



RESEARCH CONFERENCES

ESF-EMBO Symposium

Molecular Bioenergetics of Cyanobacteria: Towards Systems Biology Level of Understanding

Hotel Eden Roc, Sant Feliu de Guixols (Costa Brava) • Spain
29 March - 3 April 2008

Chair: **Eva Mari Aro**, University of Turku, FI
Co-Chairs: **Cheng-Cai Zhang**, CNRS, FR & **Elke Dittmann**,
Humboldt-Universität, DE

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Molecular Bioenergetics of Cyanobacteria

Towards systems biology level of understanding

San Feliu de Guixols, Spain, 29.03. - 3.04.2008

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Final Programme

Saturday, March 29

Late afternoon / early evening	Registration at the ESF desk
19.00	Welcome Drink
20.00	Dinner

Sunday, March 30

08.45-09.00	Conference Opening
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Session 1: Functional Genomics and Systems Approaches

Chair: Franck Chauvat, CEA, FR

09.00-09.35	Wolfgang Hess University of Freiburg, DE <i>Analyses of regulatory RNA in cyanobacteria for a systems biology level of understanding</i>
09.35-10.10	Annegret Wilde Humboldt University, DE <i>The function of non-coding RNAs in Synechocystis sp. PCC 6803</i>
10.10-10.45	Himadri Pakrasi Washington University, US <i>Systems approach to understanding molecular mechanisms of photosynthetic systems</i>
10.45-11.05	Corinne Chauvat-Cassier CEA, FR <i>A systems approach to unravel redox interplay in Synechocystis (short talk)</i>
11.05-11.20	Discussion
11.20-11.50	Coffee break
11.50-12.25	Maria Fillat University of Zaragoza, ES <i>Fur (ferric uptake regulator) proteins in cyanobacteria: new roles for a master regulator</i>
12.25-12.45	Ferran Garcia-Pichel Arizona State University, US <i>Systems biology of the cyanobacterial sunscreen scytonemin, from ecology to molecular genetics to applications (short talk)</i>
12.45-13.20	Kaarina Sivonen University of Helsinki, FI <i>Genome of Anabaena 90</i>

13.20-13.30 Discussion
13.30-15.00 Lunch

Session 2: Structure and Function of Photosynthetic Protein Complexes

Chair: Anne Magnusson, Uppsala University, SE and Carlos Gómez-Lojero, Centro de Investigación y Estudios Avanzados, MX

15.00-15.35 **Jan Kern**
Technische Universität Berlin
Lipids, Quinones and Channels - current state of the structural model of cyanobacterial Photosystem II

15.35-16.10 **Egbert Boekema**
University of Groningen, NL
Photosynthetic membrane supercomplexes studied by electron microscopy

16.10-16.45 **William Cramer**
Purdue University, US
A limited bioinformatics analysis results in an improved cyanobacterial source for structure-function studies of the cytochrome b6/f complex

16.45-17.00 Discussion
17.00-17.30 Coffee break
17.30-18.05 **Cheryl Kerfeld**
University of California, US
Progress in elucidating the structural basis of carboxysome function

18.05-18.40 **David Knaff**
Texas Tech University, US
NMR studies of protein/protein interaction in the ferredoxin/thioredoxin systems of Synechocystis

18.40-19.00 **Alison Telfer**
Imperial College London, US
Role of chl a in electron transfer reactions of chl d dominated cyanobacterium, Acaryochloris (short talk)

19.00-19.30 Discussion
19.30-20.30 Dinner
20.30-22.00 Poster Session I

Monday, March 31

Session 3: Stress Responses – Global Approaches

Chair: Poul Erik Jensen, University of Copenhagen, DK and Nicolas Blot, CNRS, FR

08.30-09.05 **Karl Forchhammer**
Giessen University, DE
Towards global understanding of the nitrogen starvation response of Synechococcus elongatus

09.05-09.40

Xudong Xu

Chinese Academy of Sciences, CN

Acquired chill-light tolerance of a cyanobacterium

09.40-10.15

Hans Matthijs

University of Amsterdam, NL

The dynamics of bioenergetic processes in the cyanobacterium Synechocystis PCC 6803: conclusions from transcriptomes of intercepts between nitrogen or light limited cultures in chemostats

