The final regulations represent the total effort on the part of the federal agencies to respond to the greater than 50,000 comments. The content, interpretation, and implementation of the revised regulations will be presented.

**Session 176 (BET). Seminar**

(Eligible for continuing education credit)

**INCORPORATING VIROLOGY INTO THE UNDERGRADUATE MICROBIOLOGY CURRICULUM**

Friday, 8:30 A.M., Room 103

Convenors: JANICE MATTHEWS-GREER, Centenary Col. of Louisiana, Shreveport, and TOM BRAWNER, Carthage Col., Kenosha, Wis.

**Bacteriophages**

HARRY HOLLOWAY, Univ. of North Dakota, Grand Forks

**Plant Viruses**

EDWARD NELSON and WILLIAM BOND, Univ. of Southeastern Louisiana, Hammond

**Cell Culture**

TOM BRAWNER, Carthage Col., Kenosha, Wis.

**Animal Viruses**

DON DOWNER, Mississippi State Univ., Mississippi State

**Animal Viruses**

RICHARD JAMISON, Louisiana State Univ. Med. Ctr., Shreveport

Introduction

RUTH RUSSELL, California State Univ., Long Beach

**Session 177 (D)**

**ORAL COLONIZATION AND CARIOGENIC ACTIVITIES OF STREPTOCOCCI AND OTHER MICROORGANISMS**

Friday, 8:30 A.M., Room 13


8:30


D108. Allelic Replacement of fimA Results in Decreased Adhesion of Streptococcus sanguis FW213 to Hydroxyapatite. J. C. FENO,* and P. FIVES-TAYLOR. Univ. of Vermont, Burlington.


9:30


10:30


11:30

D119. Directed Mutagenesis of Streptococcus mutans wapA Gene: Construction and Influence on Sucrose-Dependent

Session 178 (E, V). Seminar
(Eligible for continuing education credit)

CYTOKINES AND INFECTIOUS DISEASES
(Supported by DNAX Research Institute of Molecular and Cellular Biology)

Friday, 8:30 A.M., Room 2

Convenors: TOBY K. EISENSTEIN, Temple Univ. Sch. of Med., Philadelphia, Pa., and HERMAN FRIEDMAN, Univ. of South Florida, Tampa

Role of Inflammation in Members of a Novel Interocrine Family of Chemotactic Cytokines
JOOST J. OPPENHEIM, Frederick Cancer Res. and Development Ctr., Frederick, Md.

Cytokines, Macrophages, and Intracellular Parasites
CAROL A. NACY, Walter Reed Army Inst. of Res., Rockville, Md.

Cytokines, Natural Killer Cells, and Fungal Infections
JULIE Y. DJEU, Univ. of South Florida, Tampa

Effects of Cytokines on Salmonella typhimurium Infection in Mice
PHILIP J. MORRISEY, Immunes, Seattle, Wash.

Role of Interleukins in Retrovirus Infections in Animals
MAURO BENDINELLI, Univ. of Pisa, Pisa, Italy

Session 179 (V). Round Table
(Eligible for continuing education credit)

CASE PRESENTATIONS IN CLINICAL AND DIAGNOSTIC IMMUNOLOGY

Friday, 8:30 A.M., Room 5


The panelists will present a series of cases in which there were unusual or unexpected laboratory findings, or in which patients presented with recurrent or unusual infections. The cases to be covered will include those in which the assessment of humoral and cellular immunocompetence led to the diagnosis. Emphasis will be placed on the appropriate use of diagnostic immunology strategies and will focus on the current methods available for the evaluation of these patients. The format of the round table will encourage the audience to participate in the discussion and to ask questions. The cases presented will provide practical, take-home lessons for those in attendance.

Participants: RONALD J. HARBECK, IRENE CHECK, SU. SANNA CUNNINGHAM-RUNDLES, and DAVID NOR-MANSELL

Session 180 (F). Seminar
(Eligible for continuing education credit)

MOLECULAR CHARACTERIZATION OF VIRULENCE FACTORS IN PATHOGENIC FUNGI

Friday, 8:30 A.M., Room 21


Phenoloxidase of Cryptococcus neoformans
PETER WILLIAMSON, Nat. Inst. of Allergy and Infectious Diseases, Bethesda, Md.

Aspartic Proteinase: a Virulence Factor of Candida albicans
THOMAS L. RAY, Univ. of Iowa Hosp. and Clin., Iowa Cty.

Elastase Contributes to Virulence of Aspergillus flavus
JUDITH RHODES, Univ. of Cincinnati, Cincinnati, Ohio

Is the 18-kDa Antigen a Virulence Factor for Aspergillus fumigatus?
JEAN-PAUL LATGE, Inst. Pasteur, Paris, France

Adhesins of Candida albicans
RICHARD A. CALDERONE, Georgetown Univ., Washington, D.C.

Session 181 (B)

BACTERIAL INVASION OF HOST CELLS

Friday, 8:30 A.M., Room 27

Moderators: THOMAS H. KAWULA, Cornell Univ., Ithaca, N.Y., and VIRGINIA MILLER, UCLA, Los Angeles, Calif.

8:30 Divisional Lecture
(Eligible for continuing education credit)

Bacterial Entry and Growth in Mammalian Cells
RALPH ISBERG, Tufts Univ., Boston, Mass.

9:30


B218. Novel Bacterial Invasion Mechanism That Is Microfilament Independent and Requires Coated-Pit Formation. T. A. OELSCHLAEGER.*, P. GUERRY, and D. J. KOPECKO.


10:30


B221. Uptake of Pathogenic and Potentially Pathogenic Intestinal Bacteria by Cultured Enterocytes. R. P. JECHOREK* and C. L. WELLS. Univ. of Minnesota, Minneapolis.


11:30


Session 182 (A). Seminar
(Eligible for continuing education credit)

NONQUINOLONE INHIBITORS OF DNA GYRASE

(Dedicated to John S. Wolfson)

Friday, 8:30 A.M., Room 16


DNA Gyrase: Structure, ATP Hydrolysis, and Interaction with Coumarin Drugs
ANTHONY MAXWELL, Univ. of Leicester, Leicester, England

Drug Interactions with DNA Gyrase from Different Bacterial Species
KEITH BARRETT-BEE, ICI Pharmaceuticals, Macclesfield, United Kingdom

Strategies for the Detection of Gyrase Inhibitors from Natural Sources
DAVID KNOWLES, MARTIN BURNHAM, JUDITH WARD, ESME HAYES, and JOHN HODGSON. Smith-Kline Beecham, Surrey, United Kingdom

Isolation and Characterization of a Novel Gyrase Inhibitor from Natural Sources
PRABHA FERNANDES, Bristol-Myers/Squibb, Princeton, N.J.

Interaction of Structurally Novel Inhibitors with DNA Gyrase
JOYCE SUTCLIFFE, Pfizer Central Res., Groton, Conn.

Session 183 (O). Seminar
(Eligible for continuing education credit)

ANTIBODY ENGINEERING IN MICROBES

Friday, 8:30 A.M., Room 85


Production and Uses of Single-Chain Antigen-Binding Proteins from Escherichia coli
DAVID FILPULA, ENZON, Inc., Gaithersburg, Md.

Expression and Scale-Up of Engineered Antibody Fragments
MARC BETTER, XOMA Corp., Santa Monica, Calif.

In Vivo Catalysis of Metabolically Essential Reactions by Catalytic Antibodies
DONALD HILVERT, Scripps Res. Inst., La Jolla, Calif.

Combination Antibody Libraries on the Surface of Phage
KATHRYN V. HOLMES, Uniformed Services Unr. of the Health Sci., Bethesda, Md., and JAMES STRAUSS, California Inst. of Technology, Pasadena

How Many Cell Surface Receptors Does Herpes Simplex Virus Need?
PAT SPEAR, Northwestern Univ., Med. and Dent. Sch., Chicago, Ill.

Coronavirus Receptors
KATHRYN V. HOLMES, Uniformed Services Univ. of the Health Sci., Bethesda, Md.

Cellular Receptors for Sindbis Virus
JAMES H. STRAUSS, California Inst. of Technology, Pasadena

Receptors for Murine Retroviruses

NO SMOKING IN SESSIONS OR IN POSTER AREA
Session 185 (E)
NEW DEVELOPMENTS IN VACCINES: VEHICLES FOR EFFECTIVE ANTIGEN DELIVERY

Friday, 8:30 A.M., Room 1


8:30


E84. Avirulent Salmonella typhimurium and Salmonella typhi Expressing Hybrid Hepatitis B Virus Core/Pre-S Genes for Oral Vaccination. F. SCHODEL, S. M. KELLY, H. WILL, and R. CURTISS III. Max-Planck-Inst. für Biochemie, Martinsried, Germany, and Dept. of Biol., Washington Univ., St. Louis, Mo.


9:30


E89. Lactobacilli as a Vehcicle for Antigen Delivery to the Genital Tract. C. RUSH, L. HAFNER, and P TIMMS. Ctr. for Molecular Biotechnology, Queensland Univ. of Technoloogy, Brisbane, Australia.

10:30


Session 186 (U). Seminar
LEPROSY RESEARCH: PRESENT AND FUTURE

Friday, 8:30 A.M., Room 80


Identification and Characterization of Antigens
CRISTINA PESSOLANI, Colorado State Univ., Fort Collins

Diagnosis and Epidemiology
THOMAS P. GILLIS, Nat. Hansen's Disease Ctr., Carville, La.

Animal Models
PAUL CONVERSE, Johns Hopkins Univ., Baltimore, Md.

Cell-Mediated Immunity
ROBERT L. MODLIN, UCLA Sch. of Med., Los Angeles, Calif.

Studies on Pathogenesis
JOSEPHINE E. CLARK-CURTIS, Washington Univ., St. Louis, Mo.

Session 187 (B). Seminar
MOLECULAR BIOLOGY OF UROPATHOGENS

Friday, 8:30 A.M., Room 19

Convenors: HARRY L. T. MOBLEY, Univ. of Maryland Sch. of Med., Baltimore, and JAMES R. JOHNSON, Univ. of Minnesota Med. Sch., Minneapolis

Virulence Determinants of Uropathogenic Escherichia coli
JAMES R. JOHNSON, Univ. of Minnesota Med. Sch., Minneapolis

Hemolysins of Escherichia coli and Proteus
WILLIAM D. THOMAS, JR., Univ. of Wisconsin Sch. of Med., Madison

Chaperone-Assisted Assembly and Molecular Architecture of Adhesive Pili
SCOTT HULTGREN, Washington Univ. Sch. of Med., St. Louis, Mo.

Virulence Determinants of Proteus
HARRY L. T. MOBLEY, Univ. of Maryland Sch. of Med., Baltimore
Session 188 (O)

BIOTRANSFORMATIONS AND BIOCONVERSIONS

Friday, 8:30 A.M., Room 33

Moderators: JEFFREY S. KARNS, USDA, Beltsville, Md., and JOANNE M. HORN, Ctr. for Environmental Diagnostics & Bioremediation, Pensacola, Fla.

8:30


O50. EPTC-Degrading Rhodococci sp. Isolates TE1 and B30 Degradate the Herbicide Atrazine. R. BEHKI, E. TOPP,* and W. A. DICK. CLBRR, Agriculture Canada, CEF Ottawa, Ontario, Canada, and Ohio Agricultural Res. and Development Ctr., Ohio State Univ., Wooster.

O51. N-Deisopropylation and N-Deethylation of Atrazine by a Streptomyces. B. M. POGELL. Ctr. for Agriculture and Biotechnology, Univ. of Maryland, College Park, and PDL, USDA, Beltsville, Md.


9:30


10:30

O57. Origin of Enzymatic Activities Responsible for Detoxication and Roots Softening in Retting, a Cassava Lactic Fermentation. A. BRAUMAN* and F. AMPE. ORSTOM, Brazzaville, Congo.

O58. Bioconversion of Peat to Reducing Sugars by a Multienzyme System of Trichoderma harzianum FP108 and Trichoderma reesi QM9414. Z.-Y. GU* and F. H CHANG. Benidji State Univ., Bemidji, Minn.


Session 189 (BET). Round Table

(Eligible for continuing education credit)

SCIENCE LITERACY: A FABLE FOR OUR TIME

Friday, 8:30 A.M., Room 95


The crisis over science literacy in this country has reached epidemic proportions. It stretches from the public through all levels of our educational hierarchy, affecting student and teacher alike, and even manifests itself in the research community. The explanations for this crisis and the issues involved are manifold. Even the definition of science literacy becomes a function of the particular vantage point and the constituency attempting to extract the meaning of the term. One is reminded of the fable concerning the blind men and the elephant. Each individual, touching only a small section of the animal, attempted to explain its characteristics only in the terms of his immediate perspective. The objective of this session will focus on scientific literacy with a microbiological emphasis, bringing together different constituencies. Representatives of the research community, pre-college educators, the public realm, and professional societies will discuss their concepts of science literacy, its importance, and the role each group can take in implementation. Participants will form a panel at the completion of their talks to respond to questions and comments from the audience. We will attempt to define key issues which must be addressed to see the "entire beast."

Participants: F. BIONDO, D. SCOTT, J. SPITZNAGEL, N. WILLET, and S. ZABLOTNEY
Session 190 (Professional Affairs Committee, PSAB; AAM). Round Table
(Eligible for continuing education credit)

THE REGULATORY AND LEGISLATIVE PERSPECTIVE FOR CLINICAL MICROBIOLOGISTS: STATENET—WHAT IS IT? HOW DO I GET INVOLVED?

New Time: Friday, 1:30 P.M., Room 20


STATENET is a program of the Public and Scientific Affairs Board that tracks and monitors legislation and regulations relating to clinical microbiology in all 50 states. Approximately 200 ASM members have volunteered to be key contacts in 44 states. These key contacts are becoming involved in legislation and regulations, and each state will report to our national office. It is anticipated that these contacts will be the key to a network of microbiologists who can provide information on specific legislation or regulations if necessary. AEM Headquarters coordinates the program and offers advice on legislative or regulatory strategy if requested. This round table will seek to inform current key contacts and any potentially interested key contacts about the legislative and regulatory process, how it works, how to become involved in the process, and the positive impact participation in the program can have on the profession of microbiology. The members of the round table will focus on the procedures necessary for individuals or branches to become involved with legislative and regulatory state issues and will share their first-hand experiences with the program. The meeting will be open for discussion and comments from the audience.

Participants: J. DEBOY, L. GARCIA, A. MELNICK, H. POLLOCK, and A. WEISSFELD

Session 191 (Q). Seminar
(Eligible for continuing education credit)

USE OF POLYMERASE CHAIN REACTION FOR ENVIRONMENTAL MONITORING

Friday, 8:30 A.M., Room 82

Convenors: BETTY H. OLSON, Univ. of California, Irvine, and JOSEPH L. DICESARE, Perkin Elmer Cetus, Norwalk, Conn.

An Overview of Polymerase Chain Reaction for Environmental Analysis
JOSEPH L. DICESARE, Perkin Elmer Cetus, Norwalk, Conn.

Polymerase Chain Reaction Technology in the Tenth Year
JON RAYMOND, Cetus Corp., Emeryville, Calif.

Use of Polymerase Chain Reaction for Detection of Legionella in Environmental Samples
SHAWN MCCARTHY and RONALD M. ATLAS, Louisville Water Co. and Univ. of Louisville, Louisville, Ky.

Future Applications of Polymerase Chain Reaction in Environmental Testing
RONALD M. ATLAS, Univ. of Louisville, Louisville, Ky.

Polymerase Chain Reaction Technology for Detection of Enteric Viruses in Environmental Samples
RICARDO DELEON, Univ. of North Carolina, Chapel Hill

Session 192 (P). Seminar
(Eligible for continuing education credit)

DETECTION OF PATHOGENS BY CONDUCTANCE MICROBIOLOGY

Friday, 8:30 A.M., Room 87


Salmonella
FRAN MARLATT, Radiometer America, Inc., Westlake, Ohio

Listeria in Food
ERIC BOLTON, Malthus Instruments Ltd., Crawley, U.K.

Listeria in the Environment
MICHAEL CIRGILIANO, T. J. Lipton Co., Englewood Cliffs, N.J.

Campylobacter
NORMAN STERN and ERIC BOLTON, USDA, Agricultural Res. Service, Athens, Ga., and Malthus Instruments Ltd., Crawley, U.K.

Regulatory Approvals: Update
PHILIP COOMBS, Radiometer America, Inc., Westlake, Ohio

Session 193 (M). Seminar
(Eligible for continuing education credit)

CAPSID ASSEMBLY AND PACKAGING IN BACTERIOPHAGES

Friday, 8:30 A.M., Room 38

Convenors: ROGER W. HENDRIX, Univ. of Pittsburgh, Pittsburgh, Pa., and SHERWOOD R. CASJENS, Univ. of Utah Med. Ctr., Salt Lake City

Bacteriophage P22: Capsid Structure and Assembly Mechanism
PETER PREVELIGE, MIT, Cambridge, Mass.

DNA Packaging by Phage P22
SHERWOOD CASJENS, Univ. of Utah, Salt Lake City

Packaging of Foreign Molecules into Phage Capsids
LINDSAY BLACK, Univ. of Maryland, Baltimore

Studies on the Mechanism of Phage d29 DNA-gp3 Packaging
DWIGHT ANDERSON, Univ. of Minnesota, Minneapolis
Cleavage, Conformational Changes, and Comprehensive Covalent Cross-Linking in Phage HK97 Head Assembly
ROGER HENDRIX, Univ. of Pittsburgh, Pittsburgh, Pa.

POSTER SESSIONS

Friday, 9:00-10:30 A.M., Exhibit Hall C
(Board numbers in parentheses)

Session 194 (Q). MICROBIAL DETECTION METHODOLOGY


Q221. Identification of Genes Capable of Biotransforming Toluene in Several Microorganisms. (005) M. T. KSON* and S. K. DUTTA. Howard Univ., Washington, D.C.


Q225. Differentiation of Human from Nonhuman Contaminants in Subsurface Sediments. (047) S. LIU,* and S. K. JACKSON. Univ. of South Florida, Tampa.


Q229. Differentiation of Human from Nonhuman Contaminants in Subsurface Sediments. (047) S. LIU,* and S. K. JACKSON. Univ. of South Florida, Tampa.

Session 195 (Q). BIOTRANSFORMATION AND DEGRADATION III: AROMATIC AND HETEROCYCLIC COMPOUNDS


Q238. Use of Fluorophenols and 3-Fluorobenzoic Acid To Study the Transformations of Phenol under Methanogenic Conditions. (049) K. L. LONDRY* and P. M. FEDORAK. Univ. of Alberta, Edmonton, Alberta, Canada.

Q239. Microbiological Study of Anaerobic Biodegradation of p-Cresol by Methanogenic Fermentation (051) R. BEAUDET,* and J. G. BISAULT. Inst. Armand-Frappier, Univ. du Quebec, Ville de Laval, Quebec, Canada.


* NO SMOKING IN SESSIONS OR IN POSTER AREA *


Q244. Biotransformation of Quinoline by a Soil Bacterium. (061) S. SUTTON* and J. R. VESTAL. Univ. of Cincinnati, Cincinnati, Ohio.


Q249. Effects of Selected Agrochemicals and Insecticide Metabolites on Growth and Carbofuran Degradation by a Carbofuran-Hydrolyzing Bacterium. (071) E. TOPP. CLBR, Agriculture Canada, CEF Ottawa, Ontario, Canada.


