

GORDON RESEARCH CONFERENCES *frontiers of science*

P.O. Box 984, WEST KINGSTON, RI 02892-0984
PHONE: 401 783-4011 • FAX: 401 783-7644
E-MAIL: grc@grcmail.grc.uri.edu
WORLD WIDE WEB: <http://www.grc.uri.edu>

2001 GORDON RESEARCH CONFERENCE

on Archaea: Ecologoy, Metabolism

FINAL PROGRESS REPORT

DOE
DE-FG02-01ER15160

The Gordon Research Conference (GRC) on Archaea: Ecologoy, Metabolism was held at Proctor Academy, Andover, New Hampshire, August 5-10, 2001. The conference was well attended with 135 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In designing the formal speakers program, emphasis was placed on current unpublished research and discussion of the future target areas in this field.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 As you know, in the interest of promoting the presentation of unpublished and frontier-breaking research, Gordon Research Conferences does not permit publication of meeting proceedings.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.

Charles Daniels
Conference Chair

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Archaea: Ecology, Metabolism and Molecular Biology

Proctor Academy
Andover, NH
August 5-10, 2001

Charles J. Daniels, Chair
Patrick Forterre, Vice-Chair

Support:

- Gordon Research Conferences
- Department of Energy
- National Science Foundation
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Sunday, August 5

EVENING Session I: Ecology and Genetic Elements

Chair: **S. Zinder**

7:30 PM **K. Stetter**
Novel cultivated hyperthermophiles including an archaeal symbiont

8:00 **A. Reysenbach**
An emerging view of archaeal diversity at deep-sea vents: Where is Thermococcus?

8:30 **P. Blum**
Archaeal mercury resistance

9:00 **K. Stedman**
Sulfolobus viral biodiversity

9:30 Chair Summary and Discussion

9:45 PM Reception

Monday, August 6

MORNING Session I: Genomics and Evolution

Chair: **H.P. Klenk**

9:00 AM **W.F. Doolittle**
Archaeal and bacterial thermophiles - the hotbed of gene exchange

9:30 **H. Philippe**
Where are Archaea in the universal tree of life?

10:00 **G. Olsen**
The persistence of an essence: Archaea as defined by their genomes

10:30 Coffee

10:45 **R. Garrett**
Sulfolobus solfataricus: From the genome to cell biology

11:15 **G. Gottschalk**
The genome of Methanosaerica mazaei, the largest assembly of genetic information in an archaeon

11:45	S. DasSarma/S. Kennedy The Halobacterium genome
12:15	Chair Summary and Discussion
4:30-6:00 PM	Poster Session I: Ecology, Genomes and Gene Regulation
EVENING	Session II: Replication and Recombination
	Chair: R. Bernander
7:30 PM	H. Myllykallio DNA precursor synthesis and replication initiation in hyperthermophilic Archaea
8:00	Z. Kelman Autophosphorylation of the archaeal Cdc6 homologues is regulated by DNA
8:30	M.F. White Archaeal DNA recombination and repair proteins
9:00	Y. Ishino Molecular analyses of proteins involved in the archaeal DNA replication: construction of an in vitro DNA replication system
9:30	Chair Summary and Discussion

Tuesday, August 7

MORNING	Session I: Chromatin and Transcription
	Chair: E. Conway de Macario
9:00 AM	K. Sandman Archaeal DNA packaging by archaeal nucleosomes
9:30	D. Musgrave The dynamic archaeal nucleoid: novel responses to environmental stress
10:00	S. Bell Mechanisms of transcription
10:30	Coffee
10:45	C. Hebbeln Mechanism and regulation of Pyrococcus transcription
11:15	J. van der Oost Towards understanding the Lrp/AsnC family of transcription regulators in Bacteria and Archaea
11:45	F. Pfleifer Regulation of transcription in halophilic Archaea
12:15	Chair Summary and Discussion

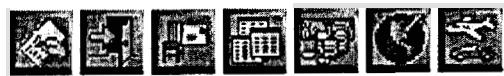
4:30-6:00 PM. **Poster Session I cont. Ecology, Genomes and Gene Regulation**

EVENING	Session II: Gene Regulation
	Chair: A. Klein
7:30 PM	M. Adams Genome-Based Analyses of Pyrococcus furiosus: Insights into hydrogen and sulfur metabolism
8:00	J. Soppa Regulation of expression of energy transducing pathways in haloarchaea.
8:30	R. Shand Halocin genes provide a genetic approach for understanding stationary phase gene regulation in the haloarchaea.
9:00	B. Siebers Regulation of carbohydrate metabolism in the hyperthermophilic Crenarchaeon, <i>Thermoproteus tenax</i>
9:30	Chair Summary and Discussion

Wednesday, August 8

MORNING	Session I: Post-Transcription Processing
	Chair: P. Dennis
9:00 AM	D. Söll