10.15-10.30

Discussion

10.30-11.00

Coffee break

11.00-11.35

Natalia Battchikova

University of Turku, FI

Low CO₂ proteome of Synechocystis 6803

11.35-12.10

Rakefet Schwarz

Bar Ilan University, IL

Modulation of cell fate during starvation: mechanisms underlying cell death and survival in the cyanobacterium Synechococcus PCC 7942

12.10-12.30

Wolfgang Lockau

Humboldt University, DE

NblA, the key protein of phycobilisome degradation, interacts with the Hsp100 chaperone partner of a Clp protease (short talk)

12.30-12.50

Klaus-Peter Michel

University of Bielefeld, DE

Transcript profiling reveals new insights into the acclimation of the mesophilic fresh-water cyanobacterium Synechococcus elongatus PCC 7942 and two Synechococcus mutant strains to iron starvation (short talk)

12.50-13.10

Discussion

13.10-15.00

Lunch

Session 4: Assembly, Function and Degradation of Photosynthetic Protein Complexes

Chair: Guenter A. Peschek, University of Vienna, AT and Dirk Schneider, Albert-Ludwigs University Freiburg, DE

15.00-15.35

Wim Vermaas

Arizona State University, US

Regulation of Photosystem II assembly: protein and pigments

15.35-16.10

Joseph Komenda

Academy of Sciences, CZ

The role of small subunits in the biogenesis of cyanobacterial Photosystem II

16.10-16.45

Peter Nixon

Imperial College London, UK

Structure and function of FtsH complexes in cyanobacteria

16.45-17.00

Discussion

17.00-17.30

Coffee break

17.30-18.05	Iwona Adamska University of Konstanz, DE <i>The family of Deg proteases in cyanobacteria</i>
18.05-18.25	Laurent Cournac CEA, FR <i>Photosynthetic and respiratory gas exchange characteristics of Synechocystis PCC 6803 ndhD(1-4) mutants</i> (short talk)
18.25-18.45	Irina Elanskaya Moscow Lomonosov State University, RU <i>Reduction of plastoquinone pool by recombinant DrgA protein in isolated thylakoid membranes of the cyanobacterium Synechocystis sp. PCC 6803</i> (short talk)
18.45-19.10	Discussion
19.10-20.30	Dinner
20.30-22.00	Poster Session II

Tuesday, April 1

Session 5: Hydrogen Metabolism and Biofuels

Chair: Philip Weyman, University of Missouri, US and Bernát Gábor, Ruhr Universität, DE

08.30-09.10	Charles Dismukes Princeton University, US <i>Nature's renewable energy blueprint: stressing cyanobacteria to produce more hydrogen</i>
09.10-09.50	Matthias Rögner Bochum University, DE <i>Basics of Photosystem II function and applications for biohydrogen production</i>
09.50-10.30	Peter Lindblad Uppsala University, SE <i>Transcriptional regulation of the cyanobacterial bidirectional hydrogenase</i>
10.30-10.50	Hajime Masukawa Kanagawa University, JP <i>Improvement of photobiological hydrogen production by N₂-fixing cyanobacteria by disruption of hydrogenase and homocitrate synthase genes</i> (short talk)
10.50-11.05	Discussion
11.05-11.35	Coffee break
11.35-11.55	Hermann Bothe University of Cologne, DE <i>Nitrogenase – hydrogenase relationship in cyanobacteria</i> (short talk)
11.55-12.15	Ladislav Nedbal

Institute of Systems Biology and Ecology CAS, CZ
A photobioreactor for precision cultivation of cyanobacteria and for high-content analysis of suspension dynamics
(short talk)

12.15-12.35

Karin Stensjö

Uppsala University, SE
Proteome dynamics in Nostoc sp. PCC 7120 and Nostoc punctiforme ATCC 29133
(short talk)