Session 196 (I). MICROBIAL SYMBIOSIS AND DEVELOPMENT


170. Transcripts Expressed during Macrocyt Development in Dictyostelium mucoroides. (079) M. LARSON* and A. T. WEBER. Univ. of Nebraska, Omaha.


177. Regulation of a Signal-Dependent Gene Expressed Early during Myxococcus xanthus Development. (093) H. B. KAPLAN. Univ. of Texas Health Sci. Ctr., Houston.


181. Cloning and Sequence Analysis of a Cell Division Penicillin-Binding Protein from Bacillus subtilis. (101) A. YAOUNI* and C. BUCHANAN. Southern Methodist Univ., Dallas, Tex.


183. Characterization of FisA Protein from Wild-Type Escherichia coli Cells by Western Blotting. (105) H. WANG* and R. GAYDA. Dept. of Microbiol., Louisiana State Univ., Baton Rouge.

Session 197 (K). OUTER AND INNER MEMBRANES: STRUCTURE AND FUNCTION


K89. Reevaluation of the Role of EDTA in Lysis of Pseudomonas aeruginosa Cell Walls. (113) S. WATT* and A. J. CLARKE. Dept. of Microbiol., Univ. of Guelph, Guelph, Ontario, Canada.


K111. Escherichia coli Enterochelin Synthetase Need Not Be a Membrane-Bound Multienzyme Complex. (157) M. C. AMERICAN* and C. F. EARHART. Univ. of Texas, Austin.

K112. Comparative Molecular Analysis of the Enterochelin Biosynthesis Gene entD from Enteric Bacteria. (159) K. A. JOHANSEN, S. DE BRITO, and M. A. MCELINTOSH. Univ. of Missouri, Columbia.

Session 198 (C). MOLECULAR TECHNIQUES FOR DETECTION AND CHARACTERIZATION OF ORGANISMS OF CLINICAL SIGNIFICANCE


C185. Evaluation of a Reformulated DNA Probe for Mycobacterium avium Complex (Gen-Probe) and Comparison with the SNAP M. avium Complex DNA Probe (Syngene). (169) P. R. CLARKE, D. E. SIMMONS, P. H. VANCE, and A. S. WEISFELD. Microbiol. Specialists Inc., Houston, Tex.

C186. Treatment of Clinical Specimens Containing Mycobacterium tuberculosis by Sonication To Remove DNA for Polymerase Chain Reaction. (171) G. BUCK, L. C. O'HARA, and J. T. SUMMERSGILL. Alliant Health System and Univ. of Louisville, Louisville, Ky.


C188. rRNA Gene Restriction Patterns of Pseudomonas aeruginosa from Cystic Fibrosis Patients in Summer Camps. (175) L. A. CARSON* and D. A. PEGUES. CDC, Atlanta, Ga.


C190. Molecular Typing of Staphylococcus aureus by Polymerase Chain Reaction Analysis of the 3' End of the Staphy-

90

NO SMOKING IN SESSIONS OR IN POSTER AREA


C199. Molecular Typing of Vibrio cholerae O1 by Pulsed-Field Gel Electrophoresis. (197) T. J. Barrett,* D. N. Cameron, and I. K. Wachsmuth. Nat. Ctr. for Infectious Diseases, CDC, Atlanta, Ga.


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Session 199 (G). MOLLICUTES: MOLECULAR AND CELL BIOLOGY

U68. Growth Index Cutoff from BACTEC Bottles and Use of


U57. Identification of Difficult-To-Grow Mycobacteria with High-Performance Liquid Chromatography. (264) W. R. BUTLER* and J. O. KILHORN. CDC, Atlanta, Ga.


Session 201 (D). POLYMERASE CHAIN REACTION AND OTHER DNA ASSAYS FOR DETECTION OF PATHOGENS


D121. Enhancement of Human T-Lymphotrophic Virus Types 1 and II. Human Immunodeficiency Virus Type 1, and HLA-DQ Alpha Polymerase Chain Reaction Amplification Efficiency Using Uricate-V-Glycosylase. (269) S. KINARD,* A. BUTCHER, Z. WANG, and J. SPADORO Roche Diagnostic Systems, Fair Lawn, N J.

D122. Nested Primer Sets Avoid False Negatives Due to Inhibitors in Clinical Specimens during Polymerase Chain Reaction. Testing for Bacterial DNA Targets. (271) C. M. BLACK,* T. O. MESSEMER, and J. A. THARPE. CDC, Atlanta, Ga.


D127. Polymerase Chain Reaction for Specific Amplification of Acanthamoeba DNA. (281) S. J. GOSS. Tennessee Technological Univ., Cookeville.


* NO SMOKING IN SESSIONS OR IN POSTER AREA *
Session 203 (N). MARINE MICROBIAL ECOLOGY


Session 204 (H). METABOLIC OPERON ORGANIZATION

H201. Cloning of Endo 1,4-β-D-Glucanase Genes from Rumino- cococcus sp. (080) S. K. SIVASTAVA, A. ALI, and S. KHANNA.* Microbiol. and Molecular Genetic Unit, Tata Energy Res. Inst., New Delhi, India.


and C. D. DEAL. Walter Reed Army Inst. of Res., Washington, D.C., and Univ. of Maryland, College Park.


D162. Adherence to, and Invasion of, Cultured Mammalian Cells by Bordetella avium. (238) L. V. COLLINS. Washington Univ., St. Louis, Mo.


D165. Comparison of Fimbrial Serotype 2 Subunit Antigen Expression Levels in Bordetella bronchiseptica Strains. (244) E. H. BURNS, JR.,* J. M. NORMAN, and D. A. BEMIS. Univ. of Tennessee, Knoxville.


D171. Electron Microscopy of Nocardial Invasion of the Murine Brain. (256) B. L. BEAMAN. Univ. of California-Davis Sch. of Med., Davis.

D172. Growth of Nocardia asteroides in Marine Astrocotye Cultures. (258) L. BEAMAN* and B. L. BEAMAN. Univ. of California-Davis Sch. of Med., Davis.


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**Session 209 (Center for the History of Microbiology). Round Table**
(Eligible for continuing education credit)

**SCARLET FEVER, SEPTIC SCARLET FEVER,**
**TOXIC FEVER, AND THE STREPTOCOCCAL**
**TOXIC SHOCK SYNDROME**

(Supported by a grant from Lederle Laboratories)

Friday, 11:00 A.M., Room 100

Convenor: JAMES A. POUPARD, ASM Archives, Ctr. for the History of Microbiology, Albin O. Kuhn Library, Univ. of Maryland, Catonsville

Scarlet fever is a disease of antiquity. The earliest descriptions are attributed to 10th century Arabian physicians, who referred to it as Alhamica. The term scarlatina, however, can be found in the works of Hippocrates as early as the 4th to 5th centuries. In 1858, three basic forms of scarlet fever were recognized by Wood; these are currently known as simple, septic, and toxic scarlet fever. In the late 1800s, Trousseau provided the first descriptions of acute scarlet fever and its chronic sequelae, such as poststreptococcal glomerulonephritis and rheumatic fever. The early 1900s saw the classic experiments of the Dicks in New York City, which established the role of soluble exotoxins in scarlet fever, using largely human experimentation. Throughout history there is ample evidence that the severity and mortality of scarlet fever has waxed and waned in a cyclical manner. Today, severe invasive forms of streptococcal infections are occurring worldwide, largely in young, healthy individuals. Clinically these infections, which have been called streptococcal toxic shock syndrome, are distinctly different from the various forms of scarlet fever, though the manifestations of each may be mediated, in part, by scarlatina toxin (pyrogenic exotoxin A, B, or C). On the basis of historical descriptions, manifestations of scarlatina toxin-producing streptococci are the consequences of an intimate relationship between streptococcal virulence factors and host cell responses. The ability of streptococcal products to induce cytokine production and their roles as superantigens are being recognized as important participants in the host-parasite relationship.

**Participant:** DENNIS STEVENS

**Session 210 (Committee on General Meeting Planning, BET). Seminar**
(Eligible for continuing education credit)

**UPDATE '92 II**

Friday, Noon, Room 103

Convenors: JOHN CLAUSZ, Carroll Col., Waukesha, Wis., and JOHN M. LAMMERT, Gustavus Adolphus Col., St. Peter, Minn.

Update '92 in Bacterial Pathogenesis

VINCENT A. FISCHETTI, Rockefeller Univ., New York, N.Y.

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**Session 211 (C). Seminar**
(Eligible for continuing education credit)

**BLOOD CULTURE PRACTICES**

Friday, 1:30 P.M., Ballroom IA

Convenors: JOHN A. WASHINGTON II, Cleveland Clin., Cleveland, Ohio, and MARY GILCHRIST, Univ. of Cincinnati, Cincinnati, Ohio

Blood Culture Practices in the United States and Abroad

JOHN A. WASHINGTON II, Cleveland Clin., Cleveland, Ohio

Drawing Blood for Culture: Needlesticks and Nuances

FRANKLIN P. KOONTZ, Univ. of Iowa, Iowa City

Choosing Media for Blood Cultures


The Legal Perspective on Blood Culture Practices

ROBERT J. DOCKERY, Becton Dickinson & Co., Franklin Lakes, N.J.

Comparative Studies of Instrumented Blood Culture Systems


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**Session 212 (V, C). Seminar**
(Eligible for continuing education credit)

**RAPID DIAGNOSIS: NEW PATHOGENS AND OLD**

Friday, 1:30 P.M., Room 10

FATTY ACID AND PHOSPHOLIPID METABOLISM

Friday, 1:30 P.M., Room 37

Moderators: PAUL N. BLACK, Univ. of Tennessee, Memphis, and DAVID H. SHERMAN, Bioprocess Technology Inst., St. Paul, Minn.

1:30

K113. Identification of Genes That May Participate in Long-Chain Fatty Acid Transport in Escherichia coli Using TnphoA. A. AZIZAN* and P. N. BLACK. Dept. of Biochemistry, Univ. of Tennessee, Memphis.


2:30


3:30

K121. Cloning, Characterization, and Sequence Analysis of the hr-B Multicopy Suppressor, mshA. M. KAROW* and C. GEORGOPOULOS. Univ. of Utah, Salt Lake City.

K122. Membrane Composition of Pseudomonas aeruginosa Grown on Glucose or n-Hexadecane. R. SMITH* and E. J. BROWN. Univ. of Alaska, Fairbanks.


Session 215 (K). Seminar
(Eligible for continuing education credit)

MICROBIAL ADAPTATION TO ENVIRONMENTAL STRESS

Friday, 1:30 P.M., Room 41

Convenors: ROBERT E. MARQUIS, Univ. of Rochester, Rochester, N.Y., and WOLFGANG EPSTEIN, Univ. of Chicago, Chicago, Ill.

Adaptive Response of *Bacillus subtilis* to Nutrient Limitation

The Role of FNR in the Response of *Escherichia coli* to Oxygen Deprivation
PATRICIA J. KILEY, Univ. of Wisconsin, Madison

The Adaptation of Extreme Alkaliphiles
ARTHUR A. GUFFANTI, Mount Sinai Sch. of Med., Scarsdale, N.Y.

Acid Adaptations of Oral Bacteria
ROBERT E. MARQUIS, Univ. of Rochester, Rochester, N.Y.

Ionic Responses to Osmotic Stress in *Escherichia coli*
WOLFGANG EPSTEIN, Univ. of Chicago, Chicago, Ill.

Session 216 (BET). Seminar
(Eligible for continuing education credit)

DISCOVERING YOUR ROLE IN PRECOLLEGE SCIENCE EDUCATION

Friday, 1:30 P.M., Room 103

Convenors: JOHN LENNOX, Pennsylvania State Univ., Altoona, and DAVID SCOTT, Univ. of Rochester, Rochester, N.Y.

ASM’s Role in Precollege Science Education
AMY CHANG, American Society for Microbiol., Washington, D.C.

Spreading the Word
DAVID SCOTT, Univ. of Rochester, Rochester, N.Y.

Partnerships between ASM Members and Precollege Science Teachers

Teaching “Science” with Microbiology
ROBERT WILLIAMS, Baylor Col. of Med., Houston, Tex.

Student and Teacher Preparation and Science Fair Participation
JOHN LAMMERT, Gustavus Adolphus Col., St. Peter, Minn.

A Strategy for Introducing Microbiology into Precollege Science Education
SALLY DE GROOT, St. Petersburg Junior Col., St. Petersburg, Fla.

Session 217 (A)

RESISTANCE TO QUINOLONES

Friday, 1:30 P.M., Room 13


1:30 Divisional Lecture
(Eligible for continuing education credit)

Quinolone Resistance: Molecular Mechanisms and Clinical Relevance
DAVID HOOPER, Massachusetts Gen. Hosp., Boston

2:30

A93. Cloning of *Pseudomonas aeruginosa* gyrA Gene by the Polymerase Chain Reaction Using Mixed Consensus Primers That also Amplify *Escherichia coli* and *Serratia marcescens* gyrA Genes. A. KUREISHI* and L. E. BRYAN. Univ. of Calgary, Calgary, Alberta, Canada.


A99. Supersusceptibility to Fluoroquinolones Due to Outer Membrane Protein H in *Pseudomonas aeruginosa*. M. YOUNG*, M. BAINS, and R. E. W. HANCOCK. Univ. of British Columbia, Vancouver, British Columbia, Canada.


3:30


Session 218 (E). Seminar
(Eligible for continuing education credit)

ANTIMICROBIAL MECHANISMS AND EFFECTOR MOLECULES

Friday, 1:30 P.M., Room 2

Convenors: BRUCE S. ZWILLING, Ohio State Univ., Columbus, and SHAWN J. GREEN, Walter Reed Res. Inst., Rockville, Md.

Divisional Lecture
Erwin Neter Memorial Lecture

Antimicrobial Proteins of Human Neutrophil Granules
JOHN K. SPITZNAGEL, Emory Univ. Sch. of Med., Atlanta, Ga.

Overview of Cytokine-Induced Nitric Oxide Synthesis from L-Arginine
JOHN B. HIBBS, JR., Utah Sch. of Med. and VA Med. Ctr., Salt Lake City

In Vivo Regulation of Nitrogen Oxides by Cytokines
SHAWN J. GREEN, Walter Reed Res. Inst., Rockville, Md.

Nitric Oxides as Effectors of Macrophage Cytotoxicity for Intracellular Pathogens

Nitric Oxide in Salmonella Immunity and Immunosuppression

Regulation of the Oxidative Burst in Phagocytes
JOHN M. ROBINSON, Ohio State Univ., Columbus

Session 219 (F). Seminar
(Eligible for continuing education credit)

CYTOKINES IN THE MYCOSES

Friday, 1:30 P.M., Room 5


Cytokine Production in Blastomycosis and Modulation of Host Response by Anti-Interleukin-4 in Paracoccidioidomycosis

Cytokines in Host Resistance to Experimental Histoplasmosis
BETTY WU-HSIEH, UCLA, Los Angeles, Calif.

Monokine-Induced Modulation of Host Responses in Coccidiomycosis

Cytokines Involved in the Anticryptococcal Cell-Mediated Immune Response
JUNEANN W. MURPHY, Univ. of Oklahoma Health Sci. Ctr., Oklahoma City

Neutrophil Function against Candida albicans: Regulation by Cytokines
JULIE DJEU, Univ. of South Florida, Tampa

Cytokines in Prevention and Treatment of Invasive Candidiasis and Aspergillosis
THOMAS WALSH, NIH, Bethesda, Md.

Session 220 (Q). Seminar
(Eligible for continuing education credit)

INDOOR AIR AND BIOAEROSOLS

Friday, 1:30 P.M., Room 21


Indoor Air Microbiology in the 1990s: Breaking with Tradition
GERARD N. STELMA, U.S. EPA, Cincinnati, Ohio

Legionellosis: a Case in Point
JANE WONG, State of California Dept. of Health, Berkeley

Airborne Fungi and Indoor Air Quality

The House Dust Mite: a Major Indoor Allergen
JOAN RIVERS, ManTech Environmental Technology, Inc., Research Triangle Park, N.C.

Sick Building Syndrome: Chemicals and Endotoxin
GLENDON R. MILLER, Wichita State Univ., Wichita, Kans.

Session 221 (B, D). Seminar
(Eligible for continuing education credit)

ATTACHING AND EFFACING AGENTS OF DIARRHEA

Friday, 1:30 P.M., Room 16

Convenors: JAMES B. KAPER, Univ. of Maryland, Baltimore, and EDGAR C. BOEDEKER, Walter Reed Army Inst. of Res., Washington, D.C.

Epidemiology of Attaching and Effacing Escherichia coli Infections
ALEJANDRO CRAVIOTO, Facultad de Med., U.N.A.M., Mexico City, D.F., Mexico

◆ LAST DAY TO VISIT THE EXHIBITS ◆
Pathology of Attaching and Effacing *Escherichia coli* Infections
SAUL TZIPORI, Tufts Univ., North Grafton, Mass.

Genetic Basis of Enteropathogenic *Escherichia coli* Pathogenesis
MICHAEL DONNENBERG, Univ. of Maryland, Baltimore

Intracellular Changes in Epithelial Cells Infected with Enteropathogenic *Escherichia coli*
STUART KNUTTON, Inst. for Child Health, Birmingham, U.K.

RDEC: a Rabbit Diarrheal Pathogen
J. ROBERT CANTEY, VA Med. Ctr., Charleston, S.C.

Enterohemorrhagic *Escherichia coli*
PHILIP M. SHERMAN, Hosp. for Sick Children, Toronto, Ontario, Canada

Session 222 (U)
CELL-MEDIATED IMMUNE RESPONSES IN MYCOBACTERIAL INFECTIONS

Friday, 1:30 p.m., Room 85

*Convenors:* EDWARD G. RUBY, USC, Los Angeles, Calif., and DOUGLAS BARTLETT, Univ. of California-San Diego, La Jolla

Moderators: TIMOTHY L. RATLIFF, Washington Univ., St. Louis, Mo., and ROBERT S. WALLIS, Case Western Reserve Univ., Cleveland, Ohio

1:30 Divisional Lecture
(Eligible for continuing education credit)

Tuberculosis and Human Immunodeficiency Virus Infection: Interactions of an Ancient and a Modern Scourge
JERROLD J. ELLNER, Case Western Reserve Univ., Cleveland, Ohio

2:30


U77. Alteration of Phenotype Distribution in Human Lymphocytes Cultured with Monocyte/Macrophages Infected with Virulent *Mycobacterium tuberculosis*. B. JOHNSON,* S. H. BLACK, and D. N. MCMURRAY. Texas A&M Univ., Coll. of Med., College Station.


3:30


Session 222 (S, T). Seminar
(Eligible for continuing education credit)

SENSORY/RESPONSE SYSTEMS FOR DIVERSE ENVIRONMENTAL SIGNALS

Friday, 1:30 p.m., Room 36

Convenors: EDWARD G. RUBY, USC, Los Angeles, Calif., and DOUGLAS BARTLETT, Univ. of California-San Diego, La Jolla

High-Pressure Signal Transduction, Acclimation, and Evolutionary Adaptation in Deep-Sea Bacteria
DOUGLAS BARTLETT, Univ. of California-San Diego, La Jolla

Regulation of Swarmer Cell Differentiation in *Proteus* and *Vibrio*: a Bacterial Dr. Jekyll and Mr. Hyde
ROBERT BELAS, Ctr. of Marine Biotechnology, Baltimore, Md.

