

AD _____

AWARD NUMBER DAMD17-98-1-8363

TITLE: 1998 Gordon Research Conference on Microbial Toxins and Pathogenesis

PRINCIPAL INVESTIGATOR: Erik L. Hewlett, Ph.D.

CONTRACTING ORGANIZATION: Gordon Research Conferences
West Kingston, Rhode Island 02892-0984

REPORT DATE: August 1998

TYPE OF REPORT: Final Proceedings

PREPARED FOR: U.S. Army Medical Research and Materiel Command
Fort Detrick, Maryland 21702-5012

DISTRIBUTION STATEMENT: Approved for public release;
distribution unlimited

The views, opinions and/or findings contained in this report are those of the author(s) and should not be construed as an official Department of the Army position, policy or decision unless so designated by other documentation.

REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503.

1. AGENCY USE ONLY <i>(Leave blank)</i>	2. REPORT DATE August 1998	3. REPORT TYPE AND DATES COVERED Final Proceedings (1 Apr 98 - 17 Jul 98)	
4. TITLE AND SUBTITLE 1998 Gordon Research Conference on Microbial Toxins and Pathogenesis		5. FUNDING NUMBERS DAMD17-98-1-8363	
6. AUTHOR(S) Erik L. Hewlett, Ph.D.			
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Gordon Research Conferences West Kingston, Rhode Island 02892-0984		8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES) U.S. Army Medical Research and Materiel Command Fort Detrick, Maryland 21702-5012		10. SPONSORING / MONITORING AGENCY REPORT NUMBER	
11. SUPPLEMENTARY NOTES			
12a. DISTRIBUTION / AVAILABILITY STATEMENT Approved for public release; distribution unlimited		12b. DISTRIBUTION CODE	
13. ABSTRACT <i>(Maximum 200 words)</i>			
<p style="font-size: 1.2em; margin: 0;">DTIC QUALITY INSPECTED 4</p> <p style="font-size: 2em; margin: 0;">1 9 9 9 0 2 1 9 1 1 9</p>			
14. SUBJECT TERMS Conference		15. NUMBER OF PAGES 8	
		16. PRICE CODE	
17. SECURITY CLASSIFICATION OF REPORT Unclassified	18. SECURITY CLASSIFICATION OF THIS PAGE Unclassified	19. SECURITY CLASSIFICATION OF ABSTRACT Unclassified	20. LIMITATION OF ABSTRACT Unlimited

**1998 GORDON RESEARCH CONFERENCE
on MICROBIAL TOXINS & PATHOGENICITY
FINAL PROGRESS REPORT**

**ARMY MEDICAL RESEARCH & DEVELOP COMMAND
GRANT NO. DAMD17-98-1-8363**

The Gordon Research Conference (GRC) on MICROBIAL TOXINS & PATHOGENICITY was held at PROCTOR ACADEMY from 7/12/98 thru 7/17/98. The Conference was well-attended with 140 participants (attendees list attached). The attendees represented the spectrum of endeavor in this field coming from academia, industry, and government laboratories, both U.S. 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. Attached is a copy of the formal schedule and speaker program and the poster program. 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.

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.

Sincerely,



**ERIK L HEWLETT
UNIVERSITY OF VIRGINIA**

1998 GORDON RESEARCH CONFERENCE ON MICROBIAL TOXINS AND PATHOGENESIS

Proctor Academy, Andover, New Hampshire

July 12 - 17, 1998

PROGRAM OUTLINE

Sunday PM Regulation of gene expression

7:15pm - Introduction/Welcome

7:30pm - Victor DiRita, Ph.D. (University of Michigan, Ann Arbor) Discussion
Leader - Overview of Session

7:40pm - Michele Swanson, Ph.D. (University of Michigan, Ann Arbor)
"Expression of *Legionella pneumophila* virulence traits in response to amino acid
deprivation".

8:15pm - Discussion

8:25pm - Guangyong Ji, Ph.D. (Uniformed Services University for the Health
Sciences, Bethesda) "Regulation of staphylococcal virulence by small peptides".

9:00pm - Discussion

9:10pm - Scott Stibitz, Ph.D. (Center for Biologics Evaluation and
Research/FDA, Bethesda) "Differential transcriptional activation of virulence
genes in *Bordetella pertussis* by the response regulator BvgA".

9:45pm - Discussion

Monday AM Genomics

9:00am - John Mekalanos, Ph.D. (Harvard Medical School, Boston) Discussion
Leader - Overview of Session

9:10am - David Relman, M.D., Ph.D. (Stanford University School of Medicine,
Stanford) "Emerging infections: Identification of new or previously undetected
pathogens".

9:40am - Discussion

9:50am - James Musser, M.D., Ph.D. (Baylor College of Medicine, Houston)
"Lessons learned from analysis of allelic variation in virulence genes of emerged
bacterial pathogens".

10:20am - Discussion

10:30am - Coffee Break

10:45am - Doug Brutlag, Ph.D. (Stanford University School of Medicine, Stanford) "EMOTIF: Using highly specific sequence motifs to identify bacterial genes".

11:15am - Discussion

11:25am - John Mekalanos, Ph.D. (Harvard Medical School, Boston) "Functional genomics: A GAMBIT on the edge of the abbas"

11:55am - Discussion

12:15pm - Photograph

12:30pm - Lunch

Monday PM In vivo apoptosis

7:15pm - Alison O'Brien, Ph.D. (Uniformed Services University of Health Sciences, Bethesda) Discussion Leader - Overview of Session

7:25pm - Arturo Zychlinsky, Ph.D. (New York University School of Medicine, New York) "Apoptosis in dysentery".

