



ESF Research Conferences

A Programme of the European Science Foundation

Molecular Bioenergetics of Cyanobacteria EuroConference on Genomics, Proteomics and Structure for Functional Understanding

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Sant Feliu de Guixols, Spain, 21-26 May 2005

Chair: **Hans C.P. Matthijs** (NL, University of Amsterdam, NL)
Vice-Chair: **Eva-Mari Aro** (FI, University of Turku, FI)

With support from Generalitat de Catalunya



Final Programme

On line at: <http://www.esf.org/conferences/lc05129>

Saturday 21 May

Late afternoon / early evening	Registration at the hotel reception and ESF desk
19.30	Supper
21.00	Get-together-drinks

Sunday 22 May

08.30 **Conference Opening by Hans C.P. Matthijs**

Genomics

Session Chairs: Himadri B. Pakrasi (US, Washington University, St. Louis, US) and
Martin Hagemann (D, University of Rostock, D)

08.40 **Robert L. Burnap** (US, Oklahoma State University, US)
*Deciphering photosynthetic regulatory networks using DNA
microarrays in conjunction with perturbation analysis*

09.15 Discussion

- 09.20 **Yukako Hihara** (J, Saitama University, J)
Characterization of transcriptional regulators involved in acclimation responses in Synechocystis sp. PCC 6803
- 09.55 Discussion
- 10.00 **Kay Marin** (D, University of Cologne, D)
Genome expression profiling during salt stress response in Synechocystis sp. PCC 6803
- 10.35 Discussion
- 10.40 Coffee break

Proteomics

Session Chairs: Birgitta Norling (S, Stockholm University, S) and Robert L. Burnap (US, Oklahoma State University, US)

- 11.10 **Martin Hagemann** (D, University of Rostock, D)
Proteomics in salt-stressed cells of Synechocystis sp. PCC 6803: analysis of the soluble protein fraction and comparison with DNA microarray data
- 11.45 Discussion
- 11.50 **Himadri B. Pakrasi** (US, Washington University, St. Louis, US)
TBA
- 12.25 Discussion
- 12.30 **Nataliya Battchikova** (RU, University of Turku, FIN)
Cyanobacterial NDH-1 complexes and their subunit composition
- 13.05 Discussion
- 13.10 Lunch
- 16.30 Coffee break

Session Chairs: Wim F.J. Vermaas (NL, Arizona State University, US) and Eva-Mari Aro (FIN, University of Turku, FIN)

- 17.00* **Taina Tyystjärvi** (FIN, University of Turku, FIN)
The role of group two sigma factors in Synechocystis sp. PCC 6803
- 17.25* **Anna Marika Lindahl** (S, Spanish Research Council, CSIC, Sevilla, E)
Cyanobacterial metabolism of carbon, sulphur and nitrogen may be subject to light-dependent control by means of thioredoxins
- 17.50 **Julian P. Whitelegge** (US, UCLA, US)
Measurement of Proteome Flux for Bioenergetics Systems Biology in Cyanobacteria
- 18.25 Discussion
- 18.30 **Satoshi Tabata** (J, Kazusa DNA Research Institute, Chiba, J)
Large scale analysis of protein-protein interactions in Synechocystis sp. PCC 6803 using a YTH system
- 19.05 Discussion

- 19.30 Dinner
21.00 Poster session 1: even numbers present

Monday 23 May

Structure

Session Chairs: Petra Fromme (D, Arizona State University, US) and
Günter A. Peschek (A, University of Vienna, A)

- 08.30 **Egbert J. Boekema** (NL, University of Groningen, NL)
Supercomplexes of photosystem I and antenna proteins in cyanobacteria and green plants by electron microscopy
- 09.05 Discussion
- 09.10 **William A. Cramer** (US, Purdue University, US)
Structure of the cytochrome b6f complex: properties of the new prosthetic groups and Qp space
- 09.45 Discussion
- 09.50 **Cheryl Kerfeld** (US, UCLA, US)
Structural studies on carboxysomes and their components
- 10.25 Discussion
- 10.30 Coffee break

Functional Structure

Session Chairs: Cheryl Kerfeld (US, UCLA, US) and
Hans C.P. Matthijs (NL, University of Amsterdam, NL)

- 11.00 **Conrad W. Mullineaux** (UK, University College London, UK)
Mobility of Photosystem II: switching the thylakoid membrane from a static state to a dynamic one
- 11.35 Discussion
- 11.40 **Birgitta Norling** (S, Stockholm University, S)
Protein sorting in cyanobacteria: what is the address code?
- 12.15 Discussion
- 12.20 **Günter A. Peschek** (A, University of Vienna, A)
Redox capabilities of isolated and purified cyanobacterial membranes: a comprehensive comparison with chloroplasts and mitochondria, and its evolutionary implications
- 12.55 Discussion
- 13.00 Lunch
- 16.30 Coffee break

Session Chairs: William A. Cramer (US, Purdue University, US) and Egbert J. Boekema (NL, University of Groningen, NL)

- 17.00* **Anthony William Larkum** (AU, University of Sidney, AU)
The ecological niche of Acaryochloris and an explanation for the occurrence of chlorophyll d in nature
- 17.25* **Jan P. Dekker** (NL, Vrije Universiteit, Amsterdam, NL)
Photoprotective function of IsiA in Synechocystis PCC 6803
- 17.50* **Jörg R. Nickelsen** (D, Ruhr-Universität Bochum, D)
TPR-proteins involved in the biogenesis of the cyanobacterial thylakoid membrane
- 18.15* **Hitoshi Nakamoto** (J, Saitama University, J)
Interaction between molecular chaperones and photosynthetic machineries in cyanobacteria
- 18.40 **Petra Fromme** (D, Arizona State University, Tempe, US)
Structure and function of photosystem I_m and II
- 19.15 Discussion
- 19.30 Dinner
- 21.00 Poster Session 2: odd numbers present

