Chlamy08

EMBO Workshop on the Cell and Molecular Biology of Chlamydomonas

13th International Chlamydomonas Conference

EMBO Workshop on the Cell and Molecular Biology of Chlamydomonas

May 27- June 1, 2008

Hyères-les-Palmiers, Var, France


Région
Provence-Alpes-Côte d'Azur


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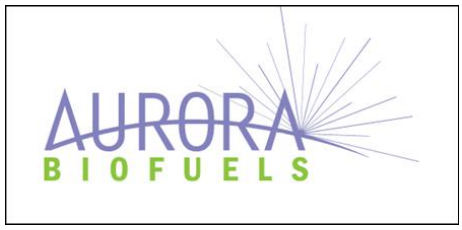
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	Tuesday May 27	**Wednesday May 28**	**Thursday May 29**	**Friday May 30**	**Saturday May 31**	**Sunday June 1**
08:30-10:30		Chlamydomonas and Human Genetic Disorders	Circadian Rhythms	Nutrients, Growth and Cell Cycle	Hydrogen and Biofuels	Photosynthesis
		Basal bodies	Flagella			
11:00-13:00		Development		Omics: Genome-enabled Research	Acclimation	Gene Expression
13:00		*Lunch*	*Lunch*	*Lunch*	*Lunch*	
15:00-17:00		Organelles	Light Perception	*Free afternoon*	*Workshop:* Genomes	
17:00-19:00	*Registration Welcome drink*	Posters I	Posters I	Posters II	Posters II	
19:00	*Dinner*	*Dinner*	*Dinner*	*Banquet*	*Dinner*	
20:30-22:00	*Keynote:* S. Merchant	*Special Lectures:* D. Baulcombe M. Bornens	*Workshop:* Molecular toolbox	*Historical perspective:* P. Levine *Biotech presentations*	*Poster Awards. Special Lecture:* J.-D. Rochaix	

Program

(speakers are shown in bold and underlined.)

Tuesday May 27

Welcome **20:30-20:40**

Keynote lecture

Supported by the Centre National de la Recherche Scientifique (France).

20:40-21:30 **Sabeeha Merchant**

Between a rock and a hard place : concepts in trace element nutrition

Wednesday May 28

Session 1 8:30-9:30 Wednesday May 28

Chlamydomonas and human genetic disorders

Chair : Lynne M. Quarmby

8:30-8:50 **Lynne M. Quarmby**

Chlamydomonas Deflagellation and Polycystic Kidneys

8:50-9:10 K. Lechtreck, P. Delmotte, M. L. Robinson, M. J. Sanderson, and **George B. Witman**

Chlamydomonas as a model for hydrocephalus

9:10-9:30 **Claire Remacle**, Nadine Coosemans, Véronique Larosa, Pierre Cardol, Nathalie Bonnefoy

Chlamydomonas reinhardtii: a promising system to reconstruct human pathogenic mutations in mitochondrial complex I genes

Session 2 9:30-10:30 Wednesday May 28

Basal bodies

Chair : Masafumi Hirono

9:30-9:50 **Masafumi Hirono**, Yuki Nakazawa, Madoka Hiraki, and Ritsu Kamiya

Mechanism for establishing the 9-fold symmetry of the centriole structure - A role of the cartwheel

9:50-10:05 **Brian P. Piasecki** and Carolyn D. Silflow

The *uni2* mutant of *Chlamydomonas reinhardtii* provides insights into the pathway of axonemal assembly

10:05-10:20 **Kerstin Brachhold** and Michael Melkonian

Identification and localization of novel basal body proteins

10:20-10:30 **General discussion**

Session 3 11:00-13:00 Wednesday May 28

Development

Chair: Stephen Miller

11:00-11:10 **Stephen Miller**

Introduction

11:10-11:30 **Ichiro Nishii**, Koichi Ishida, Jun Kadota, Hiroko Toyooka, Noriko Ueki

invD and *invE* genes control the change in cell shape that is required for inversion of *Volvox* embryos