12.35-12.55

Pramod Wangikar

Indian Institute of Technology, IN
Principles of Metabolic Engineering
(short talk)

12.55-13.10

Discussion

13.10-15.00

Lunch

15.00-19.00

Round table discussions

19.00

Dinner

20.00-21.00

Forward Look Plenary Discussion

Wednesday, April 2

Session 6: Light Stress, Photodamage and Photoprotection

Chair: **Min Chen**, University of Sydney, AU and **Kay Marin**, University of Cologne, DE

09.00-09.35

Imre Vass

Biological Research Center, HU
The role of non-radiative charge recombination processes in the photodamage and photoprotection of PSII

09.35-10.10

Diana Kirilovsky

CNRS, FR
The orange carotenoid protein, a new photoactive protein involved in photoprotection in cyanobacteria

10.10-10.30

Itzhak Ohad

Hebrew University of Jerusalem, IL
Strategy of the Microcoleus sp. cyanobacteria resistance to light stress
(short talk)

10.30-10.45

Discussion

10.45-11.15

Coffee break

11.15-11.35

Qingfang He

University of Arkansas, US
Survival of cyanobacteria under high light conditions: searching for novel molecular mechanisms
(short talk)

11.35-11.55

Christiane Funk

Umeå University, SE
LilA (Slr1544) – a new, but different, member of the CAB family

	<i>(short talk)</i>
11.55-12.15	Christophe Boutte CNRS, FR <i>Transcriptomic analysis of Synechococcus WH7803 in response to high light and UV radiations using micrarray</i> <i>(short talk)</i>
12.15-12.35	Nir Keren Hebrew University, IL <i>Metal homeostasis in photosynthetic organisms: lessons from the cyanobacterial iron transport pathway</i> <i>(short talk)</i>
12.35-13.00	Discussion
13.00-14.40	Lunch

Session 7: Cell Metabolism, Transport and Differentiation

Chair: Alicia María Muro Pastor, Centro de Investigaciones Científicas Isla de la Cartuja, ES and **Asunción Contreras**, University of Alicante, ES

14.40-15.15	Hideo Iwasaki Waseda University, JP <i>Systems analyses on cyanobacterial spatio-temporal pattern formations and responses to light-dark cycles</i>
15.15-15.55	Martin Hagemann Rostock University, DE <i>Pathways and function of cyanobacterial phosphoglycolate metabolism</i>
15.55-16.30	Aaron Kaplan Hebrew University, IL <i>CO₂-dependent negotiations between photoautotrophic and photomixotrophic metabolisms in Synechocystis PCC 6803</i>
16.30-16.50	Enrico Schleiff JWG University Frankfurt, DE <i>Beta-barrel proteins of Anabaena sp. PCC 7120, the beauty of outer membranes</i> <i>(short talk)</i>
16.50-17.05	Discussion
17.05-17.35	Coffee break
17.35-17.55	Dirk Schneider Albert-Ludwigs-University Freiburg, DE <i>Features and functions of cyanobacterial DnaK protein family</i> <i>(short talk)</i>
17.55-18.30	Enrique Flores University of Seville, ES <i>Cell differentiation and multicellularity in cyanobacteria</i>
18.30-19.05	Conrad Mullineaux Queen Mary University of London, UK <i>Intercellular molecular exchange in filamentous cyanobacteria</i>
19.05-19.25	Jan-Christoph Kehr Humboldt University, DE

Two extracellular proteins are implicated in cell-cell contacts in the toxic cyanobacterium, Microcystis aeruginosa
(short talk)

19.25-19.50

Discussion

19.50-20.00

Closing words

20.00

Get-together and conference dinner

Thursday, April 3

Breakfast & Departure

Abstracts, Posters & Short Oral Presentations

There will be no short talks other than those listed on the programme.

All other abstracts are accepted as posters. The list of accepted posters is available from www.esf.org/conferences/08253.

Posters can be fixed with self-adhesive tape, blu-tack or drawing pins onto double-sided poster panels. Recommended poster size is 130 cm high x 130 cm wide. Use letters and drawings that can be read from approximately 100 cm distance.