Regulation of Iron Transport as a Component of Virulence in *Vibrio anguillarum*
JORGE H. CROSA, Oregon Health Sci. Univ., Portland

Virulence Regulation and In Vivo Gene Expression in *Vibrio cholerae*

Coordinated Responses during the Initiation of Light Organ Symbiosis by *Vibrio fischeri:
EDWARD G. RUBY, USC, Los Angeles, Calif.

Regulation of *lux* Genes in *Vibrio fischeri*: a Genetic Light Switch
E. PETER GREENBERG, Univ. of Iowa, Iowa City

Session 224 (S, T). Seminar
(Eligible for continuing education credit)

MOLECULAR MECHANISMS OF VIRAL-INDUCED DISEASE

Friday, 1:30 p.m., Room 93


Molecular Mimicry and Coxsackievirus-Induced Myocarditis
CHARLES GAUNTT, Univ. of Texas Health Sci. Ctr., San Antonio

*NO SMOKING IN SESSIONS OR IN POSTER AREA*
Session 225 (D). Seminar
(REGULATION AND FUNCTION OF BACTERIAL CYTOLYTIC TOXINS)

Friday, 1:30 P.M., Room 1

Convenors: ROD WELCH, Univ. of Wisconsin, Madison, and DAVID KOLODRUBETZ, Univ. of Texas Health Sci. Ctr., San Antonio

REGULATION AND STRUCTURE ANALYSES OF LISTERIOLYSIN O
PASCAL COSSART, Inst. Pasteur, Paris, France

MEMBRANE-ACTIVE TOXINS OF CLOSTRIDIA
ROD TWETEN, Univ. of Oklahoma Sch. of Med., Oklahoma City

REGULATION AND TRANSPORT OF LEUKOTOXIN FROM ACTINOBACILLUS ACTINOMYCETEMCOMITANS
DAVID KOLODRUBETZ, Univ. of Texas Health Sci. Ctr., San Antonio

SESSION 226 (PSAB). Round Table
(MICROBIOLOGISTS AND MENTORS: RESPONSIBILITIES AND REWARDS)

Friday, 1:30 P.M., Room 80


Mentoring is much more than scientific advising, and scientists need mentors, more than one. Indeed, scientists need mentors at each stage and for every aspect of their careers. Mentors in college advise on careers and choice of graduate or professional school and on academic and other attributes prized by admissions committees. Mentors in graduate school—the “typical” mentor we think of when the term is used—train students in all aspects of experimental science, from the scientific method through technical design and performance of experiments, data analysis and interpretation, data presentation (written and oral), and scientific ethics, to postdoctoral applications and other career decisions. Junior and senior members of the profession, whether in academic, clinical, industrial, or educational settings in either the government or private sector, need mentors to advise and assist them in all facets of career development. The members of the round table will focus on three topics: the responsibilities of scientific mentors, the importance of identifying appropriate mentors in different career situations, and specific problems which women may face with or without suitable mentors. The audience will be invited to raise other mentoring issues of concern to women in the profession.

Participants: CAROLYN DEAL, MARCIA MOODY, ANNE MORRIS HOOKE, DONNA SUCHMANN, and MARI-LYN ROBERTS

Session 227 (G)

MOLLICUTES: CELL SURFACES, IMMUNOLOGY, AND HOST INTERACTION

Friday, 1:30 P.M., Room 19

Moderators: RICARDO ROSENBUSCH, Iowa State Univ., Ames, and SUZANNE E. ROSS, Univ. of Alabama, Birmingham

1:30 Divisional Lecture
(Eligible for continuing education credit)

The Mycoplasma Superantigen MAM: Mechanisms and Significance of Polyclonal T and B Lymphocyte Activation
BARRY C. COLE, Univ. of Utah Sch. of Med., Salt Lake City

2:30

G27. Sex Differences in Susceptibility to Mycoplasma pulmonis-Induced Respiratory Disease in C/H/HeN Mice. A. YANCEY,* J. W. SIMICEKA, H. L. WATSON, S. ROSS, and G. H. CASSELL. Dept. of Microbiol., Univ. of Alabama, Birmingham


3:30

G31. Spiroplasma-Induced Chromosome Anomalies in Infected Eukaryotic Cells. F. O. BASTIEN,* W. M. HOLBROOK, and W. M. CLEMENT. Univ. of South Alabama, Mobile
G32. High-Frequency Antigenic and Phase Variation of Mycoplasma fermentans Membrane Lipoproteins Generating Diverse Surface Mosaics for Host Interactions. P. THEISS,* M. KIM, and K. WISE. Univ. of Missouri, Columbia.


G34. Effect of Specific Antibody on Antigen Size Variation and Adherence of Ureaplasma urealyticum. X. ZHENG,* M. GUTIERREZ,* G. BOLANOS, S. GIONO, A. DEL RIO, KEMPF, G. CASSELL, and H. WATSON. Univ. of Alabama, Birmingham.

4:30


Session 228 (Q)

MICROORGANISMS IN SHELLFISH AND SHELLFISH-RAISING WATERS

Friday, 1:30 P.M., Room 33

Moderators: R. D. ELLENDER, Univ. of Southern Mississippi, Hattiesburg, and CHARLES A. KAYSNER, U.S. FDA, Bothell, Wash.

1:30


Q254. Detection of Vibrio vulnificus Isolates from the Great Bay Estuary Using Polymerase Chain Reaction. S. H. JONES* and K. R. O'NEILL. Univ. of New Hampshire, Durham, and Univ. of Maryland, College Park.

2:30


Q257. Clostridium perfringens Provides the Only Reliable Measure of Human Contamination in the Marine Environment. W. BURKHARDT III* and W. D. WATKINS. U.S. FDA, N. Kingstown, R.I.


3:30


Session 229 (BET). Seminar

(Eligible for continuing education credit)

USING HISTORY TO ENRICH THE TEACHING OF MICROBIOLOGY

Friday, 1:30 P.M., Room 95

Convenors: ROBERT I. KRASNER, Providence Col., Providence, R.I., and JAMES A. POUPARD, SmithKline Beecham Pharmaceuticals, King of Prussia, Pa.

Readily Available Sources in the History of Microbiology

JAMES A. POUPARD, SmithKline Beecham Pharmaceuticals, King of Prussia, Pa.

A History Lesson at the Pasteur Institute

ROBERT I. KRASNER, Providence Col., Providence, R.I.

Shibasaburo Kitasato: a Place in History

AKIRA GHODA, Kitasato Inst., Tokyo, Japan

Techniques Historians Employ To Motivate Passive Students


Session 230 (P). Seminar

(Eligible for continuing education credit)

NUCLEIC ACID AMPLIFICATION AND OTHER INNOVATIVE DETECTION SYSTEMS

Friday, 1:30 P.M., Room 97


Polymerase Chain Reaction Application for Detecting Microorganisms in Foods

RON ATLAS, Univ. of Louisville, Louisville, Ky.
Nucleic Acid Sequence-Based Amplification for Detection of Food-Borne Bacteria

MIKE SVEDA, BRYAN BUTMAN, REBECCA DURHAM, and BONNIE SWERDLOW, Organon-Teknika/Biotechnology Res. Inst., Rockville, MD.

Single Nucleotide Disease Detection Using Ligase Chain Reaction


Detection of Pathogens Using Q-beta Replicase-Mediated Amplification of Hybridization Probes


Detection of Salmonella by Transduction of Ice Nucleation Gene

PAUL WOLBER, DNA Plant Technologies, Oakland, Calif.

Biosensors: Technology, Problems, and Future Prospects


Session 231 (N). Seminar

(Molecular Approaches in Subsurface Microbial Ecology

Friday, 1:30 P.M., Room 82

Convenors: JAMES K. FREDRICKSON, Pacific Northwest Lab., Richland, Wash., and DAVID L. BALKWILL, Florida State Univ., Tallahassee

Molecular Phylogeny of Subsurface Bacteria

ROBERT REEVES and DAVID BALKWILL, Florida State Univ., Tallahassee

Molecular Studies for Phylogenetic Analysis of Subsurface Microorganisms Using 16S rRNA-Directed Probes

SANDRA NIERZWICKI-BAUER, Rensselaer Polytechnic Inst., Troy, N.Y.

Evaluation of Microbial Survival in the Subsurface

MARY LOU KRUMME, SUZANNE THIEM, RICHARD SMITH, and JAMES TIEDJE, Michigan State Univ., E. Lansing

BTEX Metabolism by Pseudomonas pickettii and Other Bacteria from Subsurface Anoxic Environments

RONALD OLSEN, Univ. of Michigan, Ann Arbor

Recruitment and Expression of Cloned Biodegradative Genes in Subsurface Bacteria

FRED BROCKMAN and MARGARET ROMINE, Pacific Northwest Lab., Richland, Wash.

Session 232 (O)

Solventogenic Microbes: Natural and Engineered

Friday, 1:30 P.M., Room 87

Moderators: R. SHANE GOLD, Univ. of Nebraska, Lincoln, and KARL WALTER, Northwestern Univ., Evanston, Ill.

061. Growth and Fermentation Product Levels in Complex Media by Clostridium ljungdahlii PTC: M. L. DOYLE,* and D. E. TALBUT. Univ. of Arkansas, Fayetteville

062. Ethanol Tolerance and Carbohydrate Metabolism in Lactobacilli. R. S. GOLD,* M. M. MEAGHER, R. W. HUTKINS, and T. CONWAY. Univ. of Nebraska, Lincoln

063. Ethanol Production in Salmonella typhimurium LT2 Wild-Type and Anaerobic Mutants Containing pdc (Pyruvate Decarboxylase) Gene of Zymomonas mobilis. H. S. KWAN,* H. C. LEUNG, and S. C. CHENG Chinese Univ. of Hong Kong, Shatin, N.T., and Hong Kong, and Hong Kong Polytechnic, Kowloon, Hong Kong


2:30

065. Use of Bacillus subtilis Phage pT3 Methylase To Protect Plasmids against Restriction upon Transformation of Clostridium acetobutylicum ATCC 824. L. MERMELSTEIN* and E. T. PAPOUTSAKIS. Northwestern Univ., Evanston, Ill.

066. A Transcriptional Regulator Gene Upstream from the adh Gene of Clostridium beijerinckii NRRL B593: Cloning and Sequence Analysis. M. RIFAAT* and J.-S. CHEN Virginia Polytechnic Inst. and State Univ., Blacksburg

067. Transformation of Clostridium acetobutylicum NCIB 6444 with a Chimeric C. acetobutylicum-Escherichia coli Plasmid. D. MATTSSON,* T. RAST, and P. ROGERS. Univ. of Minnesota, Minneapolis

068. Factors Affecting Efficiency of Ethanol Production by Recombinant Escherichia coli from Lactose and Whey. F. ALTERTHUM,* M. L. CARVALHAL, D. F. TAKAHASHI, and M. C. M. RODRIGUES. Inst. de Ciencias Biomédicas da Univ. de São Paulo, São Paulo, Brazil.

3:30


♦ LAST DAY TO VISIT THE EXHIBITS ♦
RNA BACTERIOPHAGES REVISITED:
CORRELATION OF GENOME STRUCTURE AND FUNCTION

Friday, 1:30 P.M., Room 38

Convenors: DONALD MILLS, SUNY Health Sci. Ctr., Brooklyn, N.Y., and ANN JACOBSON, SUNY at Stony Brook, Stony Brook, N.Y.

RNA Genome’s Dilemma: Fold as You Please, but Fold You Must!!
DONALD MILLS, SUNY Health Sci. Ctr., Brooklyn, N.Y.

Coliphage QB: Large Structural Domains and Their Potential Role in Gene Expression
ANN JACOBSON, SUNY at Stony Brook, Stony Brook, N.Y.

Divisional Lecture

RNA Secondary Structure: Control of Gene Expression
JAN VAN DUIN, State Univ. of Leiden, Leiden, The Netherlands

Mutation, Expression, and Function of RNA Phage Replicases
PAT SHAKLEE, Texas Col. of Osteopathic Med., Univ. of North Texas, Fort Worth

Three-Dimensional Analysis of the Translational Repressor of Phage MS2
KATHRINE ELY, La Jolla Cancer Res. Fndn., La Jolla, Calif.

POSTER SESSIONS

Friday, 1:30-3:00 P.M., Exhibit Hall C

Session 234 (F). CLINICAL MYCOLOGY LABORATORY AND ANTIFUNGAL THERAPY


Session 235 (L). EMERGENCE OF RESISTANT PATHOGENS; CATHETER-RELATED INFECTIONS


1.30. Trends in Gram-Positive Bloodstream Organism Resistance: a 7-Year Audit of Twelve Drugs and Use Data at a Large University Medical Center. (045) J. Ena,* A. Houston, R. Jones, and R. Wenzel. Univ. of Iowa Col. of Med., Iowa City.


Session 236 (C). ANTIMICROBIAL SUSCEPTIBILITY TESTING: EVALUATIONS OF NEW DRUGS, NOVEL APPLICATIONS, AND EXPERIMENTAL TECHNIQUES


C238. Comparison of Disk Diffusion, Agar Dilution, and Broth Dilution for Susceptibility Testing of Haemophilus influenzae and Selected Cephalosporins. (085) M. Ghanem,* J. Sol-


C244. Disc Diffusion Testing of Xanthomonas maltophilia. (097) C. POULOS,* B. MUSTACHI, K. SCHOFER, R. ROBERTSON, K. O'QUINN, and A. MCGEER. Princess Margaret Hospital, Ontario Cancer Inst., Toronto, Ontario, Canada.


Session 237 (A). SUSCEPTIBILITY AND RESISTANCE TO β-LACTAMS


A121. Regulation of Both β-Lactamase and PBP2a Production in Methicillin-Resistant Staphylococcus aureus Involves Two
Session 238 (Q). BIOFILMS, BIOFOULING, AND CORROSION


Q266. Flow Cell Biofouling Study of Iron Bacteria (Gallionella and Leptothrix spp.) and Methylothrophic Hyphomicrobium spp. in Water Wells. (165) L. TUHELA and O. H. TUOVINEN, Ohio State Univ., Columbus.


Session 239 (N). BIOLOGY OF N2 FIXATION

N78. Hyper-Retarded DNA Regions Are Conserved among Bradyrhizobium japonicum Serotypes 123 Strains. (173) A. K. RUDD, F. RODRIGUEZ-QUINONES, and M. J. SA-

FRIDAY

Session 240 (Q). MICROBIAL SYSTEMATICS AND DIVERSITY


Session 241 (H). NOVEL VECTORS AND OVEREXPRESSION SYSTEMS


Session 242 (T). DETECTION OF HUMAN RETROVIRUSES

T38. Sensitive Detection of Human T-Lymphotropic Virus Type 1 and Type II Viral Particles in Culture Supernatants Using a Reverse Transcription-Polymerase Chain Reaction. (273) K. KITAMURA,* W. HENÉINE, R. LAL, and T. M. FOLKS. CDC, Atlanta, Ga.


T43. Indeterminate Western Blot Results in Populations of Varying Risk for Human Immunodeficiency Virus Infection. (283) C. SPRUILL,* and I. ONORATO. CDC, Atlanta, Ga.


T48. Use of Recombinant or Synthetic Peptide Human Immunodeficiency Virus Type 1 Assays in the Resolution of Indeterminant Western Blot Results. (293) S. COFFEE,* and R. ALEXANDER. San Bernardino County Publ. Health Lab., San Bernardino, Calif.


T53. Quantification of Human Immunodeficiency Virus Plasma Viremia by Peripheral Blood Mononuclear Cell Microculture. (303) J. LATHEY* and S. A. SPECTOR. Univ. of California, San Diego, La Jolla.

T54. Evaluation with Polymerase Chain Reaction of Human Immunodeficiency Virus Type 1 Infection before Seroconversion in Individuals at High Risk. (305) E. COUTLEE,* C. OLIVIER, H. VOYER, P. ST.-ANTOINE, S. CASSOL, and A. KESSOUS. Hôpital Notre-Dame and Clin. Med. 1 Actual, Univ. of Montreal, Montreal, Quebec, Canada.


T60. Quantification of Human Immunodeficiency Virus Type 1 DNA Using Polymerase Chain Reaction with Electrophoresimunescence and High-Performance Liquid Chromatography. (317) E. D. KATZ,* E. PICOZZA, and J. T. DICKS. Perkin-Elmer Corp., Waltham, Mass.

T61. Treatment of Friend Leukemia Virus Infection with Combinations of Antivirals and Immunostimulants. (319) S. SPECTER,* G. LANCEZ, N. PLOTNIKOFF, and G. WINS.

*LAST DAY TO VISIT THE EXHIBITS*
POSTER SESSIONS

Friday, 3:00-4:30 p.m., Exhibit Hall C
(Board numbers in parentheses)

Session 243 (C). DETECTION OF EMERGING RESISTANCE TO ANTIBIOTICS


C256. Comparison of Agar Dilution with the Vitek GPS-TA Clonal Origin of Relatively Penicillin-Resistant Pneumococci


C266. Failure of a Rapid Automated System To Predict Ampicillin Susceptibility of Enterococci when Tested with Penicillin. (032) V. ANING, S. WILLIAMS, and T. STITT. Becton Dickinson Microbiol. Ampicillin Susceptibility of Enterococci when Tested with


Session 244 (C). ANTIMICROBIAL SUSCEPTIBILITY TEST SYSTEMS: EVALUATIONS


C276. Rapid Detection of Methicillin-Resistant Isolates of Staphylococcus aureus with BacT/Alert. (052) K. A. READ,* and T. C. THORPE. Organon Teknika Corp., Durham, N.C.


C282. Evaluation of the MicroScan AutoScan-W/A for Rapid Bacterium Identification and Susceptibility Testing. (064) J. SNYDER,* and M. LUDE. Univ. of Louisville and Humana Hosp.-Univ. of Louisville, Louisville, Ky.


C293. Comparative Susceptibility of Mycobacterium avium Complex as Determined by Recombinant DNA Probe and Agar Dilution Techniques. (086) T. LAWRENCE,* N. CORRIERE, and D. AMSTERDAM. Erie County Med. Ctr. and Univ. at Buffalo, Buffalo, N.Y.

Session 245 (B). STREPTOCOCCI AND STAPHYLOCOCCI: VIRULENCE FACTORS AND ANIMAL MODELS OF INFECTION


B233. Contribution of the pAD1-Encoded Cytolysin to the Severity of Experimental Enterococci faecalis Endophthalmitis.


Session 246 (B). STREPTOCOCCI AND STAPHYLOCOCCI: SURFACE PROTEINS AND EXTRACELLULAR COMPONENTS

B251. Role of M Protein in Aggregation of Group A Streptococci by Metals. (138) H. S. COURTNEY* and D. L. HASTY. Veterans Affairs Med. Ctr. and Univ. of Tennessee, Memphis.

B252. A Novel Multifunctional Surface Protein (MF6) of Group A Streptococci. (140) V. PANCHOLI* and V. A. FISCHETTI. Rockefeller Univ., New York, N.Y.

B253. M12 Protein from Streptococcus pyogenes Has Immunoglobulin G3 Binding Activity. (142) D. RETNONINGRUM,* A. PODBIELSKI, and P. CLEARY. Univ. of Minnesota, Minneapolis.


B257. Fibronecin Binding Protein of Streptococcus pyogenes: Sequencing of the Binding Domain and Overexpression of Active Fusion Protein. (150) S. R. TALAY,* K. N. TIMMIS, and G. S. CHHATWAL. Technical Univ./GBF, Braunschweig, Germany.