11:30-11:45 **Alexandra Harryman,** Ichiro Nishii, and Stephen M. Miller

Expression Analysis of the *regA* Group *VARL* Genes: Implications for *VARL* Function in Cellular Differentiation

11:45-12:00
Patrick Ferris**,** Ichiro Nishii, Hisayoshi Nozaki, David Kirk and **James G. Umen**

The *Volvox carteri* mating locus

12:00-12:20 **Ursula Goodenough** and Jae-Hyeok Lee

Homeoproteins, Sex, and the Algal/Land-Plant Divergence

12:20-12:35 Munevver Aksoy and **Charlene L. Forest**

Cloning gamete fusion genes in *Chlamydomonas reinhardtii*

12:35-12:50 **Qian Wang,** Yi-Heng Hao, Sanjiv Shah, Wenze Liu, Gang Yu and William J. Snell

Essential role of γ-secretase during fertilization in the unicellular green alga

12:50-13:00 **General discussion**

Session 4 15:00-17:00 Wednesday May 28

Organelles

Chair: Saul Purton

15:00-15:10 **Saul Purton**

Introduction

15:10-15:30 Sara L. Zimmer, Gadi Schuster and **David B. Stern**

Functional explorations of chloroplast poly(A) polymerase and polynucleotide phosphorylase

15:30-15:45 James Uniacke and **William Zerges**
RNA granules transiently receive chloroplast mRNAs from polysomes during stress

15:45-16:05 **Y. Choquet**, C. Raynaud, C. Loiselay, B. Derrien, A. Boulouis, J. Girard-Bascou and F.-A. Wollman

Regulation of cytochrome f expression

16:05-16:20 Christian Schwarz, Ingolf Elles, **Jörg Nickelsen**

Regulatory complexes for postrancriptional steps of chloroplast gene expression in *Chlamydomonas*

16:20-16:35 Erika D. v. Gromoff, Ali Alawady, Linda Meinecke, Bernhard Grimm, **Christoph F. Beck**

Involvement of heme and Mg-tetrapyrroles in retrograde signaling by the chloroplast

16:35-16:50 Obed W. Odom, Kwang-Hyun Baek, Radhika N. Dani, and **David L. Herrin**

Chlamydomonas chloroplasts can use short dispersed repeats (SDRs) and multiple pathways to repair a double-strand break in the genome

16:50-17:00 **General discussion**

Posters I 17:00-19:00 Wednesday May 28

Numbers 0201 - 0814

Special lectures 20:30-21:30 Wednesday May 28

20:30-21:00 David Baulcombe

Silencing RNA in Chlamydomonas and Arabidopsis

21:00-21:30 Michel Bornens

Origin and continuity of the centrosome

Thursday May 29

Session 5 8:30-9:30 Thursday May 29

Circadian rhythms

Chair Maria Mittag

8:30-8:35 **Maria Mittag**

Introduction

8:35-8:55 **Takuya Matsuo**, Kazuhisa Okamoto, Kiyoshi Onai, Yoshimi Niwa, Kosuke Shimogawara, Masahiro Ishiura

Systematic identification of circadian clock components in *Chlamydomonas reinhardtii*

8:55-9:10 **Stefanie B. Seitz**, Olga Voytsekh, Dobromir Iliev, and Maria Mittag

Temperature integration of the circadian RNA-binding protein CHLAMY1

9:10-9:25 **Vilém Zachleder**, Milada Vítová, Kateřina Bišová, Mária Čížková, Monika Hlavová, Dáša Umysová

An endogenous oscillator is not involved in the timing of cell division in the alga *Chlamydomonas reinhardtii*