Tuesday 24 May

Structuring Ecosystems

Session Chairs: Karl Forchhammer (D, Justus-Liebig-Universität Giessen, D) and Cheng-Cai Zhang (CN, University of Aix-Marseille II, F)

- 08.30 **George S. Bullerjahn** (US, Bowling Green State University, US)
Development and use of cyanobacterial reporters to assess nutrient bioavailability in aquatic ecosystems
- 09.05 Discussion
- 09.10 **Elke Dittmann** (D, Humboldt-University, Berlin, D)
Genomic insights into the role of microcystin for M. aeruginosa PCC7806
- 09.45 Discussion
- 09.50 **Frédéric Partensky** (F, Station Biologique de Roscoff, F)
Niche adaptation in marine picocyanobacteria
- 10.25 Discussion
- 10.30 Coffee break

Session Chairs: Elke Dittmann (D, Humboldt-University, Berlin, D) and Frédéric Partensky (F, Station Biologique de Roscoff, F)

- 11.00* **Claudia Steglich** (D, Albert Ludwig University Freiburg, D)
Light mediated regulation of gene expression in Prochlorococcus sp. MED4 identified by genome-wide DNA microarray analysis

- 11.25* **Jose Manuel Garcia-Fernandez** (E, Cordoba University, E)
Adaptive mechanisms of the nitrogen and carbon metabolism in Prochlorococcus
- 11.50* **Martha R.J. Clokie** (UK, University of Warwick, Coventry, UK)
Photosynthesis genes in marine cyanophages: acquisition and physiological significance
- 12.15* **Peter Dunton** (UK, University of Bristol, UK)
The Interaction of GvpC with GvpA and its effect on gas vesicle diameter
- 13.00 Lunch
Free afternoon / excursion to Dali Museum
- 19.30 Dinner
- 21.00 **Round Table and Poster Discussion 1**

Wednesday 25 May

Redox balance, Stress and Functional Adaptation

Session Chairs: Conrad W. Mullineaux (UK, University College London, UK) and Yukako Hihara (J, Saitama University, J)

- 08.30 **Peter J. Nixon** (UK, Imperial College London, UK)
Advances in understanding the structure of NDH-1 complexes isolated from the cyanobacterium Synechocystis 6803
- 09.05 Discussion
- 09.10 **Kintake Sonoike** (J, University of Tokyo, J)
High-light acclimation of Synechocystis sp. PCC 6803
- 09.45 Discussion
- 09.50 **Wim F.J. Vermaas** (NL, Arizona State University, US)
Pigment stability and distribution in Synechocystis sp. PCC 6803
- 10.25 Discussion
- 10.30 Coffee break

Session Chairs: George S. Bullerjahn (US, Bowling Green State University, US) and Jingdong Zhao (CN, Peking University, Beijing, CN)

- 11.00 **Rakefet Schwarz** (IL, Bar Ilan University, Ramat Gan, IL)
Nutrient status and cell morphology: Lessons from Synechococcus elongatus in stationary phase
- 11.35 Discussion
- 11.40 **Karl Forchhammer** (D, Justus-Liebig-Universität Giessen, D)
Global nitrogen control in cyanobacteria: the role of the central signal processor PII
- 12.15 Discussion

- 12.20 **John F. Allen** (UK, Lund University, S)
A redox switch hypothesis for the first cyanobacterium: the origin of two light reactions in photosynthesis
- 12.55 Discussion
- 13.00 Lunch
- 16.30 Coffee break
- 17.00* **Diana Kirilovsky** (F, CEA Saclay, Gif-sur-Yvette, F)
The water-soluble orange carotenoid protein (OCP) involved in photoprotective mechanisms in Synechocystis PCC 6803
- 17.25* **Gaozhong Shen** (US, Pennsylvania State University, US)
Mechanism and regulation of Fe-S cluster assembly in cyanobacteria
- 17.50 **Pedro Candau** (E, University of Sevilla, E)
The oxidative and reductive branches of the Krebs cycle in the cyanobacterium Synechocystis sp. PCC 6803
- 18.15 **Round Table and Poster Discussion 2**
- 20.00 Conference Dinner

Thursday 26 May

N-Metabolism and Control of Heterocyst Differentiation

Session Chairs: John F. Allen (UK, Lund University, S) and Rakefet Schwarz (IL, Bar Ilan University, Ramat Gan, IL)

- 08.30 **Cheng-Cai Zhang** (CN, University of Aix-Marseille II, F)
Control of developmental fate during heterocyst differentiation
- 09.05 Discussion
- 09.10 **Jingdong Zhao** (CN, Peking University, Beijing, CN) *CANCELLED*
The roles of calcium in regulation of heterocyst differentiation in Anabaena sp. PCC
- 09.45 Discussion
- 09.50 **Klaus-Peter Michel** (D, Bielefeld University, D)
Comparative investigation of Synechocystis sp. PCC 6803 wild type and a PsbO-free mutant when grown on L-arginine as sole nitrogen source
- 10.15 **Imre Vass** (HU, Hungarian Academy of Sciences, Szeged, HU)
Damage and repair of PSII under light stress
- 10.55 Coffee break

Special discussion about the future of this conference series

- 11.15 **Eva-Mari Aro** (FIN, University of Turku, FIN)
Nomination of next conference Vice-Chair
- 13.00 Lunch and departure

**Short talks selected from abstracts (discussion included).*