 Session 247 (D). STREPTOCOCCI, ENTEROCOCCI, AND STAPHYLOCOCCI


D192. Identification and Characterization of a Surface Protein-Releasing Enzyme in Strepotcoecus mutans and Other Pathogenic Streptococci. (2014) S. F. LEE. Univ. of Manitoba, Winnipeg, Manitoba, Canada.


PHRIS.
Complementation of Escherichia coli Auxotrophic Mutants with Enterococcal DNA. (220) B. E. MURRAY, K. V. SINGH,* and G. M. WEINSTOCK. Univ. of Texas Med. Sch., Houston.


Session 248 (Q). BIODEGRADATION OF CHLORINATED ALKANES AND ALKENES


Reductive Declorination by Aerobic Bacteria under Anoxic Conditions. (244) N. ASSAF-ANID,* E. A. PETROVSKIS, and T. M. VOGEL. Univ. of Michigan, Ann Arbor.


Resistance to Copper Inhibition in Type II Methanotropic Bacteria. (252) D. W. GRAHAM,* E. BETERTON,* and R. G. ARNOLD. Univ. of Arizona, Tucson.

Copper-Resistant Mutants of Trichloroethylene-Degrading Bacterium. (254) P. PHELPS,* S. AGARWAL, G. E. SPEITEL, JR., and G. GEORGIOU. Univ. of Texas, Austin.


Aerobic Degradation of Trichloroethylene, Vinyl Chloride, and Aromatic Compounds by Type IV Actinomycetes. (258) K. MALACHOWSKY,* T. J. PHELPS, and D. C. WHITE. Ctr. for Environmental Biotechnology, Univ. of Tennessee, Knoxville.


Changes in Community Structure and Physiological Status of a Bacterial Consortium during Degradation of Trichloroethylene. (262) S. NOLD,* L. LACKEY, D. RINALDI, and D. WHITE. Ctr. for Environmental Biotechnology, Univ. of Tennessee, Knoxville.


Session 249 (P). CONTROL AND DETECTION OF YEAST, FUNGI, AND BACTERIA IN FOODS

Influence of Solutes, Potassium Sorbate, and Incubation Time on Lipid Composition of Zygosaccharomyces rouxii. (270) D. A. GOLDEN* and L. R. BEUCHAT. FDA, Washington, D.C., and Univ. of Georgia, Griffin.


R. BEUCHAT. Food Safety and Quality Enhancement Lab., Dept. of Food Sci. Technology, Univ. of Georgia, Griffin.

P53. Cloning and Nucleotide Sequence of a Leuconostoc Bacteriocin Operon. (276) W. J. HASTINGS. Univ. of the Western Cape, Cape Town, South Africa.


Session 250 (J). MORPHOLOGY AND CELL SURFACES I


Session 251 (K). GENETIC AND ENZYMATIC REGULATION OF METABOLIC PATHWAYS


K128. Oxidative Glucose Metabolism via the Enternt-Doudoroff Pathway in Wild-Type Escherichia coli Using Pyrroloquinoline Quinone-Dependent Glucose Dehydrogenase. (326) R. FLIEGE, W. BARNELL, S. TONG, A. SHIBATA, and T CONWAY. Univ. of Nebraska, Lincoln.


K132. Genetic Studies of Thiiosulfate Reduction by Salmonella typhimurium. (334) N. K. HEINZINGER, S. TONGKLAN, and E. L. BARRETT. Univ. of California, Davis.

K133. Production and Regulation of Surfactant Activity by Serpulina (Treponema) hydysenteriae. (336) N. S. JENSEN.


K135. Suppression of Insertions in the Complex ptoF-jd1 Operon of Escherichia coli K-12 by lon and Other Mutations. (340) H. M. IAM* and M. E. WINKLER. Dept. of Microbiol. and Molecular Genetics, Univ. of Texas Med. Sch., Houston.


K137. Isolation and Localization of an Anaerobic Regulatory Gene(s) of Shewanella putrefaciens MR-1. (344) D. SAFFARINIA.* D. BERMUDES. and K. NEALSON. Ctr. for Great Lakes Studies, Univ. of Wisconsin, Milwaukee.


K139. Degradation of 23S rRNA in Salmonella spp. (348) D. HSU,* L. M. SHIH, J. INGRAHAM, and Y. C. ZEE. Univ. of California, San Diego, and Univ. of California, Davis.

K140. Expression of the Alternative Pyrimidine Biosynthetic Pathway of Salmonella typhimurium during Aerobic Growth. (350) D. M. DOWNS. Univ. of Wisconsin, Madison.

K141. Molecular Characterization of the Enolase Gene (eno) from Zymomonas mobilis. (352) M. E. BURNETT* and T. CONWAY. Univ. of Nebraska, Lincoln.


K143. Fermentation Patterns of a Fumarate-Producing Organism (FIL) Grown in Coculture with Wolinella succinogenes. (356) M. FRON* and D. M. SCHAEFER. Univ. of Wisconsin, Madison

K144. Metabolism of Dimethylsulfoniopropionate and Glycine Betaine by a Marine Bacterium. (358) M. R. DIAZ* and B. F. TAYLOR. Univ. of Miami, Miami, Fla.


K146. Cloning of Glutamine Synthetase I from the N2-Fixing Actinomycete Symbiont Frankia. (362) T. J. HOSTED* and D. A. ROCHEFORT. Univ. of Connecticut, Storrs.

K147. Metabolism of Aspartate by Frankia sp. Strain Cpl1. (364) X. ZHANG* and D. R. BENSON. Univ. of Connecticut, Storrs.


K149. Analysis of a DNA Fragment That Complements aut Rhodobacter spheroides KW25/11 to Photolithoautotrophic Growth. (368) G. C. PAOLI* and F. R. TABITA. Dept. of Microbiol., Ohio State Univ., Columbus.


Session 252
(Eligible for continuing education credit)

J. Roger Porter Award Lecture
(Sponsored by the U.S. Federation for Culture Collections)

ACTINOMYCETE TAXONOMY: TOWER OF BABEL?

MARY P. LECHEVALIER, Morrisville, Vt.

Friday, 3:30 P.M., Room 26

Session 252A
(Eligible for continuing education credit)

Cetus Corporation Biotechnology Research Award Address

POLYMERASE CHAIN REACTION

KARY B. MULLIS, La Jolla, Calif.

Friday, 4:45 P.M., Room 27
BIODEGRADATION AND BIOREMEDIATION

Saturday, 8:30 a.m., Room 10


8:30


9:30


10:30


Session 255 (N)

BIODEGRADATION AND BIOREMEDIATION

Saturday, 8:30 a.m., Room 12

Moderators: ROBERT R. CHRISTIAN, East Carolina Univ., Greenville, N.C., and TIMOTHY B. PARKIN. USDA, ARL, NSTL, Ames, Iowa

8:30


9:30


10:30


Session 256 (AAM). Round Table

(Eligible for continuing education credit)

CROSS-INFECTION RISKS IN DENTISTRY

Saturday, 8:30 a.m., Room 14

Convenor: DAVID L. LEWIS, Univ. of Georgia, Athens, and JOHN YOUNG, Univ. of Texas, San Antonio

Risks of cross-infecting dental patients via equipment potentially serving as fomites for human immunodeficiency virus, hepatitis B virus, and various bacterial pathogens will be
addressed. Discussions will focus on equipment that is difficult to clean and disinfect, i.e., high- and low-speed handpieces and their attachments (prophylaxis and burs). Participants will summarize the current state of knowledge of cross infection in dentistry as well as what additional research and epidemiological studies are needed.

Participants: CHRIS MILLER, JAMES CRAWFORD, ROBERT KOLSTAD, WALTER BOND, and TIMOTHY A VIATOWSKI

Session 257 (B)

POLYSACCHARIDES AND LIPOPOLYSACCHARIDES OF BACTERIAL PATHOGENS: IMMUNOCHEMISTRY AND GENETICS

Saturday, 8:30 A.M., Room 43


8:30


B277. Frequency of Encapsulated versus Nonencapsulated Strains of *Non-O1 Vibrio cholerae* Isolated from Patients with Septicemia or Diarrhea or from Environmental Sources. J. A. JOHNSON, A. JOSEPH, P. PANIGRAHI, and J. G. MORRIS, JR. Univ. of Maryland Sch of Med., Baltimore.


9:30

B280. Clustering of Genes Involved in the Production of Capsule in *Streptococcus aureus*. M. C. Y. LE2. Univ. of Kansas Med Ctr., Kansas City.


10:30

B284. Identification of the GDP Mannoose Biosynthesis Genes Encoded by the 47 *Lipopolysaccharide* Gene in *Escherichia coli* SW15. F. KIR, C. J. MAROLDY, and M. A. VALVANO. Dept of Microbiology and Immunology, Univ of Western Ontario, London, Ontario, Canada.


B286. Nucleotide Sequence of the 12th Region of Human enteroviral Group O: 1 ZHANG, P. IOVAZ, N. and M. SKIHNIK. *Turku Univ., Turku, Finland.


Session 258 (J)

MORPHOLOGY AND CELL SURFACES II

Saturday, 8:30 A.M., Room 44

Moderators: J. J. BEVERIDGE, Univ. of Guelph, Guelph, Ontario, Canada, and R. W. HANCOCK, Univ. of British Columbia, Vancouver, British Columbia, Canada.

8:30


J9. Evidence that the Membrane-Induced Protein Motive Force in *Bacillus subtilis* Affects Electronegative Sites within the Wall. M. URRUTIA, T. BEVERIDGE, M. KEMPER, and R. DOYLE. Dept of Microbiology, Univ of Guelph, Guelph, Ontario, Canada, and Immunology, Univ of Louisville, Louisville, Ky.


9:30


J15. Initiation of LantB Trimerization Occurs in the Inner Membrane of Escherichia coli. S. JUSTICE* and J. STADER. Sch. of Basic Life Sci., Univ. of Missouri, Kansas City.

10:30


**Session 259 (R). Seminar**

*Eligible for continuing education credit*

**REPRODUCIBLE BIOLOGICAL MATERIALS: WHY YOU NEED THEM AND WHERE TO GET THEM**

Saturday, 8:30 A.M., Room 37

**Convenors:** RICHARD ROBLIN, American Type Culture Collection, Rockville, Md., and NICHOLAS GILLHAM, Duke Univ., Durham, N.C.

- Genetic Stock Centers
  NICHOLAS GILLHAM, Duke Univ., Durham, N.C.
- Mammalian Cell Culture Collections
  RICHARD MULLIVORE, Coriell Inst., Camden, N.J.
- General Service Collections
  RICHARD ROBLIN, American Type Culture Collection, Rockville, Md.
- Clinical Materials
  JOSEPH MCDADE, CDC, Atlanta, Ga.
- Organ and Tissue Sources

**Session 260 (H). Seminar**

*Eligible for continuing education credit*

**SURVIVING HARD TIMES: GROWING INTEREST IN NONGROWING CELLS**

Saturday, 8:30 A.M., Room 39

**Convenors:** ROBERT KADNER, Harvard Med. Sch., Boston, Mass., and STAFFAN KJELLEBERG, Univ. of Goteborg, Goteborg, Sweden

**MOLECULAR BIOLOGY AND BIOCHEMISTRY OF BACTERIAL CARBOHYDRATE TRANSPORTERS**

Saturday, 8:30 A.M., Room 41

**Convenors:** GARY JACOBSON, Boston Univ., Boston, Mass., and ROBERT BROOKER, Univ. of Minnesota, St. Paul

- Molecular Biology of the Lactose Permease of Escherichia coli
  ROBERT BROOKER, Univ. of Minnesota, St. Paul
- Structure and Function of the Melibiose Carrier of Escherichia coli
- The Escherichia coli Mannitol Permease: Structure and Mechanism
  GARY JACOBSON, Boston Univ., Boston, Mass.
- Molecular Biology of the Chimeric Galactoside Transport Protein of Streptococcus thermophilus
  BERT POOLMAN, Univ. of Groningen, Groningen, The Netherlands
- Protein Interactions during Maltose Active Transport
  HOWARD SHUMAN, Columbia Univ., New York, N.Y.
- Regulation and Function of the Escherichia coli Sugar Phosphate Transporter, Uhp1
  ROBERT KADNER, Univ. of Virginia, Charlottesville

**Session 262 (BET). Round Table**

*Eligible for continuing education credit*

**AGAROSE GEL ELECTROPHORESIS OF DNA FOR THE TEACHING LABORATORY**

Saturday, 8:30 A.M., Room 42

**Convenors:** PETER ABRAMOFF, Marquette Univ., Milwaukee, Wis., and ROBERT DUNST, Fotodyne Inc., New Berlin, Wis.
Recombinant DNA technology is a subject covered in every modern microbiology textbook and in an increasing number of laboratory manuals. This session will seek to provide faculty who have little or no direct experience in the basic principles of DNA and gene manipulation with a basic understanding of the techniques that are now commonly used in so many areas of molecular and cellular biology. The presentations and demonstrations will be constructed so that the experiments may be easily introduced into courses.

Topics which will be covered include: preparation of agarose gels, gel electrophoresis, staining, and photography; and nucleic acid sample preparation and manipulation with endonucleases.

Participants: PETER ABRAMOFF, ROBERT DUNST, and BRIAN WALSH

Session 263 (BET). Seminar
(Eligible for continuing education credit)

NEW DIRECTIONS IN UNDERGRADUATE EDUCATION

Saturday, 8:30 A.M., Room 13

Convenors: JEFFREY J. SICH, NIH, Bethesda, Md., and SHARON ZABLOTNEY, Mankato State Univ., Mankato, Minn.

Developing a National Life Science Literacy Program
SHARON ZABLOTNEY, Mankato State Univ., Mankato, Minn.

Results from the Undergraduate Faculty Enhancement Program: an Innovative Approach to Improving Undergraduate Education
AMY CHANG, American Society for Microbiol., Washington, D.C.

Project Kaleidoscope: a Plan for Strengthening Undergraduate Science and Mathematics
PEGGY REDSHAW, Austin Col., Sherman, Tex.

Education Pathways in the Sciences for Minorities
Sr. GRACE MARY FLICKINGER, Xavier Univ. of Louisiana, New Orleans

Session 264 (E). Seminar
(Eligible for continuing education credit)

NEW DEVELOPMENTS IN BACTERIAL AND PARASITE VACCINES

Saturday, 8:30 A.M., Room 21

Convenors: DAVID E. BRILES, Univ. of Alabama, Birmingham, and MICHAEL APICELLA, SUNY at Buffalo, Buffalo, N.Y.

The Potential for Protein Vaccines against Streptococcus pneumoniae
DAVID E. BRILES, Univ. of Alabama, Birmingham

Prevention of Nontypeable Haemophilus influenzae Infection
MICHAEL APICELLA, SUNY at Buffalo, Buffalo, N.Y.
Session 266 (U). Seminar
(Eligible for continuing education credit)

ACQUIRED IMMUNITY TO MYCOBACTERIAL INFECTIONS

Saturday, 8:30 A.M., Room 16


Monokine Production in Human Tuberculosis
PETER BARNES, USC Sch. of Med., Los Angeles, Calif.

The T-Cell Response in Human Tuberculosis
HENRY BOOM, Case Western Univ. Sch. of Med., Cleveland, Ohio

Cytokine Responses in Mice Infected with Tuberculosis
IAN ORME, Colorado State Univ., Fort Collins

Cell-Mediated Immunity in Leprosy
GILLA KAPLAN, Rockefeller Univ., New York, N.Y.

Immunodominant Antigens Secreted by Mycobacterium tuberculosis
PETER ANDERSEN, Statens Seruminstitut, Copenhagen, Denmark

Session 267 (Q). Seminar
(Eligible for continuing education credit)

NUCLEIC ACIDS IN THE ENVIRONMENT

Saturday, 8:30 A.M., Room 36


Detection of Novel Archaea in the Marine Environment Using Polymerase Chain Reaction Amplification and Small Subunit rRNA Probes

Detection and Characterization of Nitrogen Fixation Genes in the Marine Environment
JONATHAN P. ZEHR, SUNY at Stony Brook, Stony Brook, N.Y.

Nucleic Acids in the Marine Environment: mRNA and Dissolved DNA
JOHN H. PAUL, Univ. of South Florida, St. Petersburg

Adsortion of DNA to Natural Soils and Sediments
ANDREW OGRAM, Washington State Univ., Pullman

Isolation of Bacterial Community DNA from the Soil Environment: Methods and Applications
WILLIAM HOLBEN, Michigan State Univ., East Lansing

The Presence and Survival of DNA in Wastewater

Session 268 (O). Seminar
(Eligible for continuing education credit)

SCALEUP: INTERFACE BETWEEN MICROBIologists AND BIOCHEMICAL ENGINEERS

Saturday, 8:30 A.M., Room 1

Convenors: ANIL MENAWAT, Tulane Univ., New Orleans, La., and RICHARD WAX, Pfizer, Inc., Groton, Conn.

Problems in Scaleup of Biotechnology Production Processes

Biochemical Engineering Challenges Presented by Mycobacterial Microorganisms
KEVIN MURPHY, Pfizer Inc., Groton, Conn.

Safety Practices in a Human Immunodeficiency Virus Production Facility
MICHAEL MOORE, Amoco Technology Co., Naperville, Ill.

Communication between Engineers and Microbiologists during Scaleup
NIKHIL MEHTA, Hoffmann-La Roche, Inc., Nutley, N.J.

An Academic Perspective to Current State of Secondary Metabolism Research
ANIL S. MENAWAT, Tulane Univ., New Orleans, La.
Session 269 (G). Seminar
(Eligible for continuing education credit)

PLANT AND INSECT MOLLICUTES

Saturday, 8:30 A.M., Room 19


Insects and Molllicutes: a Long-Standing Association
ROBERT F. WHITCOMB, USDA, Agricultural Res. Service, Beltsville, Md.

Evolution of Prokaryote-Insect Vector Relationships
ALEXANDER H. PURCELL, Univ. of California, Berkeley

Spiroplasma citri: Genes and Genome
JOSEPH M. BOVE, INRA, Ctr. de Recherches de Bordeaux, Villeneuve D'Ornon Cedex, France

Molecular Detection of the Elusive Coconut Lethal Yellowing Disease Agent
NIGEL HARRISON, Univ. of Florida, Fort Lauderdale

Unveiling the Evolutionary History of Plant-Pathogenic Mycoplasmalike Organisms
BARBARA B. SEARS, Michigan State Univ., E. Lansing

Session 270 (P). Seminar
(Eligible for continuing education credit)

ADVANCES IN PRESERVATION SYSTEMS FOR FOODS

Saturday, 8:30 A.M., Room 33


Industrial Overview on Preservatives, Processing, and Packaging
GEORGE M. EVANCHO, Campbell Soup Co., Campbell Inst. for Res. and Technology, Camden, N.J.

Traditional Methods in Microbial Food Preservation: an Update
JOHN N. SOFOS, Colorado State Univ., Fort Collins

Naturally Occurring Antimicrobial Agents for Control of Food-Borne Pathogens
ERIC A. JOHNSON, Food Res. Inst., Madison, Wis.

Use of Lactic Acid Bacteria To Inhibit Undesirable Microorganisms in Foods
JOHN B. LUCHANSKY, Food Res. Inst., Madison, Wis.

Advances in Packaging for Food Preservation
CHARLES BARMORE and KARIN OVERBY, Cryovac Div., W. R. Grace & Co., Duncan, S.C.

