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## 2001 GORDON RESEARCH CONFERENCE

on Applied & Environmental Microbiology

### FINAL PROGRESS REPORT

DOE

DE-FG02-01ER15165

The Gordon Research Conference (GRC) on Applied & Environmental Microbiology was held at Connecticut College, New London, Connecticut, July 22-27, 2001. The conference was well attended with 121 participants (list enclosed). The attendees represented the spectrum of endeavor in this field coming from academia, industry, and government laboratories, both US and foreign scientists, senior researchers, young investigators, and students.

In designing the formal speakers program, emphasis was placed on current unpublished research and discussion of the future target areas in this field. There was a conscious effort to stimulate lively discussion about the key issues in the field today. Time for formal presentations was limited in the interest of group discussions. In order that more scientists could communicate their most recent results, poster presentation time was scheduled. In addition to these formal interactions, "free time" was scheduled to allow informal discussions. Such discussions are fostering new collaborations and joint efforts in the field (program enclosed).

I want to personally thank you for your support of this Conference. As you know, in the interest of promoting the presentation of unpublished and frontier-breaking research, Gordon Research Conferences does not permit publication of meeting proceedings. If you wish any further details, please feel free to contact me. Thank you.

Harold Drake  
Conference Chair

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# ***Applied and Environmental Microbiology***

July 22-27, 2001  
Connecticut College  
New London, CT

Chair: **HAROLD L. DRAKE**, Germany, University of Bayreuth  
Vice-Chair: **JUDY D. WALL**, USA, University of Missouri

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## **Session 1**

## **Environmental & Applied Genomics**

Discussion Leader: **COLIN MURRELL**, United Kingdom, University of Warwick

- **CLAIRE M. FRASER**, USA, Institute for Genomic Research  
Microbial Genome Sequencing: Insights into Physiology and Evolution
- **PAUL RAINEY**, United Kingdom, University of Oxford  
Functional Genomics of Environmentally Significant Bacteria: In Vivo Expression Technology

## **Session 2**

## **Cell-To-Cell Signaling & Multicellular Behavior**

Discussion Leader: **ANN M. STEVENS**, USA, Virginia Tech

- **EVERETT P. GREENBERG**, USA, University of Iowa College of Medicine  
Listening when Bacteria Are Talking: Acyl-Homoserine Lactone Quorum Sensing
- **BETH A. LAZZERA**, USA, University of California at Los Angeles  
Peptide Signaling and the Regulation of Gene Expression in *Bacillus Subtilis*
- **DONALD A. MORRISON**, USA, University of Illinois at Chicago  
Peptide Pheromones Regulate Streptococcal Genetic Transformation
- **BONNIE L. BASSLER**, USA, Princeton University  
The LuxS Language of Inter-Species Communication in Bacteria

## **Session 3**

## **Emerging Technologies & Methods**

Discussion Leader: **GERARD MUYZER**, The Netherlands, Netherlands Institute for Sea Research

- **DAVID A. STAHL**, USA, University of Washington  
DNA Microarrays: A Technological Solution to the Study of Complex Microbial Systems?
- **STEFAN RADAJEWSKI**, United Kingdom, University of Warwick  
Molecular Analysis of In Situ Structure-Function Relationships by Stable Isotope Probing
- **LUTGARDE RASKIN**, USA, University of Illinois at Urbana  
Quantification of rRNA with Molecular Beacons and in Microfluidic Channels

## **Session 4**

## **Novel Metabolisms & Ecosystems**

Discussion Leader: **ELIZAVETA BONCH-OSMOLOVSKAYA**, Russia, Russian Academy of Sciences

- **LARS G. LJUNGDAHL**, USA, University of Georgia  
Anaerobic Ruminal Fungi and Novel Evolutionary Aspects of Their Cellulases
- **ANTJE BOETIUS**, Germany, Max-Planck-Institute for Marine Microbiology  
A Marine Microbial Consortium Mediating The Anaerobic Oxidation Of Methane
- **STEPHEN J. GIOVANNONI**, USA, Oregon State University  
The Uncultured Microbial Majority: Who's on Top in the Oceans
- **ORTWIN MEYER**, Germany, University of Bayreuth  
Microbial oxidation of CO and reduction of N<sub>2</sub>: looking into a crystal ball

## **Session 5**

## **Directed Evolution of Enzymes & Pathways**

Discussion Leader: **BECKY PARALES**, USA, University of Iowa

- **WAYNE COCO**, USA, Enchira Biotechnology Corporation

## Decision Points and Alternatives in DNA Shuffling

- **CLAUDIA SCHMIDT-DANNERT**, USA, University of Minnesota  
Turning Microbial Cells into Chemical Factories by Molecular Breeding
- **MARC OSTERMEIER**, USA, John Hopkins University  
Incremental Truncation Strategies for the Engineering of Protein Function

## Session 6

## Symbiotic &amp; Trophic Relationships

Discussion Leader: **RALF CONRAD**, Germany, Max-Planck-Institute for Terrestrial Microbiology