9:25-9:30 **General discussion**

Session 6 9:30-13:00 Thursday May 29

Flagella

Chair: Lotte Pedersen

9:30-9:40 **Lotte Pedersen**

Introduction

9:40-10:00 **Stephen M. King** and Ramila S. Patel-King

Outer arm dynein regulation through a motor-light chain-tubulin ternary complex

10:00-10:20 Radhika Gopal, Mei Wei, David Mitchell and **Pinfen Yang**

Regulation of 9+2 flagellar beating

10:20-10:35 **Takashi Ishikawa**, Khanh Huy Bui, Tandis Movassagh, Hitoshi Sakakibara, Kazuhiro Oiwa

Structural analysis of dynein arms from *Chlamydomonas* flagella revealed by electron cryo-tomography

10:35-11:05 Coffee break

11:05-11:20 **Ken-ichi Wakabayashi**, Akane Furuta, Jiro Usukura, Masahide Kikkawa, Fumio Arisaka, George B. Witman, and Ritsu Kamiya

Structural and biochemical properties of the outer-dynein-arm docking complex (ODA-DC) studied using recombinant proteins

11:20-11:35 **Maureen Wirschell**, Chun Yang, Pinfen Yang, Laura Fox, Haru aki Yanagisawa, Ritsu Kamiya, George Witman, Mary Porter, and Winfield S. Sale

Defining I1-dynein interactions—IC97 interacts with both regulatory and structural components of I1 and the axoneme

11:35-11:50 Jessica Belen-Rivera, Ashley Solmonson, Vincent Maresca, Terah McClendon, Joshua Farthing, Victoria Alfaro, and **Anne R. Gaillard**

Dissection of cyclic nucleotide signaling pathways in flagellar axonemes of *Chlamydomonas*

11:50-12:10 Chunlei Gao, Noveera Ahmed, Judy Freshour and **David R. Mitchell**

Mutations defining the pathway of outer row dynein assembly

12:10-12:25 **Carlo Iomini**, Linya Li and Susan K. Dutcher

Intraflagellar transport (IFT) components IFT139A and IFT144A function in the same pathway to regulate retrograde movement and stability of IFT particles

12:25-12:40 Tian Piao, Minna Luo, Yan Guo, De Li, William J. Snell, Peng, Li, and **Junmin Pan**

Characterization of a homologue of microtubule depolymerizer during flagellar disassembly in *Chlamydomonas*

12:40-13:00 **General discussion**

Session 7 15:00-17:00 Thursday May 29

Light perception

Chair: Peter Hegemann

15:00-15:20 P. Berthold, S.P.Tsunoda, O.P.Ernst, D.Gradmann and **Peter Hegemann**

Channelrhodopsin-1 initiates phototaxis and photophobic responses in *Chlamydomonas* by immediate light-induced depolarization

15:20-15:40 **Georg Nagel**, R. Gueta, K. Deisseroth, E. Bamberg, P. Hegemann, A. Gottschalk

Channelrhodopsins from *C. reinhardtii*: Characterization and applications

15:40-16:00 V. Wagner, K. Ullmann, A. Mollwo, M. Kaminski, M. Mittag **Georg Kreimer**

Analysis of the eyespot phosphoproteome from *Chlamydomonas reinhardtii*

16:00-16:20 **Telsa M. Mittelmeier**, Mary Rose Lamb, and Carol L. Dieckmann

Cytoskeletal asymmetry influences eyespot localization in *Chlamydomonas*

16:20-16:35 William Inwood, Corinne Yoshihara, Reena Zalpuri, Kwang-Seo Kim and **Sydney Kustu**

The ultrastructure of a *Chlamydomonas reinhardtii* mutant strain lacking phytoene synthase resembles that of a colorless alga

16:35-16:50 Collin Capano, Jureepan Saranak, **Kenneth Foster**

The systems biology of *Chlamydomonas* phototaxis as determined by electric current and ciliary beating