FDA Perspective on Safety of New-Generation Foods
JEFFERY F. RHODEHAMEL, FDA, Washington, D.C.

Session 271 (M)

INTERACTIONS OF HOST AND PHAGE ELEMENTS IN GENE EXPRESSION

Saturday, 8:30 A.M., Room 38

Moderators: G. E. CHRISTIE, Virginia Commonwealth Univ., Richmond, and D. FRIEDMAN, Univ. of Michigan, Ann Arbor

8:30


9:30

M6. Characterization of the Transcription Termination Signals in the nin Region of Bacteriophage λ. S. W. C. CHENG* and D. I. FRIEDMAN. Univ. of Michigan, Ann Arbor.

POSTER SESSIONS

Saturday, 9:00-10:30 A.M., Exhibit Hall C
(Board numbers in parentheses)

Session 272 (Q). BIOTRANSFORMATION AND BIODEGRADATION IV


Q298. Characterization of a Chitosanase from Kastriopora N74 and Studies on Expression of Its Clone; Gene in Escherichia coli (005) J.-Y. MASSON, and R. BRZEZINSKI. Univ. de Sherbrooke, Sherbrooke, Quebec, Canada.


Q303. Biodegradation of Poly(b-hydroxyalkanoates) under Aerobic and Anaerobic Conditions. (015) M. L. DINGLIO, S. SULLIVAN, and S. GOODWIN. Univ. of Massachusetts, Amherst.

Q304. Biodegradability of Blends of Poly(b-hydroxybutyrate-co-hydroxyvalerate) with Ester-Substituted Celluloses. (017) D. F. GILMORE, N. LOTTI, R. W. LENZ, M. SCANDOLA, and R. C. FULLER. Dept. of Biochemistry and Molecular Biol. and Dept. of Polymer Sci. and Engineering. Univ. of Massachusetts, Amherst, and "G. Gambarino" Dept. of Chemistry, Univ. of Bologna, Bologna, Italy.


Q311. Effect of Acid Orange Seven on the Microbial Biofilm of a Rotating Bioreactor. (031) K. R. HAWS, L. R. HAVL, and P. BISHOP. Univ. of Cincinnati, Cincinnati, Ohio.


Q313. Biodegradation of N-Phosphonomethylglycinic Acid, a Key Component of Glyphosate Process Waste. (035) D. E. EDWARDS, M. A. HEITKAMP, and M. M. McINNIS. Monsanto Co., St. Louis, Mo.


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**Session 273 (H): DNA REARRANGEMENTS: TRANSPOSITION AND INVERSION**


H261. The Transposition/Excision Factor for the Insertion Sequence IS2 Is Expressed by Translational Frameshifting. (045) R. MUSSO and T. HODAM. Univ. of South Carolina, Columbia.

H262. IS2 Transposes in the Same Orientation into the 5′ Regions of the Structural Gene and the Promotor of hemB in Escherichia coli K-12 and Excises from These Sites with Different Frequencies. (047) L. A. LEWIS, N. PACHECO, and D. LEWIS. York Col. of City Univ. of New York, Jamaica, N.Y.


H264. Regional Specificity of γβ and Mini-γβ Transposition. (051) X. XU, G. WANG, and C. M. BERG. Univ. of Connecticut, Storrs.


Session 274 (K). POLYMER DEGRADATION AND HYDROLYTIC ENZYMES


K153. Analysis of the Cellulose-Binding Domains of the Cellulose-Binding Protein from Clostridium cellulovorans. (071) M. A. GOLDSTEIN,* M. TAKAGI, and R. H. DOI. Dept. of Biochemistry and Biophysics. Univ. of California, Davis.

K154. Primary Sequence Analysis of Clostridium cellulovorans Cellulose Binding Protein A. (073) M. TAKAGI,* M. A. GOLDSTEIN, O. SHOSEYOV, and R. H. DOI. Dept. of Biochemistry and Biophysics. Univ. of California, Davis.


K160. Outer Membrane-Associated Fibrolytic Enzymes of Fibrobacter succinogenes S85. (085) J. GONG* and C. W. FORSBERG. Univ. of Guelph, Guelph, Ontario, Canada.


K162. Comparative Studies of Endoglucanase Activity and Secretion among Fibrobacter Isolates. (089) C. LIN* and D. STAHL. Univ. of Illinois, Urbana.


K166. Utilization of Aromatic Acrylate Groups by Acetogenic Bacteria under CO2-Limited Conditions. (097) M. F. LUX,* M. PAREKH, E. S. KEEH, S. L. DANIEL, J. M. AKAGI, and H. L. DRAKE. Univ. of Southern Mississippi, Hattiesburg. Univ. of Mississippi, University, and Univ. Bayreuth, Bayreuth, Germany.


Session 275 (C). EPIDEMIOLOGY OF BACTERIAL AND VIRAL AGENTS I


C296. Esterase Isoenzyme Typing of Two Recently Proposed Species of Aeromonas with Possible Application as a Finger-printing Technique for Epidemiological Studies. (107) P. A. MACALUSO* and S. W. JOSEPH. Univ. of Maryland, College Park.


C305. Geographic Distribution of Electrophoretic Types of Listeria monocytogenes from a Surveillance Study of Listeriosis


C309. Pycnotyping and Antibiotic of Pseudomonas aeruginosa Strains Isolated from Four Hospitals. (133) F. MALEKZADEH,* E. ABDALI, and M. SHAHAMAT, Univ. of Tehran, Tehran, Iran, and Univ. of Maryland, College Park.


SESSION 276 (C). CLOSTRIDIUM DIFFICILE TOXIN DETECTION


C316. Comparison of the Premier Toxin A Kit with Cytotoxic B and Culture for the Detection of Clostridium difficile Toxins in Fecal Specimens. (147) D. BARTKOWIAK and C. PIERSON. *Univ. of Michigan, Ann Arbor.


Session 277 (F). HOST-PATHOGEN INTERACTIONS IN FUNGAL INFECTION

F99. Serological Evaluation and Antigenic Characterization of a Chitinase Produced by Coccidioides immitis. (193) S. M. JOHNSON* and D. PAPPAGIANIS. Univ. of California, Davis.


F101. Cloning and Expression of an Immunoreactive Protein from Coccidioides immitis. (197) K. M. VILLAREAL. C. R. ZIMMERMAN, K. O. DUGGER, and J. N. GALGIANI. Univ. of Arizona, Tucson, and Univ. of California, Davis.

F102. Identification of Clones That Encode a Major Antigen of Blastomyces dermatitidis by Immunological Screening of a cDNA Expression Library. (199) B. S. KLEIN. L. H. HOGAN, and J. M. JONES. Univ. of Wisconsin, Madison.


F112. Cytokine Pattern of Conidial-Induced Murine Pulmonary Blastomycosis. (219) S. A. MOSER. L. E. GROSSO. and D. L. LACEY. Dept. of Pathology, Univ. of Alabama, Birmingham, and Dept. of Pathology, Jewish Hosp. and Washington Univ. Sch of Med., St. Louis, Mo.

Session 278 (U). MYCOBACTERIAL DRUG RESISTANCE AND SUSCEPTIBILITY


U84. Activity of Clarithromycin against Slow-Growing Nontuberculous Mycobacteria Using a Broth Microdilution MIC System. (223) B. A. BROWN. G. O. ONYI. Univ. of Texas Health Ctr., Tyler.


* NO SMOKING IN SESSIONS OR IN POSTER AREA *


**Session 279 (A), CLINICAL TRIALS AND EFFICACY IN ANIMALS**


A130. Short-Course Intravenous Ampicillin/Sulbactam followed by Oral Ampicillin/Cloxacillin in Community-Acquired Pneumonia in the Elderly. (277) J. RAMIREZ* and M. RAFF. Univ. of Louisville, Louisville, Ky.


A134. Emergence of Resistance to Imipenem in Enterobacter Masquerading as Klebsiella pneumonae during Therapy with Imipenem/Cilastatin. (285) A. F. EIRHARDT,* C. C. SANDERS, K. S. THOMSON, C. WATANAKUKORN, and I. TRUJILLANO-MARTIN. Creighton Univ. Sch. of...
Session 280 (D). ENTERIC PATHOGENS


D204. Production of an Extracellular Serine Protease by Clostridium difficile. (293) J. VESSELLA and J. F. SPERRY.* Univ. of Rhode Island, Kingston.


D214. Mitomycin C Induction of a 3,000-Fold Increase in Synthesis of a Shiga-Like Toxin from Enteropathogenic E. coli H18. (313) A. J. YEE,* and C. L. GYLES. Agriculture and Food Safety Branch, Ontario Ministry of Agriculture and Food, and Univ. of Guelph, Guelph, Ontario, Canada.


Session 281 (B). ENTEROTOXINS


B292. Localization of Cholera Toxin Sensitivity (ctx) Genes in Mouse Chromosomal DNA. (339) S. H. RICHARDSON
**B303.** Accessory Cholera Enterotoxin (Ace), a New Enterotoxin of *Vibrio cholerae.* (341) J. GALEN, M. TRUCKSIS, J. MICHALSKI, A. FASANO, and J. KAPER. Ctr. for Vaccine Development, Univ. of Maryland, Baltimore.


**B306.** Expression and Characterization of the Cloned Enterotoxin Production by “Pathogenic” and “Nonpathogenic” Strains of *Clostridium difficile.* (367) B. SCHNEIDER, P. CURTIN, S. MCGRATH, and A. BACON. Med. Ctr. of Delaware, Wilmington.


**B308.** Inhibition by Phospholipase A2 Inhibitors of the Effects of *Clostridium difficile* Toxin A on Intestinal Secretion and Cytoskeleton of T-84 Cell Monolayers. (371) G. D. FANG, A. M. LIMA, R. B. ADAMS, D. M. LERLY, and R. L. GUERRANT. Univ. of Virginia, Charlottesville; Virginia Polytechnic Inst. and State Univ., Blacksburg; and Fed. Univ. of Ceara, Fortaleza, CE, Brazil.


**B310.** Cloning the Type A Enterotoxin of *Clostridium perfringens.* (375) J. R. CZECZULIN and B. A. MCCLANE. Univ. of Pittsburgh Sch. of Med., Pittsburgh, Pa.


**B314.** Molecular Heterogeneity of Type C Staphylococcal Enterotoxins from Human and Animal Sources. (383) J. D. LYON, H. PARK, J. ROBERSON, W. C. DAVIS, and A. BOHACH. Univ. of Idaho, Moscow, and Washington State Univ., Pullman.

**B315.** Toxigenic *Vibrio cholerae* O1 on Vero and CHO Cells from Mexican Strains. (385) G. RODRIGUEZ, S. GIONO, L. GUTIERREZ, and J. L. VALDESPINO. Nat. Inst. of Epidemic Epinocis and Reference, Health Secretary, Mexico, D.F., and ENCB-IPN, Mexico, D.F.

Q319. Specific and Quantitative Assessment of Naphthalene and Salicylate Biodegradability Using a Bioluminescent Catabolic Reporter Bacterium. (006) A. HEITZER,* O. F. WEBB, and G. S. SAYLER. Ctr. for Environmental Biotechnology, Univ. of Tennessee, Knoxville.


Q325. Rapid Method To Purify Bacterial DNA from Humic Substances for Polymerase Chain Reaction. (018) Y.-L. TSAI,* C. J. PALMER, L. SANGERMANO, and B. OLSON. County Sanitation Districts of Orange County, Fountain Valley, Calif., and Univ. of California, Irvine.


H282. A Region Downstream from lacY Positively Regulates the Transcription of lacY in trans. (046) D. Sleijjeski* and S. Gottesman. Lab. of Molecular Biol., NIH, Bethesda, Md.


Session 283 (H). mRNA: STRUCTURE, TURNOVER, AND ANTISENSE


Session 284 (C). EPIDEMIOLOGY OF BACTERIAL AND VIRAL AGENTS II


C345. Epidemiological Distribution and Susceptibility Pattern of Enterococcus spp. (062) B. SARACHIAN* and L. MIKAELIAN. British Hosp. and CEM, Buenos Aires, Argentina.


C349. Multiple Nursing Home Outbreak of Transferrable Microbial Identification System. (096) D. GUSTAFSON,* R. A. WEINSTEIN. Humana Hosp.-Michael Reese, Chicago, Ill., and American Cynamid, N.Y.


Session 285 (C). ANAEROBES: ISOLATION, TOXIN DETECTION, IDENTIFICATION, AND ANTIBIOTIC SUSCEPTIBILITY TESTING


Session 286 (B). IMMUNE RESPONSE TO PATHOGENIC MICROORGANISMS: ANIMAL MODELS OF INFECTION


B317. Expression in Pseudomonas aeruginosa of a 66-kDa Protein Inducing Immune Response in Resistant Patients with Cystic Fibrosis. (134) E. LIKVCANOVA and J. LAGACE, Univ of Montreal, Montreal, Quebec, Canada.


B320. Antibodies from Chronically Infected Cystic Fibrosis Patients React with Lipopolysaccharides from All Serotypes of Pseudomonas aeruginosa. (142) A. FOMSGAARD, G. H. SHAND, M. A. FREUDENBERG, C. GALANOS, G. KRONBORG, and N. HOIBY, Dept of Clin Microbiol, Rigshospitalet, Copenhagen, Denmark, and Max-Planck Ins, for Immunobiol, Freiburg, Germany.

B321. Anti-Pseudomonas aeruginosa Lived A Antibodies in Chronically Infected Cystic Fibrosis Patients. (142) G. KRONBORG, A. FOMSGAARD, C. GALANOS, M. A. FREUDENBERG, and H. HOIBY, Dept of Clin Microbiol, and Danish CF Ctr., Rigshospitalet, Copenhagen, Denmark, and Max-Planck Inst for Immunobiol, Freiburg, Germany.

B322. Serum Immunoglobulin A for Differentiating Clostridium difficile Carriers from Symptomatic Patients. (134) S. MILLER, M. MULLIGAN, J. McFARLAND, and H. FUNG, VA Med Ctr, and California State Univ, Long Beach, Univ of California, Irvine, and Univ of Washington, Seattle.


B324. Presence of Bacterial Surface Immunoglobulin A (IgA) and IgG in Prostatic Fluid Is Not Protective against Acute Bacterial Prostatitis in a Rat Model. (148) H. CORL, S. SCHMIDT, H. M. NORDENGAARD, J. NIELSEN, and M. OLSON Univ of Calgary, Calgary, Alberta, Canada.


Session 287 (B). HOST FACTORS IN INFECTION: SPECIFIC AND NONSPECIFIC DEFENSES


B345. Migration of Polymorphonuclear Leukocytes to Pseudomonas aeruginosa Chemotaxins: Priming by Interleukin-1β and Inhibition by Piroxican. (190) P. A. FONTAN, C. R. AMURA, and D. O. SORDELLI.* Univ. of Buenos Aires, Buenos Aires, Argentina.


B351. Effect of Short-Chain Fatty Acids on Procoagulant Production by Leukocytes. (202) G. MIRAGLIOTTA,* G. BOTTA, A. ARZEO, A. MOSC, and R. DEL PRETE. Inst. of Microbiol., Univ. of Bari, Bari, Italy, and Univ. of Udine, Udine, Italy.

B352. Inhibition of Blood Clearance of Klebsiella pneumoniae in Mice by Capsular Polysaccharides Specific for a Macrophage Lectin. (204) A. ATHAMNA, N. SHARON, G. G. S. DUTTON,* and L. OFEK.* Tel Aviv Univ., Tel Aviv, Israel.

B353. Cytotoxicity of Legionella pneumophila for Mononuclear Phagocytes. (206) L. HUSMANN* and W. JOHNSON. Univ. of Iowa, Iowa City.

B354. Increased Endotoxin Lethality and Decreased Serum Tumor Necrosis Factor Levels in Mice by Pertussis Toxin. (208) F. VOGEL,* I. GIAMPAGLIA, and J. SCOTT. NIEHS, NIH, Washington, D.C., and Praxis Biologica, Pearl River, N.Y.

B355. Gamma Interferon Levels in Serum and Bronchoalveolar Lavage Fluid of Mice Infected with Bordetella pertussis. (210) D. TURRE,* A. PUGLIESE, R. TAMBIANI, P. MARONE, and F. SPERANZA. Div. of Infectious Diseases, Varese, Italy, Inst. of Infectious Diseases, Turin, Italy, and Inst. of Infectious Diseases, Pavia, Italy.


B358. Molecular Characterization of cDNAs Encoding Four Rat Neutrophil Defensins. (216) N. Y. YOUNT,* and M. E. SELEDT. Dept. of Pathology, Col. of Med., Univ. of California, Irvine.


B360. Bacteriostatic Activity of Bile Salts in Relation to Hydrophobicity of the Molecule and Micelle Formation with Phospholipid. (220) J. Y. SUNG,* K. LAM, M. RESEK, and E. A. SHAFFER. Univ. of Calgary, Calgary, Alberta, Canada, and Chinese Univ. of Hong Kong, Hong Kong.


B368. Helicobacter pylori Lipopolysaccharide from Asymmetric and Duodenal Ulcer Patients Exokes Different Degrees of Stimulation of PGE2 Release. (236) A. TASTOVIĆ,* G. O. YOUNG, N. STEMMEN, J. A. LOU, and J. N.
Session 288 (BET, R). Seminar
(Eligible for continuing education credit)

UPDATE '92 III

Saturday, Noon, Room 13

Convenors: PAUL TABOR, Clarke Col., Dubuque, Iowa, and JOHN M. LAMMERT, Gustavus Adolphus Col., St. Peter, Minn.

Update '92 in Microbial Diversity
DAVID A. STAHL, Univ. of Illinois, Urbana

Session 289 (Q, K, H). Seminar
(Eligible for continuing education credit)

MICROBIAL METAL-BINDING PEPTIDES: GENE REGULATION AND FUNCTION

Saturday, 1:30 p.m., Room 10

Convenors: MICHAEL RHODES and SIMON SILVER, Univ. of Illinois Col. of Med., Chicago

Saccharomyces cerevisiae Metallothionein: Regulation and Synthesis
DEAN H. HAMER, NIH, Bethesda, Md.

Cyanothetic Synechococcus Metallothionein: Molecular Biology
NIGEL J. ROBINSON, Univ. of Durham, Durham, U.K.

Cyanothetic and Other Prokaryotic Metallothiones
SUSAN RHODES, Univ. of Illinois, Chicago

Schizosaccharomyces pombe: Phytochelatins: Polyglutathionelike Metal-Binding Peptides
DENNIS R. WINGE, Univ. of Utah Med. Ctr., Salt Lake City

Phytochelatin Synthesis and Metal Tolerance in Plants
PETER B. GOLDSBROUGH, Purdue Univ., W. Lafayette, Ind.

Session 290 (Q)

GENE TRANSFER IN THE ENVIRONMENT

Saturday, 1:30 p.m., Room 12


1:30


2:30


3:30


◆ NO SMOKING IN SESSIONS OR IN POSTER AREA ◆
EXTRACELLULAR DESTINY OF GRAM-NEGATIVE POLYPEPTIDES

Saturday, 1:30 p.m., Room 43

Convenors: YANKEL M. KUPERSZTOCH, Univ. of Texas Southwestern Med. Ctr., Dallas, and RODNEY WELCH, Univ. of Wisconsin, Madison

Extracellular Enterotoxins: Secretory Pathway of the Heat-Stable Enterotoxins
YANKEL M. KUPERSZTOCH, Univ. of Texas Southwestern Med. Ctr., Dallas

Secretion of Hemolysins
RODNEY A. WELCH, Univ. of Wisconsin, Madison

Export of Killer Peptides

Mechanism of Secretion of Immunoglobulin A Protease

Passing through the Periplasm? Protein Secretion by Vibrio sp.
THOMAS BUCKLEY, Univ. of Victoria, Victoria, British Columbia, Canada

Session 292 (I). Seminar
(Eligible for continuing education credit)

CAIRNSIAN MUTATIONS: A SPECIFIC RESPONSE TO STRESS?