- **WILLIAM J. BROUGHTON**, Switzerland, University of Geneva  
Molecular Basis of Rhizobial Symbiotic Promiscuity
- **NICOLE DUBILIER**, Germany, Max-Planck-Institute for Marine Microbiology  
An Endosymbiotic Sulfur Cycle in a Marine Oligochaete Worm
- **MARTIN F. POLZ**, USA, Massachusetts Institute of Technology  
Ectosymbiotic Associations in Sulfidic Habitats
- **ABIGAIL SALYERS**, USA, University of Illinois at Urbana  
Symbiosis: The Continuum that Unites Clinical and Environmental Sciences

## Session 7

## Synthesis &amp; Application of Novel Biopolymers

Discussion Leader: **FRANK SKRALY**, USA, Metabolix, Inc.

- **ALEXANDER STEINBÜCHEL**, Germany, University of Münster  
Production and Commercialization of Novel Biopolymers by Microorganisms
- **JOANNE STUBBE**, USA, Massachusetts Institute of Technology  
Plastics and Peppers: Biodegradable Polymers with Properties of Thermoplastics

## Session 8

## Microbes at the Oxidic-Anoxic Interface

Discussion Leader: **KIRSTEN KÜSEL**, Germany, University of Bayreuth

- **JOHN BREZNAK**, USA, Michigan State University  
Nitrogen Fixation by Termite Gut Spirochetes – Between a Rock and a Hard Place?
- **JEROME J. KUKOR**, USA, Rutgers University  
Biodegradation of Toxic Wastes under Suboxic Conditions
- **HERIBERT CYPIONKA**, Germany, University of Oldenburg  
Tempting Poison: Sulfate-Reducing Bacteria in Oxidic-Anoxic Gradients
- **DONALD M. KURTZ**, USA, University of Georgia  
How Anaerobes Use Novel Non-Heme Iron Proteins to Cope with Oxidative Stress

## Session 9

## Special Lecture

Discussion Leader: **HAP PRITCHARD**, Denmark, National Environmental Research Institute

- **NORMAN R. PACE**, USA, Colorado University  
Under the Umbrella of the Big Tree: Microbial Biology into the 21st Century

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# APPLIED & ENVIRONMENTAL MICROBIOLOGY

CONNECTICUT COLLEGE  
(22-Jul-01) - (27-Jul-01)

This was the final registration list for the 2001 Conference on  
APPLIED & ENVIRONMENTAL MICROBIOLOGY.