16:50-17:00 **General discussion**

Posters I 17:00-19:00 Thursday May 29

Numbers 0201 - 0814

Session 8 20:30-22:00 Thursday May 29

Workshop: Molecular Toolbox

Chairs: Claire Remacle and Michael Hippler

20:30-20:35

Introduction

20-35-20:55 Juliane Neupert, Daniel Karcher, and **Ralph Bock**

Generation of *Chlamydomonas* strains that efficiently express transgenes

20:55-22:00 Short presentations and discussion

Friday May 30

Session 9 8:30-10:30 Friday May 30

Nutrients, Growth, Cell cycle

Chair: Hideya Fukuzawa

8:30-8:50 **Hideya Fukuzawa**, T. Yamano, Y. Yamahara, T. Tsujikawa, H. Nakano, T. Kohinata

Genes associated with the induction of the carbon-concentrating mechanism in *Chlamydomonas reinhardtii*: Functional roles of CCM1 and LCIB in photosynthetic acclimation to CO_2-limiting stress

8:50-9:05 **Amaya Blanco-Rivero**, Flor Martínez, Maria Turkina, Alexander Vener, Göran Samuelsson and Arsenio Villarejo

Acclimation to low CO_2 concentrations in the green alga *Chlamydomonas reinhardtii*. A sub-organellar phosphoproteomic survey of the potential transduction pathways

9:05-9:25 **Emilio Fernández**, Manuel Tejada-Jiménez, Antonio Camargo, Angel Llamas, Amaury de Montaigu, Emanuel Sanz-Luque, Jose J. Higuera, David González-Ballester, Rogene A. Schnell, Paul A. Lefebvre, Aurora Galván

Nitrate assimilation in *Chlamydomonas* as a model system to other organisms

9:25-9:45 Su-Chiung Fang and **James G. Umen**

A screen for targets of the RB tumor suppressor pathway in *Chlamydomonas*

9:45-10:00 **Kateřina Bišová**, Monika Hlavová, Dáša Umysová, James G. Umen, Vilém Zachleder

Overexpression of WEE1 kinase promotes resistance to DNA damage in *Chlamydomonas reinhardtii*

10:00-10:15 **Severin Sasso**, Martin T. Croft, Katherine E. Helliwell, Olivia L. Paterson, Alison G. Smith

Chlamydomonas reinhardtii and *Mesorhizobium loti* as a model system for a novel symbiosis

10:15-10:30 General discussion

Session 10 11:00-13:00 Friday May 30

"Omics": Genome-enabled research

Chair: Arthur Grossman

11:00-11:10 **Arthur Grossman**

Introduction

11:10-11:30 **Simon Prochnik**, James Umen, Stephen Miller, Armin Hallmann, Ichiro Nishii, Aurora Nedelcu, Lillian Fritz-Laylin, Jeremy Schmutz, Jane Grimwood, Daniel Rokhsar

Comparative genomics of *Volvox carteri* and *Chlamydomonas reinhardtii*: clues to the evolution of algal multicellularity.

11:30-11:50 **Ariane Atteia**, Annie Adrait, Sabine Brugière, Robert van Lis, Marianne Tardiff, Jérôme Garin, Jacques Joyard, William Martin, and Norbert Rolland

Chlamydomonas reinhardtii mitochondria as revealed by proteomics

11:50-12:05 **Christian Bölling** and Lothar Willmitzer

Metabolomic analysis of sulfur deficiency in *Chlamydomonas reinhardtii*

12:05-12:20 **An Jamers**, Jones O.A.H., Blust R. and De Coen W.

Omics in algae: transcriptomics and metabolomics of the cadmium exposed green freshwater alga *Chlamydomonas reinhardtii*

12:20-12:35 **Eric F.Y. Hom,** R.Murray, C.Lin A.Manichaikul, A.Chavali, L.Ghamsari, X.Yang, M.Stanke, C.Liang, M.O'Connor, D.E.Hill, M.Vidal, A.W.Murray, J.Papin, K.Salehi-Ashtiani

Towards Experimental Verification of Protein Coding Transcripts and Comprehensive Metabolic Network Modeling of *Chlamydomonas reinhardtii*

12:35-12:45 **Ralph Bock**

Towards systems biology of photosynthesis

12:45-13:00 **General discussion**

13:00-17:00 Friday May 30

Free afternoon.