Saturday, 1:30 p.m., Room 39


Directed Mutations: Facts and Theories

Estimating the Degree to Which Selection-Induced Mutations Are Specific to the Environmental Challenge Applied
BARRY HALI, Univ. of Rochester, Rochester, N.Y.

Cairnsian Mutations in Yeast: Mechanisms?
SUE JINKS-ROBERTSON, Emory Univ., Atlanta, Ga

"Pseudorevertants" of Temperature-Sensitive Salmonella typhi
MICHAEL MALAVASIC, Georgetown Univ. Med. Sch., Washington, D.C.

Evaluation of Directed Mutation and Alternative Hypotheses
JOHN MITTLER and RICHARD LENSKI, Univ. of California, Irvine

Summary: Overview and Views
FRANKLIN W. STAHL, Univ. of Oregon, Eugene

REGULATION OF BIOSYNTHETIC PATHWAYS

Saturday, 1:30 p.m., Room 41

Moderators: R. MEGANATHAN, Northern Illinois Univ., DeKalb, and ALAN J. BIEL, Louisiana State Univ., Baton Rouge

1:30


2:30


K175. Genetic and Physical Analysis of the Nucleotide Loop Assembly (CobIII) Functions Required for Cobalamin Biosynthesis in Salmonella typhimurium. G. A. O'TOOLE* and J. C. ESCALANTE-SEMERA. Univ. of Wisconsin, Madison.


3:30


INNOVATIVE STRATEGIES FOR TEACHING MICROBIOLOGY

Saturday, 1:30 p.m., Room 13

Moderators: J. EDWARD ALCAMO, SUNY at Farmingdale, Farmingdale, N.Y., and JEAN A. DOUTHWRIGHT, Rochester Inst. of Technology, Rochester, N.Y.

1:30 Cariski Award Lecture

A Place for Bacterial Diversity in the Microbiology Curriculum: a Plea To Save an Endangered Species
JERALD C. ENSIGN, Univ. of Wisconsin, Madison

2:30

BET10. Inducible or “SOS” DNA Repair as a Model System To Study Gene Regulation. J. A. DOUTHWRIGHT, Rochester Inst. of Technology, Rochester, N.Y.


BET13. Incorporation of Molecular Biology into a First Laboratory Course for Microbiology Majors and Other Life Sciences Students. C. PRATT, A. SALLYERS, S. LAZAROWITZ, and P. GOODLOVE, Univ. of Illinois, Urbana.

BET14. Quantitative Analysis in the Microbial Physiology Laboratory. R. S. TANNER, Univ. of Oklahoma, Norman.

3:30


BET16. Prevalent Biochemistry Misconceptions among College Microbiology Students. F. MAJDI, Univ. of Northern Colorado, Greeley.


Session 295 (A)

β-LACTAM RESISTANCE

Saturday, 1:30 p.m., Room 21

Moderators: K. S. THOMSON, Creighton Univ. Sch. of Med., Omaha, Nebr., and R. T. TESTA, Federle Lab., Pearl River, N.Y.
Session 296 (T)

MOLECULAR BIOLOGY AND IMMUNOLOGY
OF HUMAN IMMUNODEFICIENCY VIRUSES

Saturday, 1:30 P.M., Room 27

Moderators: SORUL SARKAR, Med. Col. of Georgia, Augusta,
and W. Gallaher, Louisiana State Univ. Med. Ctr., New
Orleans

1:30

T63. Mutation of the Fusion Peptide of Human Immunodeficiency
Virus A. MARTIN,* E. HUNTER, and W. GALLAHER. Louisiana State Univ. Med. Ctr., New Orleans, and
Univ. of Alabama, Birmingham.

T64. Improved Immunogenicity of Human Immunodeficiency
Virus Type 1 gp160 expressed by Vaccinia Virus. M. W.
CARROLL* and M. MACKERT. Paterson Inst. for Cancer
Res., Manchester, U.K.

T65. In Vivo Transactivation of Human Immunodeficiency
Virus Type 1 by Herpes Simplex Virus Type 1. O. PRAKASH,* T.-Y. WANG, R. COLEMAN, and J. M. HILL.
Ctr., New Orleans.

T66. Transactivation of Human Immunodeficiency Virus Type 1
by JC Virus in Human Fetal Brain Culture: Model of Progressive Multifocal Leukoencephalopathy in AIDS.
S. HAGGERTY,* R. J. FRISQUE, and M. STEVENSON.
Univ. of Nebraska Med. Ctr., Omaha, and Pennsylvania State
Univ., University Park.

2:30

T67. Phosphorylation of Human Immunodeficiency Virus Type
1 p17* by Protein Kinase C In Vivo and In Vitro. B.
BURNETTE,* G. YC. J. WADE, and R. FELSTED. Nat.
Cancer Inst., Bethesda, Md., and Univ. of Maryland Cancer
Ctr., Baltimore.

T68. Anti-CD4 as an Early Marker for Human Immunodeficiency
Virus Type 1 Infection. P. KEISER,* S. KEAY, W.
WECKSLER, S. WASSERMAN, and THE MULTICENTER
AIDS COHORT STUDY. Univ. of Maryland, Baltimore.
SmithKline Beecham Clin. Lab., Van Nuys, Calif.;
Bethesda, Md.; and VA Med. Ctr., Baltimore, Md.

T69. Inhibition of Human Immunodeficiency Virus Replication
by Peptides Containing Viral Nuclear Localization Sequences.
J GULIZIA,* M. DEMPSEY, N. SHAROVA, M. BUKRINSKY,
and M. STEVENSON. Univ. of Nebraska Med. Ctr., Omaha.

T70. Human Immunodeficiency Virus (HIV) Infection of HT-
29 Intestinal Cells: A Model of HIV Enteropathy. D. M.
ASMUTH,* S. M. HAMMER, and C. A. WANKE. New

3:30

T71. Detection of Human T-Cell Lymphotropic Virus Type II
(HTLV-II) in the Breast Milk of HTLV-III-Infected Mothers
by Using the Polymerase Chain Reaction. W. HENEINE,* T.
WOODS, D. GREEN, F. GRACIA, L. CASTILLO, B.
ARMIEN, K. FUKUDA, W. BLATTNER, and J. E. KAPLAN.
CDC, Atlanta, Ga.; Gorgias Mem. Lab., Panama; and
NIH, Bethesda, Md.

Session 297 (B). Seminar

(Eligible for continuing education credit)

PATHOGENESIS OF FOOD-BORNE DISEASE

Saturday, 1:30 P.M., Room 16

Convenors: PAULA J. FEDORKA-CRAY and IRENE V.
WESLEY, Nat. Animal Disease Ctr., Ames, Iowa

Listeria in Beef Cattle

DANIEL PORTNOY, Univ. of Pennsylvania, Philadelphia

Salmonella in Chickens

ROY CURTISS, III, Washington Univ., St. Louis, Mo

Food-Borne Pathogens in Seafoods

MARLEEN M. W. KELLER, FDA, Seattle, Wash.

Salmonella in Domestic Animals

PAULA J. FEDORKA-CRAY, Nat. Animal Disease Ctr.,
Ames, Iowa

Campylobacter jejuni in Chickens

RICHARD J. MEINERSMANN, USDA, Agricultural Res.
Service, Athens, Ga.

Session 298 (G, C). Seminar

(Eligible for continuing education credit)

BOVINE SPONGIFORM ENCEPHALOPATHY:
“MAD COW DISEASE”

Saturday, 1:30 P.M., Room 19

Convenors: FRANK O. BASTIAN, Col. of Med., Univ. of South
Alabama, and RICHARD F. MARSH, Sch. of Vet. Med.,
Univ. of Wisconsin, Madison

Bovine Spongiform Encephalopathy as a Transmissible Spongiform Encephalopathy. Relationship to Human Disease and
Nature of the Agent

FRANK O. BASTIAN, Univ. of South Alabama, Mobile

Clinical Aspects and Relationships of Bovine Spongiform Encephalopathy and Other Transmissible Spongiform Encephalopathies in Live stock

JAMES L. HOURRIGAN, USDA, Vienna, Va.

Epidemiology and Current Status of Bovine Spongiform Encephalopathy in Europe

JOHN W. WILESMITH, Central Vet. Lab., Weybridge, Surrey, England

Potential Occurrence of Bovine Spongiform Encephalopathy in the United States of America

RICHARD F. MARSH, Sch. of Vet. Med., Univ. of Wisconsin,
Madison

Policies of the USDA in Circumventing Potential Bovine Spongiform Encephalopathy Contamination of Food Supply

LINDA A. DETWILER, AVIC New Jersey, USDA, APHIS,
Trenton

† GENERAL MEETING 1993 ATLANTA, GA, 16-20 MAY †
Session 299 (D)

CAPSULE EXPRESSION BY BACTERIAL PATHOGENS

Saturday, 1:30 p.m., Room 33

Moderators: CHRIS WHITFIELD, Univ. of Guelph, Guelph, Ontario, Canada, and YOSHICHIKA ARAKAWA, Nagoya Sch. of Med., Nagoya, Aichi, Japan

1:30


D224. Analysis of Streptococcus pneumoniae Mutants Defective in Type 3 Capsular Polysaccharide Synthesis. J. DILLARD* and J. YOTHER. Univ. of Alabama, Birmingham


2:30


D229. Analysis of KpsT, a Protein Involved with Capsular Polysaccharide Expression in Escherichia coli K1. M. S. PAVELKA* and R. P. SILVER. Univ. of Rochester, Rochester, N.Y.


3:30


D232. Involvement of Integration Host Factor in the Regulation of Pseudomonas aeruginosa Alginate Genes algR and algD. D. J. WOZNIAK. Univ. of Tennessee and VA Med. Ctr., Memphis.

D233. Cloning of Pseudomonas aeruginosa Alginate Lyase Gene (algL) and Expression in Escherichia coli. N. L. SCHILLER. Univ. of California, Riverside.

Session 300 (C). SERODIAGNOSIS

Saturday, 1:30-3:00 p.m., Exhibit Hall C (Board numbers in parentheses)


C385. Evaluation of Epstein-Barr Virus Viral Capsid Antigen (Immunoglobulin G [IgG] and IgM) and Epstein-Barr Nuclear Antigen (IgG) Enzyme Immunoassays Serologies as Compared with Immunofluorescence. (015) C. S. SIEGEL,* S. GOODREAU. Bellin Mem. Hosp., Green Bay, Wis.


Session 301 (C). CHLAMYDIA


C407. Comparison of Several Commercial Kits for the Diagnosis of Chlamydial Disease in Koala. (059) M. WOOD and P. TIMMS. Ctr. for Molecular Biotechnology, Queensland Univ. of Technology, Brisbane, Australia.


C415. Comparison of the CLEARVIEW Chlamydia, PACF 2 Assay, and Culture for the Detection of Chlamydia from SATURDAY
 Session 302 (V). HEPATITIS VIRUS, HUMAN IMMUNODEFICIENCY VIRUS, AND OTHER VIRAL AND MYCOPLASMA INFECTIONS


V31. Evaluation of Pharmacokines IgM ELISA with Hemagglutination Inhibition on Purified Serum Samples. (099) L. TABONY and W. HODGSON Texas Dept. of Health, Austin.


Session 303 (B). HAEMOPHILUS AND BRANHAMELLA SPP.: SURFACE COMPONENTS AND DYNAMICS OF COLONIZATION


1372. Molecular Analysis of the P2 Genes of Nontypeable Haemophilus influenzae. (127) D. J. SIKKEMA* and T. F. MURPHY. SUNY at Buffalo and Buffalo VA Med. Ctr., Buffalo, N.Y.


1375. Structural and Immunological Properties of a Conserved Surface Exposed Epitope on the Protein 6 of Haemophilus influenzae. (133) J. A. BOGDAN. SUNY at Buffalo, Buffalo, N.Y.

1376. ImmunoLogic Recognition of a Conserved 72-kDa Protein in Strains of Haemophilus influenzae Biogroup aegyptius Associated with Brazilian Purpuric Fever. (135) A. LESSE and W. BITTNER. SUNY at Buffalo and Buffalo VA Hosp., Buffalo, N.Y.


1378. Preliminary Characterization of the Lipo polysaccharides from Haemophilus influenzae Type b Strain A2. (139) N. PHILLIPS, L. REINDERS, R. MCLAUGHLIN, J. M. GRIFFISS, and B. GIBSON. Univ. of California, San Francisco, and SUNY at Buffalo, Buffalo, N.Y.

1379. Analysis of Lipo polysaccharide Phenotypes Produced by Mutagenesis of the Haemophilus influenzae Type b lsg Loci. (141) R. MCLAUGHLIN, S. SPINOLA, and M. APICELLA. SUNY at Buffalo, Buffalo, N.Y.

1380. Sequence Analysis of the 1.1-kb Lipo polysaccharide Synthesis Gene (lsg) Cluster Isolated from Haemophilus influenzae Type b. (143) R. MCLAUGHLIN, Y. ABU KWAIK, S. SPINOLA, and M. APICELLA. SUNY at Buffalo, Buffalo, N.Y.

1381. Use of Pyrocin To Select a Lipo polysaccharide Variant of Haemophilus ducreyi. (145) A. CAMPAGNARI, W. M. ME LAUGHS, N. PHILLIPS, R. KARALUS, and B. GIBSON. Dept. of Med. SUNY at Buffalo, Buffalo, N.Y., and Dept. of Pharmaceutical Chemistry, Univ. of California, San Francisco.

1382. The Major Lipo polysaccharide from Haemophilus ducreyi 35000 Contains a Terminal Lactosamine That Is Sialylated. (147) W. ME LAUGHS, N. PHILLIPS, A. CAMPAGNARI, R. KARALUS, and B. GIBSON. Univ. of California, San Francisco, and SUNY at Buffalo, Buffalo, N.Y.

1383. Colonization of the Rat Nasophasrynxx by Haemophilus influenzae Is Associated with Transparent Colony Phenotype. (149) J. N. WEISER. Rockefeller Univ., New York, N.Y.


B388. Identification and Purification of the Lipo polysaccharide-Associated High-Molecular-Weight Outer Membrane Protein of Branhamella catarrhalis. (159) K. L. KLINEMAN* and T. F. MURPHY. SUNY-Buffalo and Buffalo VA Med. Ctr., Buffalo, N.Y.

Session 304 (B). ADHERENCE OF PATHOGENS TO HOST CELLS: FIMBRIAE AND OTHER ADHESINS


B391. Expression of Type 1 Fimbria Reduces Mortality from Escherichia coli Peritonitis in Rats. (165) A. MAY,* M. SPENGLER, R. SAWYER, and T. PRUETT. Univ. of Virginia, Charlottesville.


B395. Pigeon and Dove Eggwhite as P Fimbrial Inhibitor, for Peritonitis in Rats. (173) J. R. JOHNSON* and A. E. ROSS. Univ. of Minnesota, Minneapolis.

B396. Molecular Characterization of Binding Epitopes on Decay-Accelerating Factor for Escherichia coli Clones That
Session 305 (D). BACTERIAL ADHERENCE, INVASION, AND SURFACE PROTEIN EXPRESSION


D238. Immunological Specificity of HMP-1, a Major Outer Membrane Protein from Bacteroides fragilis. (229) C. A. GETTY and H. M. WEXLER. UCLA Sch. of Med. and VA Wadsworth Med. Ctr., Los Angeles, Calif.

240. Attenuated Expression in Escherichia coli of the Group 1 Outer Membrane Protein of Brucella abortus via Transposon Mutagenesis of Regions Outside the ompf Gene. (233) S. W. BEARDEN, J. K. BOWER, L. G. ADAMS, and T. A. FICH. Texas A&M Univ./Texas Agricultural Exp. Station, College Station.

241. Genetic Variation among Brucella Species at the omp2 Locus. (235) H. S. HUSSEINEN, S. W. BEARDEN, and T. A. FICH. Texas A&M Univ./Texas Agricultural Exp. Station, College Station.


249. Comparative Adhesion of Klebsiella pneumoniae to Caco-2 and HEp-2 Cells: Two Different Adhesins Are Involved. (251) A. DARFUEILLE-MICHAUD, V. LIVRELLI, C. RICH, and B. JOLY. Faculté de Pharmacie, Clermont-Ferrand Cedex, France.


252. Induction in the Intracellular Environment of Salmonella typhimurium Genes That Respond to Low [Fe2+] or [Mg2+]. (257) F. GARCIA-DEL PORTILLO, J. W. FOSTER, M. E. MAGUIRE, and B. B. FINLAY. Univ. of British Columbia, Vancouver, British Columbia, Canada; Univ. of South Alabama, Mobile; and Case Western Reserve Univ., Cleveland, Ohio.


258. Interactions between Yersinia enterocolitica and Purified Rabbit Intestinal Mucin. (269) M. MANTLE and S. HUS- SAR. Univ. of Calgary, Calgary, Alberta, Canada.


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**Session 306 (H). EUKARYOTIC GENES: EXPRESSION AND FUNCTIONS**


H287. Exaggerated Sphingolipid Defects in Yeast Temperature-Sensitive Lethal Mutants. (281) J. R. AZEVEDO* and K. D. ATKINSON. Univ. of California, Riverside.

H288. Detergent-Soluble Vitamin Rescues Temperature-Sensitive Lethal Yeast Sphingolipid Mutants. (283) T. TRANT* and J. R. AZEVEDO, and K. D. ATKINSON. Univ. of California, Riverside.

H289. Production of the CYS3 Regulator, a bZIP DNA-Binding Protein, Is Sufficient To Induce Sulfur Gene Expression in Neurospora crassa. (285) J. PAIETTA. Wright State Univ., Dayton, Ohio.


M293. Analysis of the 5'-Adenosylmethionine Synthetase Gene of Acanthamoeba. (293) K. S. AHN* and H. R. HENNEY. Univ. of Houston, Houston, Tex.


M295. Sequence and Expression of the Beta-Subunit of the Mitochondrial F1-ATPase in Leishmania donovani. (297) E. M. PETRIN* and A. J. MUKKADA. Univ. of Cincinnati, Cincinnati, Ohio.


Session 307 (M). CONTROL MECHANISMS OF PHAGE REPPLICATION AND EXPRESSION


Session 308 (O). FEED- AND FOOD-RELATED PRODUCTS AND MICROORGANISMS

O70. Studies on a New Rhodotorula rubra Strain. (327) R. HARI,* T. PATEL, and A. MARTIN. Mem. Univ. of Newfoundland, St. John's, Newfoundland, Canada.

O71. Production of Astaxanthin by the Green Microalga Chlorella zofingiensis. (329) H. J. NELIS* and A. P. DE LEENHEER. Univ. of Gent, Gent, Belgium.


O77. Monoclonal Antibody-Immunoassay Blot To Isolate Bacteriocin-Producing Pediococcus Species. (341) A. K. BHNIA,* L. BLY, S. PUDLAS, and M. PENNEY. Dept. of Food Sci. and A.kansas Biotechnology Ctr., Univ. of Arkansas, Fayetteville.