	Genomics and the renaissance of aminoacyl-tRNA synthesis
9:30	J. Krzycki Reading stop codons in methyltransferase genes
10:00	A. Ohmer Archaeal RNP complexes containing methylation guide RNAs
10:30	Coffee
10:45	B. Clouet d' Orval Archaeal C/D box small RNAs guiding tRNA ribose methylation
11:15	W. Baumeister The protease complement of <i>Thermoplasma acidophilum</i>
11:45	J. Maupin-Furlow Archaeal proteasomes and proteasome-activating nucleotidases
12:15	Chair Summary and Discussion
4:30-6:00 PM	Poster Session II: Biochemistry and Metabolism
EVENING	Session II: Proteomics and Protein Structure
	Chair: W. Whitman
7:30 PM	E. Koonin Evolutionary implications of genome-wide comparisons of archaeal proteins
8:00	A. Edwards Structural proteomics of an archaeon
8:30	M. Danson Thermoactivity and thermostability of archaeal enzymes: what's the connection?
9:00	R.K. Thauer Structure and function of a metal free hydrogenase in methanogenic Archaea
9:30	Chair Summary and Discussion
Thursday, August 9	
MORNING	Session I: Metabolism and Physiology
	Chair: R. Thauer
9:00 AM	D. Oesterheldt From genomics to physiology: Halophilic Archaea
9:30	J. Spudich The expanding family of rhodopsins in Archaeal, Bacterial, and Eukaryotic microbes
10:00	F.R. Tabita Rubisco in Archaea
10:30	Coffee
10:45	W. Metcalf Genetic analysis of methanogenesis in <i>Methanoscincus acetivorans</i>
11:15	G. Juez The DnaK chaperone system in halophilic Archaea: Insights on its biological role and protein based phylogeny
11:45	M. Mevarch Cell-density dependent gene regulation in the halophilic archaeon <i>Haloferax volcanii</i>
12:15	Chair Summary and discussion
4:00 PM	Business Meeting
4:30-6:00 PM	Poster Session II cont. Biochemistry and Metabolism
EVENING	Session II Featured Speaker
8:00 PM	Wolfram Zillig Archaeal viruses, witnesses of prebiotic evolution?



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ARCHAEA: ECOLOGY, METABOLISM & MOLECULAR BIOLOGY

PROCTOR ACADEMY
(05-Aug-01) - (10-Aug-01)

This was the final registration list for the 2001 Conference on
ARCHAEA: ECOLOGY, METABOLISM & MOLECULAR BIOLOGY.

Name	Organization	Participation	Status
MICHAEL W ADAMS	UNIVERSITY OF GEORGIA	Speaker	Registered
SONJA-VERENA ALBERS	UNIVERSITY OF GRONINGEN	Poster Presenter	Registered
THORSTEN ALLERS	UNIVERSITY OF NOTTINGHAM	Poster Presenter	Registered
SONIA L BARDY	QUEEN'S UNIVERSITY	Poster Presenter	Registered
WOLFGANG P BAUMEISTER	MAX-PLANCK-INSTITUT FUER BIOCHEMIE	Speaker	Registered
STEPHEN D BELL	CAMBRIDGE UNIVERSITY	Speaker	Registered
ROLF BERNANDER	UPPSALA UNIVERSITY	Discussion Leader	Registered
BRIAN R BERQUIST	UNIVERSITY OF MASSACHUSETTS AMHERST	Poster Presenter	Registered
WANLI BI	APPLIED BIOSYSTEMS	Attendee	Registered
KELLY A BIDLE	RIDER UNIVERSITY	Poster Presenter	Registered
GILI BITAN	TEL-AVIV UNIVERSITY	Attendee	Registered
PAUL BLUM	UNIVERSITY OF NEBRASKA	Speaker	Registered
YAN BOUCHER	DALHOUSIE UNIVERSITY	Poster Presenter	Registered
FRANCOIS L BOUDSOCQ	NIH	Poster Presenter	Registered
ARJEN BRINKMAN	WAGENINGEN AGRICULTURAL UNIVERSITY	Poster Presenter	Registered
CYRIL BUHLER	UNIVERSITÉ PARIS SUD ORSAY	Poster Presenter	Registered
RAFFAELE CANNIO	IBPE	Poster Presenter	Registered
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BEATRICE CLOUET	LBME, CNRS	Speaker	Registered
D'ORVAL			
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ISABELL DAHLKE	UNIVERSITY OF KIEL	Poster Presenter	Registered
CHARLES J DANIELS	OHIO STATE UNIVERSITY	Chair	Registered
MICHAEL J DANSON	UNIVERSITY OF BATH	Speaker	Registered
SHILADITYA DAS SARMA	CENTER OF MARINE BIOTECHNOLOGY	Speaker	Registered
SIMON DE VRIES	TECHNICAL UNIVERSITY DELFT	Poster Presenter	Registered
PATRICK P DENNIS	NSF	Attendee	Registered
JOCELYNE DIRUGGIERO	UNIVERSITY OF MARYLAND	Poster Presenter	Registered
APARNA DONTI	OHIO STATE UNIV	Attendee	Registered
W. FORD DOOLITTLE	DALHOUSIE UNIVERSITY	Speaker	Registered
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ALED EDWARDS	UNIVERSITY OF TORONTO	Speaker	Registered
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CLAIRE LETZELTER	IGM- UNIVERISTE PARIS XI	Poster Presenter	Registered
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MARK YOUNG	THERMAL BIOLOGY INSTITUTE MONTANA STATE UNIVERSITY	Attendee	Registered
WOLFRAM ZILLIG	MAX PLANCK INSTITUT FUR BIOCHEMIE	Speaker	Registered
STEPHEN H ZINDER	CORNELL UNIVERSITY	Discussion Leader	Registered