Posters II 17:00-19:00 Friday May 30

Numbers 0901 - 1508

Banquet 19:00-21:00

Historical perspective 21:00-21:30 Friday May 30

21:00-21:30 Paul Levine
Chlamydomonas research – Its early foundation

Chlamydomonas Biotech 21:30-22:00 Friday May 30

Peter Heifetz: Rincon Pharmaceuticals, Inc.

Stefan Surzycki: PhycoBiologics, Inc.

Saturday May 31

Session 11 8:30-10:30 Saturday May 31

Hydrogen and biofuels

Sponsored by: Région Provence Alpes Côte d'Azur.
Chair: Olaf Kruse

8:30-8:45 **Olaf Kruse**

Introduction

8:45-9:05 **Maria Ghirardi**

Algal Hydrogen Photoproduction: Properties and Applications

9:05-9:25 Martin Winkler, Gregory von Abendroth, Christina Kamp, and **Thomas Happe**

Characterization of the key enzymes involved in hydrogen production in green algae

9:25-9:45 **Gilles Peltier**, Carine Desplats, Florence Mus, Stéphan Cuine, Laurent Cournac, Bart Ghysels, Frédéric Jans, Emmanuel Mignolet, Pierre-Alain Houyoux, Pierre Cardol, Fabrice Franck and Claire Remacle

A type II NAD(P)H dehydrogenase in *Chlamydomonas* chloroplasts

9:45-10:05 **Michael Seibert**, Alexandra Dubini, Florence Mus, Matthew Posewitz, Arthur Grossman

Flexibility of algal anaerobic metabolism: relevance to hydrogen production

10:05-10:20 **Anja Hemschemeier** , Jacobs J., Kravietz D., Philipps G., Rühle T. and Happe T

Chlamydomonas – a survivalist under anaerobic conditions

10:20-10:30 General discussion

Session 12 11:00-13:00 Saturday May 31

Acclimation

Chair: Giovanni Finazzi

11:00-11:10 **Giovanni Finazzi**

Introduction

11:10-11:30 **Rik I. L. Eggen**, Régine Dayer and Beat B Fischer

Regulation and function of photo-oxidative stress induced crGPX5/GPXH in *Chlamydomonas reinhardtii*

11:30-11:50 **Stéphane D. Lemaire**, Laure Michelet, Mirko Zaffagnini, Hélène Vanacker, Michael Schroda, Paolo Trost, Paulette Decottignies

Redox regulation by glutathionylation and glutaredoxins in *Chlamydomonas*

11:50-12:05 **Britta Förster**, Ulrike Mathesius, Barry Osmond, Barry Pogson

Changes in chloroplast physiology and whole cell protein profiles of *Chlamydomonas* mutants under high light and oxidative stress

12:05-12:20 **Anchalee Sirikhachornkit**, Jai W. Shin, Irene Baroli, and Krishna K. Niyogi

β-Tocopherol is better than α-tocopherol at protecting *Chlamydomonas reinhardtii* from photo-oxidative stress

12:20-12:35 **Barbara B. Sears**, Ngoc Nguyen, Matthew Enell, Allison Blaine, Ethan Dawson-Baglien, and Ryan Mayle

Photo-oxidative stress and chloroplast DNA mutation

12:35-12:50 Sonja Werner, Matthias Bauch, Armin Hallmann, Judith Köhler, Georg Schmidt, **Martin Lohr**

Massive accumulation of ketocarotenoids in zygospores of *Chlamydomonas reinhardtii*

12:50-13:00 **General discussion**

Session 13 15:00-17:00 Saturday May 31

Workshop: Genomes

Chairs: Laurie Mets and Olivier Vallon

Short presentations and discussions

Posters II 17:00-19:00 Saturday May 31

Numbers 0901 - 1508

Poster awards 20:30-20:45 Saturday May 31

Sponsored by Rincon Pharmaceuticals and EMBO Reports.