8:00pm - Discussion

8:10pm - Denise M. Monack, Ph.D. (Stanford University School of Medicine, Stanford) "Yersinia-induced apoptosis in macrophages: the role in pathogenesis".

8:45pm - Discussion

8:55pm - Lee Ann Sporn, Ph.D. (University of Rochester School of Medicine, Rochester) "NF-kappa B activation and host cell survival during infection with *Rickettsia rickettsii*".

9:30pm - Discussion

Tuesday AM Secretion of toxins/virulence factors

9:00am - Drusilla Burns, Ph.D. (Center for Biologics Evaluation and Research/FDA, Bethesda) Discussion Leader - Overview of Session

9:10am - Peter Christie, Ph.D. (University of Texas Health Sciences Center, Houston) "The agrobacterium T-complex transporter: a paradigm for understanding assembly pathways for toxin secretion systems".

9:40am - Discussion

9:50am - Dara Frank, Ph.D. (Medical College of Wisconsin, Milwaukee) "Role of protein secretion in the action of exoenzymes S from *Pseudomonas aeruginosa*".

10:20am - Discussion

10:30am - Coffee Break

10:45am - Olaf Schneewind, Ph.D. (University of California, Los Angeles) "Secretion and targeting of Yop proteins by the Type III pathway of *Yersinia enterocolitica*".

11:15 - Discussion

11:25am - Camille Locht, Ph.D. (Institut Pasteur, Lille) "Secretion of the *Bordetella pertussis* filamentous hemagglutinin and its use for the presentation of foreign antigens".

11:55am - Discussion

12:30pm - Lunch

Tuesday PM Microbe-host signaling

7:15pm - Guy Cornelis, Ph.D. (Catholic University of Louvain, Brussels)
Discussion Leader - Overview of Session

7:25pm - Vernon Carruthers, Ph.D. (Johns Hopkins University School of Hygiene and Public Health, Baltimore) "'Polarized secretion of *Toxoplasma gondii* adhesins is triggered by a calcium-dependent signaling pathway in the parasite"

8:00pm - Discussion

8:10pm - Gail Hecht, M.D. (University of Illinois, Chicago) "Enteropathogenic *E. coli*-induced signaling pathways: functional consequences in host intestinal epithelial cells".

8:45pm - Discussion

8:55pm - Brett Finlay, Ph.D. (University of British Columbia, Vancouver)
"Enteropathogenic and enterohemorrhagic *E. coli* interactions with host cells".

9:30pm - Discussion

Wednesday AM Recent advances in technology applicable to toxin/pathogenesis research

9:00am - Joseph Barbieri, Ph.D. (Medical College of Wisconsin, Milwaukee)
Discussion Leader - Overview of Session

9:10am - Murray Hackett, Ph.D. (University of Washington, Seattle) "Mass spectrometry and microbial pathogenesis".

9:40am - Discussion

9:50am - Wayne Hubbell, Ph.D. (University of California, Los Angeles) "Site-directed spin labeling studies of membrane protein structure".

10:20am - Discussion

10:30am - Coffee Break

10:45am - Haiyan Fu, Ph.D. (Emory University, Atlanta) "Direct interaction of exoenzyme S of *Pseudomonas aeruginosa* with 14-3-3 proteins determined by surface plasmon resonance".

11:15am - Discussion

11:25am - Harry Mobley, Ph.D. (University of Maryland School of Medicine, Baltimore) "Analysis of the in vivo expression of bacterial virulence factors, utilizing green fluorescent protein reporters".

11:55pm - Discussion

12:30pm - Lunch

Wednesday PM New Toxins/Mechanisms

7:15pm - Jim Kaper, Ph.D. (University of Maryland School of Medicine, Baltimore) Discussion Leader - Overview of Session

7:25pm - William Goldman, Ph.D. (Washington University School of Medicine, St. Louis) "How peptidoglycan became an exotoxin"

8:00pm - Discussion

8:10pm - James P. Nataro, M.D., Ph.D. (University of Maryland School of Medicine, Baltimore) "Autotransporter toxins in EAEC pathogenesis".

8:45pm - Discussion

8:55pm - Pamela Small, Ph.D. (Rocky Mountain Lab, Hamilton) "Structure and biological activity of a polyketide cytotoxin from *Mycobacteria ulcerans*"

9:30pm - Discussion

Thursday AM Structural biology of toxins/virulence factors

9:00am - R. John Collier, Ph.D. (Harvard Medical School, Boston) Discussion Leader - Overview of Session

9:10am - Borden Lacy (University of California, Berkeley) "Structures of the 150 kDa botulinum neurotoxin and the 900 kDa botulinum neurotoxin complex".

9:40am - Discussion

9:50am - Rodney K. Tweten, Ph.D. (University of Oklahoma Health Sciences Center, Oklahoma City) "Chaperone function of the propeptide of *Clostridium septicum* alpha toxin".

10:20am - Discussion

10:30am - Coffee Break

10:45am - FG Van der Goot, Ph.D. (University of Geneva, Geneva) "Structure and function of aerolysin"

11:15am - Discussion

12:30pm - Lunch

Thursday PM Plant pathogens and shared virulence factors

7:15pm - Erik L. Hewlett, M.D. (University of Virginia School of Medicine, Charlottesville) Discussion Leader - Overview of Session

7:20pm - Frederick M. Ausubel, Ph.D. (Harvard Medical School, Boston) "Use of model plant, nematode, and insect hosts to identify *Pseudomonas aeruginosa* virulence factors".

8:00pm - Discussion

8:10pm - Brian Staskawicz, Ph.D. (University of California, Berkeley) "Signalling in bacteria-plant interactions".

8:50pm - Discussion