O82. Fermentation of Raffinose and Stachyose by Bacteria from the Hindgut of Weaned Pigs. (351) D. KRAUSE,* R. EASTER, and R. MACKIE. Univ. of Illinois, Urbana.

O83. Production of Low-Molecular-Weight Dextran Polymers by Fermentation with Lecanowche mesenteroides and Leu-

184. Cloning and Sequencing of xps2A Gene Involved in Xanthan Polysaccharide Synthesis of Xanthomonas campes-

185. Effect of Temperature upon Pullulan Production Relative to Carbon Source Present. (357) T. P. WEST* and B. REED-
HAMER. South Dakota State Univ.. Brookings.


188. Solid-State Fermentation Products Made from Cereal Grains. (363) K. A. HACHMEISTER. Kansas State Univ., Manhattan.

POSTER SESSIONS

Saturday, 3:00-4:30 p.m., Exhibit Hall C

(Boad numbers in parentheses)

Session 309 (C). SERODIAGNOSIS II


2435. Western Blot Analysis Using Sera from Patients Diagnosed with Human Ehrlichiosis. (020) J. DAWSON* and C. GREENE. Div. of Viral and Rickettsial Diseases, CDC, Atlanta, Ga.

2436. Rapid Test Developed for Detection of Helicobacter Antibodies. (022) G. ANDERSON,* M. M. ALEMOHAM-


2439. Evaluation of a New Complement-Fixation Test for Detection of Helicobacter pylori Infection. (028) H. GOOS-


2446. Diagnostic Evaluation of Neurophils in Human Immunodeficiency Virus-Infected Persons by Using a TPHA Index and Cerebrospinal Fluid Western Blot. (042) P. WOLFORD,*
Session 310 (C). FASTIDIOUS AND UNUSUAL PATHOGENS: CULTURE, DETECTION, AND CHARACTERIZATION


C448. HeLa Cell Culture System for Isolation of *Afipia felis* (the Cat Scratch Disease Bacillus). (046) K. A. BIRKENES* and F. D. QUINN. CDC, Atlanta, Ga.


C451. Increased Yield of Bordetella on Prolonged Incubation and Repeat Subculture of Specific Transport Medium. (052) K. KNOWLES* and S. SORGER. Montreal Children's Hosp., McGill Univ., Montreal, Quebec, Canada.


C454. Indirect Fluorescent Antibody Identification of the Microsporidian *Enterocytozoon bieneusi* in Clinical Samples Using Antisera to *E. bieneusi* cuniculi and *E. bieneusi* helmint. (058) C. H. ZIERDT* and W. S. ZIERDT. NIH, Bethesda, Md.


C458. Improved Identification of *Pneumocystis carinii* from Induced Sputa following Cultivation in AS49 Cells. (066) A. SHAHIDI,* R. ORTIZ, and J. ESPINOZA. VA Med. Ctr., Bronx, N.Y.


C463. Amplification and Restriction Endonuclease Analysis of the rDNA 16S-23S Spacer Region from *Rochalimaea* Species. (076) G. M. MATAR, B. SWAMINATHAN,* L. N SLATER, and D. F. WELCH. CDC, Atlanta, Ga., and Univ. of Oklahoma, Health Sci. Ctr., Oklahoma City.


Session 311 (I). APPLIED MICROBIOLOGY


190. Antagonistic Activity of Lactic Acid Bacteria and Foodborne Pathogens (98) V. E. CHANDLER* and K. E. NEWMAN. Alltech Biotechnology Ctr., Nicholasville, Kentucky.


192. Effect of a Calcium Alginate Dressing (Sorbsan) on the Multiplication of Bacterial Pathogens In Vitro. (102) A. CAZZANIGA,* D. MARSHALL, and P. MERTZ. Univ. of Miami Sch. of Med., Miami, Fla.


196. Stability of Three Species of Chlamydia during Freeze-Drying and Storage. (110) D. JACOBS* and C. BUCK. American Type Culture Collection, Rockville, Md.


198. Growth as a Function of Temperature in Selected Bacteria. (114) T. FEIBELMAN* and W. CIBULA. Univ. of Iowa, Iowa City. Antibiotics in the Eradication of Biofilms. (150) B. D. ELLIS.*

Session 312 (H). GENE EXPRESSION: PROTEIN-DNA INTERACTIONS

H305. Regulation of metF Gene Expression by MetR Protein in Salmonella typhimurium. (115) J. COWAN* and G. STAUFFER. Dept. of Microbiol., Univ. of Iowa, Iowa City.


H313. In Vitro Interactions of CybA84 Protein with Promoters of Salmonella typhimurium. (132) T. E. COLYER,* and N. M. KREDICH. Duke Univ Med Ctr., Durham, N.C.

H314. Characterization of Dominant-Negative Mutants of the Transcription Factor Fnr. (134) B. LAZZAZERI* and P. J. KILEY. Dept. of Biomolecular Chemistry, Univ. of Wisconsin, Madison.

H315. Role of Dimerization in the Divergent proU Operon of Salmonella typhimurium. (140) A. G. MATHEW,* M. M. EDERER, I. N. CSONKA, and N. P. HIGGINS. Purdue Univ., West Lafayette, Ind.; Univ. of Idaho, Moscow, and Univ. of Alabama, Birmingham.

H316. Binding of Cyclic AMP Receptor Protein to the proA Gene of Escherichia coli. (138) H. GOLDIE* and M. H. SAIER, JR. Univ. of Saskatchewan, Saskatoon, Saskatchewan, Canada, and Univ. of California, San Diego.

H317. Determination of Protein-DNA Interactions in the Transcriptional Control of the proU Operon of Salmonella typhimurium. (140) A. G. MATHEW,* M. M. EDERER, I. N. CSONKA, and N. P. HIGGINS. Purdue Univ., West Lafayette, Ind.; Univ. of Idaho, Moscow, and Univ. of Alabama, Birmingham.


H320. trans-Activation of Gene Expression. (146) S. YE,* T. STAUFFER. Univ. of Iowa, Iowa City.


Session 313 (D). BACTERIAL COLONIZATION AND BIOFILM FORMATION ON BIOMATERIALS

D261. Synergism between Electrical Fields (Current) and Antibiotics in the Eradication of Biofilms. (150) B. D. ELLIS,* J. W. COSTERTON, and A. E. KHOURY. Dept. of Biol., Univ. of Calgary, Calgary, Alberta, Canada, and Dept. of Urology, Sick Children's Hosp., Toronto, Ontario, Canada.

D262. Bacterial Colonization of Urinary Catheters in Model Laboratory Systems. (152) S. OPPENHEIMER,* W. WILLIAMS, and M. FLETCHER. Ctr. of Marine Biotechnology, Univ. of Maryland, Baltimore.

D263. Inhibitory Effects of Silver-Treated Catheters on Growth and Adherence of Bacteria. (154) M. M. GABRIEL,* A. D. SAWANT, M. S. MAYO, R. B. SIMMONS, and D. G. AHEARN. Georgia State Univ., Atlanta.

D264. Inhibition of Escherichia coli Adhesion on Plastic Surfaces by Bile Salts with Different Hydrophobicity at Physiological Levels. (156) J. Y. SUNG, I. RUSESKA,* and K. LAM. Univ. of Calgary, Calgary, Alberta, Canada, and Chinese Univ. of Hong Kong, Hong Kong.

D266. Colonization of Silastic Rubber by *Pseudomonas fluores-
cens* and *Pseudomonas putida* Using a Chemostat and a
Modified Robbins Device. (160) J. JASS,* E. V. SHARP, and

D267. Alginate Expression in Biofilm and Planktonic *Pseud-
omonas aeruginosa*. (162) H. YU,* M. F. HYNES, S. D. 
FRASER, and H. ANWAR. Dept. of Biol. Sci., Univ. of
Calgary, Calgary, Alberta, Canada, and Dept. of Microbiol.,
Univ. of Alberta, Edmonton, Alberta, Canada.

D268. Adhesion of *Vibrio cholerae* O1 Strains to Hydrophobic 
Polystyrene Is Not Dependent on the Toxin Coregulated Pilus 
but May Be Dependent on ToxR. (164) M. O. WALDER-
HAUG. FDA, Washington, D.C.

D269. Adhesion of *Enterococcus faecium* L-Forms to Silastic 
Rubber. (166) H. M. LAPPIN-SCOTT,* J. JASS, L. E. 
PHILLIPS, and E. J. ALLAN. Univ. of Exeter. Exeter,
England, and Univ. of Aberdeen, Aberdeen, Scotland.

D270. Impact on Staphylococcal Adherence of Antibiotic 
Bonding to Cardiovascular Implantable Biomaterials. (168) D.
UYENO,* C. E. EDMISTON, H. ALMASSI, C. KREPEL,
C. GOHR, and G. OLINGER. Dept. of Gen. and Cardiovas-
cular Surgery, Med. Coll. of Wisconsin, Milwaukee.

D271. Adhesion and Biofilm-Forming Ability of a Hydrophobic 
and Hydrophobic Variant of *Staphylococcus epidermidis* 
NCTC 11047. (170) P. S. HANDLEY,* and J. CUNNIFFE.
Manchester Univ., Manchester, U.K.

D272. *Staphylococcus epidermidis*-Platelet Interactions in Pro-
thetic Device-Centered Infections. (172) J. M. LOUTSCH,* T.
W. MILLIGAN, J. BYRNE, J. E. BAUMAN, and J. H.
JOIST. Dept. of Pathology and Internal Med., St. Louis Univ.
Med. Ctr., St. Louis, Mo.

D273. Adherence of *Staphylococcus epidermidis* to Surgical 
Biomaterials and Cortical Bone. Comparison between Live 
and Killed Bacteria. (174) S. GORDON,* D. JENNINGS, L.
PEARSON, and W. WEBB. Bowman Gray Sch. of Med., 
Winston-Salem, N. C.

Session 314 (D). PILI AND FIMBRIAE: 
STRUCTURE, GENETICS, AND EXPRESSION.

D274. Pili Expression in a Set of Isogenic Mutants of *Haemophi-
lus influenzae* Type b. (176) W. J. WATSON,* M. A. TUCCI,
K. M. MCCREA, J. R. GILSDORF, and C. F. MARRS.
Univ. of Michigan, Ann Arbor.

D275. Construction of Chimeric Genes To Map a Surface-
Exposed Epitope on the Pilus of Nontypeable *Haemophi-
lus influenzae* M37. (178) K. PALMER,* and R. S. MUNSON,
JR. Washington Univ., St. Louis, Mo.

D276. Rapid, Synchronous, and Stable Induction of Type I 
Piliation in *Escherichia coli* Using a Chromosomal lacUV5 
Promoter. (180) L. D. WOODALL, P. W. ROUSSELL, S. L.
HARRIS, and P. E. ORNDOFF.* North Carolina State 
Univ., Raleigh.

D277. Invariant Cleft Residue of PapD Is Essential in Binding 
and Maintaining Pili Subunits in Assembly-Competent Con-
formations. (182) L. S. SLONIM,* M. J. KUEHN, J. S.
PINKNER, C. J. BRANDEN, and S. J. HULTGREN.
Washington Univ. Sch. of Med., St. Louis, Mo.

D278. Cloning and Sequencing of the Minor Tip Component 
Genes of pap-I Pili of *Escherichia coli*. (184) A. KLANN,* R.

D279. P Pili in Uropathogenic *Escherichia coli* Are Composite 
Fibers with Distinct Fibrillar Adhesive Tips. (186) M. J.

KUEHN,* J. HEUSER, F. JACOB, and S. J. HULTGREN.
Washington Univ. Sch. of Med., St. Louis, Mo.

D280. Plasmid-Encoded Fimbrial Gene of Entero-pathogenic 
*Escherichia coli* Associated with Localized Adherence. (188) 
M. S. DONNENBERG,* J. A. IRONG,* G. G. SCHOOL-
NICK, and J. B. KAPER. Univ. of Maryland Sch. of Med., 

D281. New Fimbrial Putative Colonization Factor on Human 
Enterotoxigenic *Escherichia coli*: (PilE, PilH) 4.0. (190) N. 
BINSZTEIN, M. JOUVE, and A. M. MAVINKER. 
Dept. Med. Microbiol and Immunol. Gothenburg, Swe-
Buenos Aires, Argentina.

D282. Cloning of a New Fimbrial Adherence Factor of 
Enteroaggregative *Escherichia coli*. (192) P. NAIAR,* Y. 
DENG, A. GERMAN, and D. MANEVAL. Ctr for Vaccine 
Development, Univ. of Maryland Sch. of Med., Baltimore.

D283. Distribution of the Bundle-Forming Pilus (bfp) gene 
among Entero-pathogenic *Escherichia coli*. (194) J. A. GIR
ON,* K. G. GICQUELAI, and M. S. DONNENBERG Ctr 
for Vaccine Development, Univ. of Maryland, Baltimore.

D284. Expression of the *Salmonella typhimurium* fim 4 Gene 
is Affected by Two Ancillary fim Determinants Located Down-
stream of fimE. (196) D. SWENSON,* and S. J. LOUTSCH.*
Univ. of Iowa, Iowa City.

D285. Characterization of Pilus Expression and Type I Pili Genes 
from *Shigella flexneri*. (198) N. J. SNELLING,* B. TAIL.
and M. M. VENKATESAN. Walter Reed Army Inst. of Res.
and Div. of Microbiol., FDA, Washington, D. C.

D286. Effect of Culture Agitation on *Pseudomonas aeruginosa* 
1244 Piliation. (200) P. CASTRIC. Duquesne Univ., Pitts-
burgh, Pa.

D287. Discrepancies between Type I Fimbriation Phase and the 
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Factor Mutants of *Escherichia coli*. (202) J. PRINC,* C.
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Michigan, Ann Arbor.

D288. Targeting of Chaperone-Subunit Complexes to the Outer 
Membrane Protein PapC in P Pili Biogenesis. (204) K. W.
DODSON,* and S. J. HULTGREN. Washington Univ. Med 
Sch., St. Louis, Mo.

Session 315 (Q). STERILIZATION,
PRESERVATION, AND MICROBIAL QUALITY 
CONTROL.

Q340. Evaluation of Preserved, Quantitated Microbial Cell 
Suspensions for Analytical Quality Control. (206) N. ROB-
ERTS,* L. FORD, and H. BRADFORD. Chrispe 
Technologies, Lake Charles, La., and Louisiana Dept. of Health 

Q341. Automation of Preservative Efficacy and Microbial 
Limits Testing Using a Customer-Modified Robotics System. 
(208) J. BIRCHER,* P. WATTERS, T. BOWYER, and M. 
BRINKLEY. Glaxo Inc., Research Triangle Park, N. C.

Q342. Comparison of Neutralizing Diluents Using Conductance 
Microbiology on the Recovery of Microorganisms from Per-
sonal Care Products. (210) F. MARIATTI,* and J. TOR-
BACH. Radiometer America Inc., Westlake, Ohio.

Q343. New Standard for Sterility Testing of AutoClaved 
Surgical Trays. (212) A. F. WIDMER,* A. HOUSTON, J.
BOLLINGER, and R. P. WENZEL. Univ. of Iowa, Iowa 
City.

Q344. The Spectrum of Fungi Penetrating Hydrogel Contact 
Lenses. (214) R. B. SIMMONS,* and R. I. SCHILLER.
Q359. Salmonellosis in Beef Cattle.
Q357. Fate of Selected Bacterial Pathogens and Indicators and Validation of a Substrate-Identicid Response Method for Breeding Sites in Mali.
Q345. Anti-microbial Activity of Environmentally “Green” Products. (224) J. RUBINO* and J. BAUER. L&F Products, Montvale, N.J.
Q340. Demonstration of In Vitro Bacterial Activity of Cellophane Films by the Direct Contact Plate Method. (234) K. JIM and J. BARBATO* Massachusetts Col. of Pharmacy, Boston.
Q339. In Vitro Bacterial Activity of Novel Polyester Fabrics by the Direct Contact Method. (236) K. JIM and J. BARBATO* Massachusetts Col. of Pharmacy, Boston.
Q337. Fate of Selected Bacterial Pathogens and Indicators and Enteric Viruses in Fractionated Poultry Litter during Storage. (240) T. KELLEY,* O. PANCORBO, W. MERKA, S. THOMPSON, M. CABRERA, and H. BARNHART. Univ. of Georgia, Athens.

Session 316 (Q). POPULATION DIVERSITY AND DYNAMICS

Q362. Relative Abundance and Composition of Fungi Associated with On-Farm Stored Corn in Western Kentucky. Results of a 2-Year Survey. (250) B. D PRICE,* J D SEDLACEK, and P. A. WESTON. Kentucky State Univ., Frankfort
Q363. Use of 16S rDNA Targeted Oligonucleotide Probes To Study Competition between Ruminal Fibrolytic Bacteria (252) A. A. ODENYO,* R. I. MACKIE, and B. A. WHITE. Univ. of Illinois, Urbana.
Q365. Survey of Bacterial Flora Associated with Carson Beetles (Coleoptera: Silphidae). (256) B. LUSTIGMAN* and G. BERDELA. Montclair State Col., Upper Montclair, N.J.
Q367. Isolation and Identification of Bacteria from the Gut and External Ventral Surface of Blatta orientalis, Blatella germanica, Periplaneta americana, and Other Blattaria Collected in the Washington Metropolitan Area. (260) V. GRANT* and T. SMITH. Howard Univ., Washington, D.C.
Q368. Enzyme Activities and Microbiota Associated with Rigid and Other Blattaria Collected in the Washington Metropolitan Area. (260) V. GRANT* and T. SMITH. Howard Univ., Washington, D.C.
Q369. Characterization of the Microbial Flora of Mosquito Breeding Sites in Mali. (264) J. F. HEIDELBERG,* D. BRYANT, R. W. GWADZ, and R. R. COLWELL. Univ. of Maryland, College Park, and NIH, Bethesda, Md.
Q370. Interactions between Bacteria Isolated from Mosquito Breeding Sites in Mali and Larvae of Anopheles gambiae G3. (266) D. L. BRYANT,* J. F. HEIDELBERG, O. SANKARE, R. W. GWADZ, and R. R. COLWELL. Univ. of Maryland, College Park, and NIH, Bethesda, Md.
Q374. Effects of Intact Rhizosphere Microbial Communities on the Mineralization of Surfactants in Surface Soils. (274) D. B. KNAEBEL. Dept. of Biol. Sci., Univ. of Cincinnati, Cincinnati, Ohio.
Q375. Vascular-Arbuscular Mycorrhizae of Natural and Restored Sand Dunes. (276) D. A. KLEIN,* S. MCGURK, W.


Q378. Use of COSTAR Microtiter Plates To Study Amoebic-Bacterial Interactions. (282) A. VASS* and R. TYNDALL.