Special lectures 20:45-21:15 Saturday May 31

20:45-21:15 Jean-David Rochaix

Tracking thylakoid protein kinases from Chlamydomonas to Arabidopsis

Sunday June 1

Session 14 8:30-10:30 Sunday June 1

Photosynthesis

Chair: Francis-André Wollman

8:30-8:40 **Francis-André Wollman**

Introduction

8:40-9:00 **Kevin Redding**, Marc Müller, Rajiv Luthra, Chavdar Slavov, Audrius Jasaitis, Stefano Santabarbara, Alfred R. Holzwarth, Fabrice Rappaport

P_{700} is not the primary electron donor in Photosystem I: a new model of charge separation

9:00-9:20 **Yuichiro Takahashi**

Dynamics of Photosystem I structure and function

9:20-9:35 **Frédéric Jans**, Emmanuel Mignolet, Pierre-Alain Houyoux, Pierre Cardol, Fabrice Franck and Claire Remacle

A novel nucleus-encoded, chloroplastic NAD(P)H dehydrogenase is involved in non-photochemical plastoquinone reduction and in the control of state transitions in *Chlamydomonas reinhardtii*

9:35-9:50 **Fabrice Franck**, Monique Dinant, Pierre Cardol, Claire Remacle and René-Fernand Matagne

Importance of the alternative pathway of respiration for avoidance of ROS production and for optimisation of photosynthesis in *Chlamydomonas*

9:50-10:05 Denis Saint-Marcoux, Richard Kuras, Lina Lezhneva, Alizée Malnoë, Jacqueline Girard-Bascou, Genevieve Ephritikhine, Jean Alric, Fabrice Rappaport , Francis-André Wollman and **Catherine de Vitry**

A novel *c*-type cytochrome maturation system is required for oxygenic photosynthesis

10:05-10:20 P. Deschamps, H. Moreau, A. Z. Worden, D. Dauvillée and **S. G. Ball.**

Early Gene Duplication within *Chloroplastida* and its correspondence with Relocation of Starch Metabolism to Chloroplasts

10:20-10:30 General discussion

Session 15 11:00-13:00 Sunday June 1

Gene expression

Chair: Michael Schroda

11:00-11:10 **Michael Schroda**
Introduction

11:10-11:25 **Laurence Maréchal-Drouard**

Steady-state levels of imported tRNAs in *Chlamydomonas* mitochondria are correlated with both cytosolic and mitochondrial codon usages

11:25-11:45 **H. Cerutti**, F. Ibrahim, A. Casas-Mollano, E. J. Kim, J. Becker, X. Ma, and E. Balassa

Small RNA-guided gene silencing pathways in *Chlamydomonas*

11:45-12:00 Tao Zhao, Guanglin Li, Shijun Mi, Shan Li, Gregory J. Hannon, Xiu Jie Wang, and **Yijun Qi**

A Complex System of Small RNAs in the Unicellular Green Alga *Chlamydomonas reinhardtii*

12:00-12:15 **Tomohito Yamasaki** and Takeshi Ohama

Heterochromatinization of inverted repeat transgene and candidate genes related to its transcriptional repression

12:15-12:30 **Scott Shaver**, Armando Casas-Mollano, James Fenlon, and Heriberto Cerutti

Epigenetic Mechanisms of Transcriptional Gene Silencing in *Chlamydomonas* Elucidated through Genetic and Functional Genomics Approaches

12:30-12:45 **Michael Moulin**, M.T. Croft, M.E. Webb, Z. N. Balia Yusof and A.G. Smith

Vitamin B1 metabolism in *Chlamydomonas reinhardtii* is regulated by a riboswitch mediated feedback loop

12:45-12:55 **General discussion**

12:55-13:00 **Farewell**