Name	Organization	Participation	Status
Spiros N AGATHOS	CATHOLIC UNIVERSITY OF LOUVAIN	Poster Presenter	Registered
YOUNG-BEOM AHN	RUTGERS UNIVERSITY	Poster Presenter	Registered
UDI BANIN	TEL-AVIV UNIVERSITY	Poster Presenter	Registered
BONNIE BASSLER	PRINCETON UNIVERSITY	Speaker	Registered
RALPH E BEEMAN	DUPONT - VICTORIA	Poster Presenter	Registered
SHIMSHON BELKIN	HEBREW UNIVERSITY OF JERUSALEM	Poster Presenter	Registered
MICHAEL J BENEDIK	UNIVERSITY OF HOUSTON	Poster Presenter	Registered
STEFAN BERTILSSON	MASSACHUSETTS INSTITUTE OF TECHNOLOGY	Poster Presenter	Registered
GILI BITAN	TEL-AVIV UNIVERSITY	Poster Presenter	Registered
MARCO BLOETHE	UNIVERSITY OF BAYREUTH	Poster Presenter	Registered
ANTJE BOETIUS	ALFRED WEGENER INSTITUTE FOR POLAR AND MARINE RESE	Speaker	Registered
ELIZAVETA BONCH-OSMOLOVSKAYA	RUSSIAN ACADEMY OF SCIENCES	Speaker	Registered
RAMARAJ BOOPATHY	NICOLLS STATE UNIVERSITY	Poster Presenter	Registered
JOAN BRADDOCK	UNIVERSITY OF ALASKA FAIRBANKS	Attendee	Registered
CHRISTIAN O BRÄMER	INSTITUTE OF MICROBIOLOGY, WWU MÜNSTER	Poster Presenter	Registered
MICHAEL BRAMUCCI	DUPONT CENTRAL RESEARCH & DEVELOPMENT	Poster Presenter	Registered
JOHN BREZNAK	MICHIGAN STATE UNIVERSITY	Speaker	Registered
WILLIAM J BROUGHTON	LBMPs	Speaker	Registered
REGULA BUSER	SWISS FEDERAL INSTITUTE OF TECHNOLOGY	Poster Presenter	Registered
WAYNE M COCO	ENCHIRA BIOTECHNOLOGY CORPORATION	Speaker	Registered
RALF CONRAD	MAX-PLANCK INSTITUT FÜR TERRESTRICHE	Speaker	Registered
TIM COOLBEAR	NEW ZEALAND DAIRY RESEARCH INSTITUTE	Attendee	Registered
SIDNEY A CROW	GEORGIA STATE UNIVERSITY	Attendee	Registered
HERIBERT CYPIONKA	UNIVERSITY OLDENBURG	Speaker	Registered
STEVEN L DANIEL	EASTERN ILLINOIS UNIVERSITY	Poster Presenter	Registered
IRENE A DAVIDOVA	THE UNIVERSITY OF OKLAHOMA	Poster Presenter	Registered
DIRK D. DE BEER	MAX-PLANCK-INSTITUTE MARINE MICROBIOLOGY	Attendee	Registered
CELINE DELBES	SWISS FEDERAL INSTITUTE OF TECHNOLOGY (EPFL)	Poster Presenter	Registered
RICHARD DEVEREUX	U.S. ENVIRONMENTAL PROTECTION AGENCY	Poster Presenter	Registered
HAROLD L DRAKE	UNIVERSITY OF BAYREUTH	Chair	Registered
NICOLE DUBILIER	MAX-PLANCK-INSTITUTE FOR MARINE MICROBIOLOGY	Speaker	Registered
KATHLEEN E DUNCAN	THE UNIVERSITY OF OKLAHOMA	Poster Presenter	Registered
ELISABETH D ELDER	GEORGIA SOUTHWESTERN	Poster Presenter	Registered
CAIRN S ELY	UNIVERSITY OF CONNECTICUT	Attendee	Registered
ROBERT D FALLON	E.I. DUPONT	Attendee	Registered
DONNA E FENNELL	RUTGERS UNIVERSITY	Poster Presenter	Registered
CLAIRE M FRASER	INSTITUTE FOR GENOMIC RESEARCH	Speaker	Registered
MICHAEL W FRIEDRICH	MAX-PLANCK-INSTITUTE FOR TERRESTRIAL MICROBIOLOGY	Poster Presenter	Registered
BERNHARD M FUCHS	MAX PLANCK INSTITUTE FOR MARINE MICROBIOLOGY	Poster Presenter	Registered
ELIZABETH P GARCIA	RUTGERS UNIVERSITY	Attendee	Registered
PHILLIP R GIBBS	GEORGIA INSTITUTE OF TECHNOLOGY	Poster Presenter	Registered
LISA M GIEG	UNIVERSITY OF OKLAHOMA	Poster Presenter	Registered
STEPHEN J GIOVANNONI	OREGON STATE UNIVERSITY	Speaker	Registered
ANITA S GOESSNER	UNIVERSITY OF BAYREUTH	Poster Presenter	Registered

EVERETT P GREENBERG	UNIVERSITY OF IOWA	Speaker	Registered
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STEPHANIE HAGEN	GEORGIA STATE UNIVERSITY	Attendee	Registered
MAX M HAGGBLOM	RUTGERS UNIVERSITY	Poster Presenter	Registered
LIDIJA HALDA-ALIJA	UNIVERSITY OF MISSISSIPPI	Poster Presenter	Registered
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MARCUS A HORN	UNIVERSITY OF BAYREUTH	Attendee	Registered
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LISE LARSEN	UNIVERSITY OF MISSOURI - COLUMBIA	Poster Presenter	Registered
BETH A LAZAZZERA	UCLA MICROBIOLOGY, IMMUNOLOGY & MOLECULAR GENETICS	Speaker	Registered
HAIM LEVY	ISRAEL INSTITUTE FOR BIOLOGICAL RESEARCH	Attendee	Registered
LARS G LJUNGDAHL	UNIVERSITY OF GEORGIA	Speaker	Registered
BARBARA J MACGREGOR	MAX PLANCK INSTITUTE FOR MARINE MICROBIOLOGY	Poster Presenter	Registered
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IAN R MCDONALD	UNIVERSITY OF WARWICK	Attendee	Registered
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COLIN MURRELL	UNIVERSITY OF WARWICK	Speaker	Registered
GERARD MUYZER	DELFT UNIVERSITY OF TECHNOLOGY	Poster Presenter	Registered
KANJI NAKAMURA	KURITA WATER INDUSTRIES	Attendee	Registered
JAMES P NAKAS	SUNY-COLLEGE OF ENVIRONMENTAL SCIENCE AND FORESTRY		
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<b>STEFAN M SIEVERT</b>	<b>WOODS HOLE OCEANOGRAPHIC INSTITUTION</b>	<b>Poster Presenter</b>	<b>Registered</b>
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<b>KALINA E WHITE</b>	<b>UNIVERSITY OF CONNECTICUT U-2131</b>	<b>Attendee</b>	<b>Registered</b>
<b>JUERGEN WIEGEL</b>	<b>UNIVERSITY OF GEORGIA</b>	<b>Poster Presenter</b>	<b>Registered</b>
<b>ALICE D WRIGHT</b>	<b>CALIFORNIA STATE UNIVERSITY</b>	<b>Attendee</b>	<b>Registered</b>