# Summary of Scientific Sessions

**ASM General Meeting, 26-30 May 1992**  
**New Orleans, La.**  
**Tuesday evening, 8:00 P.M.: Opening Session, Ballroom I, New Orleans Convention Center**

<table>
<thead>
<tr>
<th>Room</th>
<th>WEDNESDAY</th>
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<td>8:30 A.M.</td>
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<td>Ballroom 1A</td>
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<td>2. Seminar: Critical Assessment of Current Status and Future Projections of Molecular Diagnostics Methods (C)</td>
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<td>Room 20</td>
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<td>3. Symposium: Advances in Laboratory Diagnosis of Systemic Fungal Infections (Group V)</td>
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<td>Room 37</td>
<td>4. Seminar: Cholera (AAM)</td>
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<td>7. Seminar: Biotechnology Methanogenesis from Methyl-Containing Substrates (K)</td>
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<td>8. Seminar: Critical Assessment of Current Status and Future Projections of Molecular Diagnostics Methods (C)</td>
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<td>Seminar: Molecular Biology in the Diagnosis and Epidemiology of Tuberculosis (U)</td>
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<td>Seminar: What Should the Microbiology Lab Accomplish? (BET)</td>
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<td>(1:30) Round Table: Critical Thinking or Problem Solving Skills (BET)</td>
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<td>Seminar: Enterococci: Increasing Antibiotic Resistance and Prevalence of Nosocomial Pathogens (L)</td>
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<td>Seminar: Bacteriocidal Activities of Phagocytes (D)</td>
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<td>Seminar: Genetic Regulation of the Synthesis of Fimbriae (B)</td>
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<td>Seminar: Emerging Opportunistic Fungal Infections (F)</td>
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<td>Seminar: What Mycobacteriologists Can Learn from Studies on Other Pathogens (U)</td>
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<td>Seminar: Endotoxin Effects on Signal Transduction (E)</td>
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<td>Seminar: What is the Significance of Salmonella, Listeria, and Campylobacter in Foods? (F)</td>
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<td>Seminar: Diagnostic Aspects of Carneiform Bacteria (C)</td>
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<td>Seminar: Molecular Biology of Treponemes and Other Spirochetes (D)</td>
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<th>Room 5</th>
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<tr>
<td>Seminar: Molecular Biology of Bacterial Respiratory Diseases (B)</td>
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<td>Seminar: Model Systems in STD Research (D)</td>
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<td>Seminar: Fungal Enzymes as Markers of Disease Activity (F)</td>
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<td>Seminar: The Concept of Sterilization (L)</td>
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<td>Seminar: Pathogenesis of Fungal Infections (Div. F Lecture)</td>
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<td>Seminar: Round Table: Unsolved Problems in Teaching Microbiology (BET)</td>
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<td>Seminar: Round Table: New Therapeutic Advances in Infectious Diseases and Malignancy (Div. V Lecture)</td>
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<td>Symposium: Applications of Modeling in Microbiology (Group III)</td>
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<td>15. Microbial Growth (I)</td>
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<td>95. Chemotaxis and Mobility (E)</td>
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<td>139. Starvation Survival and Recovery of Microorganisms (Q)</td>
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<td>141. Seminar: Pelvic Inflammatory Disease (Div. D Lecture)</td>
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<td>142. Seminar: Novel Molecular Genetic Approaches for the Production of New Metabolites in Streptomyces (Div. Q Lecture)</td>
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<td>16. New Methods for the Diagnosis of Mycobacterial Infections (U)</td>
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<td>97. Pathogenic Neisseria (E)</td>
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<td>17. Immune Responses to Viruses (E)</td>
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<td>38. Mechanisms of Protective Immunity (E)</td>
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<td>98. Seminar: Immunopathogenesis of Mycobacterium Complex Disease (U)</td>
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<td>18. Viral Gene Expression (Div. S Lecture)</td>
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<td>59. Seminar: Aspects of Drinking Water Microbial Ecology (N)</td>
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<td>143. Seminar: Against the Odds: Salmonella Survival Strategies (B)</td>
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<td>19. Seminar: Assessing the Use of Nonindigenous Microorganisms in Bioremediation I (Q)</td>
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<td>60. Seminar: Assessing the Use of Nonindigenous Microorganisms in Bioremediation II (Q)</td>
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<td>100. Microbial Ecology: Groundwater and Subsurface (Div. N Lecture)</td>
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<td>144. Lyme Borreliosis (B)</td>
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<td>20. Seminar: Molecular Biology of Mycoplasmas (G)</td>
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<td>61. Problematic Nosocomial Infections (Div. I Lecture)</td>
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<td>101. Round Table: Molecular Biology and Biochemistry of Acidophilic Chemolithotrophs (PSAB)</td>
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<td>145. Mycobacterial Infections and AIDS (U)</td>
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<td>21. Seminar: Recent Advances in the Recovery of Food-Borne Pathogens (P)</td>
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<td>62. Round Table: Microbiology: Food and Water Quality Concerns in Developing Countries (PSAB, AAM)</td>
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<td>102. Mycobacterial Genes and Products and Their Roles in Pathogenesis (U)</td>
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<td>146. Advances in Development of Pathogenic Bacteria in Foods (Div. P Lecture)</td>
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<td>63. Molecular Probes in Microbial Ecology (Div. Q Lecture)</td>
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<td>103. Round Table: Industrial Culture Products for Environmental Applications: Snake Oil or Science (G)</td>
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<td>147. Seminar: Immuno prophylaxis of Mycoplasmal Diseases (G)</td>
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<td>104 Seminar: Protecting Workers Protecting Patients (L, SHEA)</td>
<td>211 Seminar: Blood Culture Practices (C)</td>
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<td>170 Seminar: Pathways in Antimicrobial Susceptibility Testing (C)</td>
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<td>171 Mycoses Epidemiology, Host Response, and Treatment (P)</td>
<td>212 Seminar: Rapid Diagnosis: New Pathogens and Old (V, C)</td>
<td>214 (Room 10) Bioreduction of Metals (Q)</td>
<td>289 (Room 10) Seminar: Microbial Metal Binding Peptides (Q, R, M)</td>
<td>254 (Room 12) Bioelimination and Bioremediation (M)</td>
<td>290 (Room 12) Gene Transfer in the Environment (Q)</td>
<td>255 (Room 12) Bioelimination and Bioremediation (M)</td>
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<td>172 Seminar: Transcriptional Activation: Activator RNA Polymerase Complexes (M)</td>
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<td>173 Systematics and Molecular Diversity of Prokaryotes (Div R Lecture)</td>
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<td>174 Seminar: Iron Sulfur Chemistry of Bacteria (K, I)</td>
<td>215 Seminar: Microbial Adaptation to Environmental Stress (K)</td>
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<td>262 (11:00) Round Table: Agarose Gel Electrophoresis of DNA for the Teaching Laboratory (BET)</td>
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<td>Room 100</td>
<td>209. (11:00) Round Table: Scarlet Fever, Septic Scarlet Fever, Toxic Fever, and Streptococcal Toxic Shock Syndrome (Center for History of Microbiology)</td>
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<td>Room 26</td>
<td>175. Round Table: Update on the Implementation of CLIA '88 (C)</td>
<td>(3:30) J. Roger Porter Award Address</td>
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<td>Room 103</td>
<td>176. Seminar: Incorporating Virology into the Undergraduate Microbiology Curriculum (BET)</td>
<td>210. (Noon) Seminar: Update '92 II (BET)</td>
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<td>216. (3:30) Seminar: Discovering Your Role in Precollege Science Education (BET)</td>
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<td>Room 13</td>
<td>177. Oral Colonization and Carcinogenic Activities of Streptococci and Other Microorganisms (D)</td>
<td>217. Resistance to Quinolones (Div. A Lecture)</td>
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<td>263 Seminar: New Directions in Undergraduate Education (BET)</td>
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<td>Room 2</td>
<td>178. Seminar: Cytokines and Infectious Diseases (E, V)</td>
<td>288 (Noon) Seminar: Update '92 II (BET, R)</td>
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<td>294 (1:30) Innovative Strategies for Teaching Microbiology (BET)</td>
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<td>Room 5</td>
<td>179. Round Table: Case Presentations in Clinical and Diagnostic Immunology (V)</td>
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<td>219. Seminar: Cytokines in the Mycoetes (F)</td>
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<tr>
<td>Room 27</td>
<td>181. Bacterial Invasion of Host Cells (Div. B Lecture)</td>
<td>252A. Cetus Corp. Award Address</td>
<td>265. Detection of Viral Nucleic Acids and Antigens (S)</td>
<td>296. Molecular Biology and Immunology of Human Immuno-Deficiency Viruses (T)</td>
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<td>Room 36</td>
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<td>267. Seminar: Nucleic Acids in the Environment (Q)</td>
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<tr>
<td>Room 93</td>
<td>184. Symposium: Cellular Receptors for Animal Viruses (Group IV)</td>
<td>224. Seminar: Molecular Mechanisms of Viral-Induced Disease (E, T)</td>
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<td>Room 1</td>
<td>185. New Developments in Vaccines: Vehicles (E)</td>
<td>225. Seminar: Regulation and Function of Bacterial Cytolytic Toxins (D)</td>
<td>268. Seminar: Scavenging: Interface between Microbiologists and Biochemical Engineers (O)</td>
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<td>Room 80</td>
<td>186. Seminar: Leprosy Research: Present and Future (U)</td>
<td>226. Round Table: Microbiologists and Mentors (PSAB)</td>
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<td>Room 33</td>
<td>188. Biotransformations and Biocatalysis (O)</td>
<td>228. Microorganisms in Shellfish and Shellfish-Raising Waters (Q)</td>
<td>270. Seminar: Advances in Preservation Systems for Foods (P)</td>
<td>299. Capsule Expression by Bacterial Pathogens (D)</td>
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<td>Room 95</td>
<td>189 Round Table: Science Literacy: a Fable for Our Time (BET)</td>
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<td>279 Seminar: Using History To Enrich the Teaching of Microbiology (BET)</td>
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<tr>
<th>Time</th>
<th>Seminar: Nucleic Acid Amplification and Other Innovative Detection Systems (P)</th>
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<th>Time</th>
<th>Seminar: Use of PCR for Environmental Monitoring (Q)</th>
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<tr>
<th>Time</th>
<th>Seminar: Molecular Approaches in Subsurface Microbial Ecology (N)</th>
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<tr>
<th>Time</th>
<th>Seminar: Detection of Pathogens by Conductance Microbiology (P)</th>
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<tr>
<th>Time</th>
<th>Seminar: Capsid Assembly and Packaging in Bacteriophages (M)</th>
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<tr>
<th>Time</th>
<th>Seminar: RNA Bacteriophages Revisited (Div. M Lecture)</th>
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<th>Time</th>
<th>Seminar: Interactions of Host and Phage: Elements of Gene Expression (M)</th>
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## Poster Sessions

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<tr>
<th>Wednesday, 27 May</th>
<th>Thursday, 28 May</th>
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<tr>
<td><strong>9:00 A.M.</strong></td>
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<tr>
<td>25 Water Quality (Q)</td>
<td>33 Microbial Interactions with Sulfur Compounds (Q)</td>
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<tr>
<td>34 Biotransformation and Degradation (Q)</td>
<td>66 Bacteremia and Fungemia I (C)</td>
</tr>
<tr>
<td>67 Serodetection of Bacterial, Parasitic, and Miscellaneous Antigens (V)</td>
<td>74 Epidemiology of Fungal Infections (F)</td>
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<tr>
<td>106 Gene Cloning and Expression of Fermentation Enzymes (Q)</td>
<td>115 Characterization and Detection of Gram-Negative Bacteria in Foods (P)</td>
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<tr>
<td>110 Biodegradation of Petroleum and its Components (Q)</td>
<td>150 Viral Detection I (C)</td>
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<tr>
<td>116 Mycobacteria Cultivation, Identification, and Pathogenic Mechanisms (E)</td>
<td>159 Viral Detection II (C)</td>
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<td>27 Novel Regulatory Proteins (H)</td>
<td>35 Sigma Factors and Promoters (M)</td>
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<tr>
<td>36 Plasmids: Replication and Conjugation (H)</td>
<td>68 Malignant Disease (G)</td>
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<tr>
<td>69 Physiology and Structure of Pathogenic Bacteria (D)</td>
<td>76 Susceptibility of Fungi and Other Microorganisms (A)</td>
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<tr>
<td>77 Miscellaneous Antimicrobial Activity (A)</td>
<td>108 Global Regulation: Carbon, Nitrogen, and Iron (M)</td>
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<tr>
<td>109 Epidemiologic Typing, Miscellaneous Nosocomial Infections (L)</td>
<td>117 Metabolism of Phaneromycetes and Halogenated Organisms (K)</td>
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<tr>
<td>118 Microbial Metabolism and Products (I)</td>
<td>152 Protozoan Pathogens (P)</td>
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<tr>
<td>153 Applied Microbiology (Q)</td>
<td>160 Improved Methods of Protective Immunity (E)</td>
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<tr>
<td>162 General Environmental Microbiology (Q)</td>
<td>29 RNA Viruses I (T)</td>
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<tr>
<td>37 Molecular Taxonomy and Evolution (M)</td>
<td>70 Genetics of Virulence of Pathogenic Bacteria (B)</td>
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<tr>
<td>78 Biodegradation of Lignin and Polyaromatic Hydrocarbons (Q)</td>
<td>110 Gastrointestinal Pathogens (C)</td>
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<tr>
<td>119 Fungi: Detection, Identification, and Antimicrobial Susceptibility Testing (C)</td>
<td>154 Nitrate Removal and Biodegradation of Nitroaromatics and Azo-Dyes (Q)</td>
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<tr>
<td>163 Biotransformation and Degradation II (Q)</td>
<td>30 Bacterial Identification Systems (C)</td>
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<tr>
<td>38 Molecular Biology and Molecular Epidemiology of Fungi (P)</td>
<td>71 Microbial Interactions with Metals (Q)</td>
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<tr>
<td>79 Plasmids: Novel Properties (M)</td>
<td>111 Iron Transferin and Hemoglobin Binding, Siderophores, and Outer Membrane Proteins (B)</td>
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<tr>
<td>120 Fungal Biology and Pathogenesis (F)</td>
<td>155 Environmental Virology and Aerobiology (Q)</td>
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<tr>
<td>164 Genome Structure and Analysis (M)</td>
<td>31 Mechanism of Action and Resistance (A)</td>
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<tr>
<td>39 Specimen Collection, Transport, Processing, and Management (C)</td>
<td>72 DNA Replication and Modification (M)</td>
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<tr>
<td>80 Archaeobacteria II (I)</td>
<td>112 Exotoxins (B)</td>
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<tr>
<td>121 Cytokine and Inflammatory Host Responses to Infections (E)</td>
<td>156 Gene Regulation in Anaerobiosis and in Photosynthesis (M)</td>
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<tr>
<td>165 Enzymes (K)</td>
<td>32 Antibiotic Resistance (A)</td>
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<td>40 Vaccines and Immune Responses (B)</td>
<td>73 Archaeobacteria I (I)</td>
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<tr>
<td>81 Eukaryotic Microbial Metabolism (M)</td>
<td>113 Virulence and Invasion of Salmonella and E coli (B)</td>
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<tr>
<td>122 Chlamydia: Epidemiology, Physiology, and Immunology (D)</td>
<td>157 Translation (M)</td>
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<tr>
<td>158 Viral Diseases and Diagnoses (E)</td>
<td>41 Exotoxins: Bordetella, Corynebacterium, Pseudomonas (B)</td>
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<tr>
<td>114 Pseudomonas Virulence Factors and Physiology (D)</td>
<td>123 Intracellular Pathogens: Rickettsia, Coxiella, and Ehrlichia (D)</td>
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<td>42 Hemolysin: Urease, Phospholipase, Protease, Lipase (B)</td>
<td>124 Susceptibility to Quinolones (A)</td>
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<td>125 Biochemistry (Q)</td>
<td>159 Viral Detection II (C)</td>
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## Poster Sessions

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<tr>
<th>FRIDAY, 29 May</th>
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<tr>
<td>194. Microbial Detection Methodology (Q)</td>
<td>202. Characterization and Detection of Gram-Positive Bacteria in Foods (P)</td>
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<tr>
<td>195. Biotransformation and Degradation III (Q)</td>
<td>203. Marine Microbial Ecology (N)</td>
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<tr>
<td>196. Microbial Symbiosis and Development (E)</td>
<td>204. Metabolic Operon Organization (U)</td>
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<tr>
<td>197. Outer and Inner Membranes: Structure and Function (K)</td>
<td>205. Miscellaneous Shock Responses (H)</td>
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<tr>
<td>198. Molecular Techniques for Detection and Characterization of Pathogens and Taxons (C)</td>
<td>206. Noncultural Detection of Pathogens and Taxons (C)</td>
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<tr>
<td>200. Diagnosis of Mycobacterial Infections (U)</td>
<td>208. Widening Spectrum of Virulence (D)</td>
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<td>242. Detection of Human Retinoviruses (P)</td>
<td>251. Genetic and Enzymatic Regulation of Metabolic Pathways (K)</td>
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<td>281. Entero toxins (B)</td>
<td>280. Enteric Pathogens (D)</td>
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<tr>
<td>309. Serodiagnosis II (C)</td>
<td>310. Fastidious and Unusual Pathogens (C)</td>
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1992 GENERAL MEETING OFFICIAL APPOINTMENTS

(Unless otherwise specified, all meeting rooms are located in the Sheraton New Orleans or the Waterbury Conference Center within the Sheraton New Orleans)

Tuesday, 26 May

American Board of Medical Microbiology: 8:00 A.M., Flannery O'Connor Room, Waterbury Conference Center
Board of Education and Training: 11:00 A.M., Tennessee Williams Room, Waterbury Conference Center
Board of Governors, American Academy of Microbiology: 1:00 P.M., Walt Whitman Room, Waterbury Conference Center
New Member Orientation: 4:30 P.M., Rhythms
Official Opening Session: 6:00 P.M., Ballroom I, New Orleans Convention Center
Opening Reception: 8:00 P.M., Aquarium of the Americas

Wednesday, 27 May

Publications Board: 8:00 A.M., Walt Whitman Room, Waterbury Conference Center
Public and Scientific Affairs Board: 8:30 A.M., Tennessee Williams Room, Waterbury Conference Center
Branch Officers' Forum: 9:00 A.M., St. Charles (B) Room
Branch Presidents and Secretaries Luncheon: 11:30 A.M., Aurora Room
GMPC and Divisional Officers: 11:30 A.M., Bayside (A) Room
ASM News Editorial Board: 12:00 P.M., Crescent Room
Branch Organization Committee: 3:00 P.M., St. Charles (A) Room
ABMM Diplomates Reception: 6:00 P.M., Bayside Room

Thursday, 28 May

Division Officers' Forum: 7:00 A.M., Aurora Room
IAI Editorial Board: 7:30 A.M., Pontchartrain Ballroom, Section D
AEM Editorial Board: 7:30 A.M., St. Charles (B) Room
General Membership Meeting: 12:00 P.M., Room 5, New Orleans Convention Center
JCM Editors: 12:00 P.M., Esterwood Room
IAI Editors: 12:00 P.M., Bonnie Burn Room
Archives Committee: 1:30 P.M., St. Charles (A) Room
AAM Fellows Reception: 6:00 P.M., Armstrong Ballroom
President's Forum: 8:00 P.M., Grand Ballroom
President's Reception: 9:00 P.M., Pontchartrain Ballroom

Friday, 29 May

JCM Editorial Board: 7:30 A.M., Rhythms
JB Editorial Board: 7:30 A.M., Bayside (B) Room
Membership Committee: 8:00 A.M., Felicity Room
Council Policy Committee: 8:30 A.M., Walt Whitman Room, Waterbury Conference Center
Placement Services Committee: 11:00 A.M., Gallier House Room
AEM Editors: 12:00 P.M., Bonnie Burn Room

Saturday, 30 May

Council Policy Committee: 8:30 A.M., Walt Whitman Room, Waterbury Conference Center

Sunday, 31 May

Council of the Society: 8:30 A.M., Pontchartrain Ballroom