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ESF Research Conferences

A Programme of the European Science Foundation



ESF-EMBO Symposium on Comparative Genomics of Eukaryotic Microorganisms Eukaryotic Genome Evolution, Approaches with Yeasts and Fungi

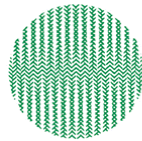
Hotel Eden Roc, Sant Feliu de Guixols, Spain, 12-17 November 2005

Chair: **Jean-Luc Souciet** (Université Louis Pasteur and CNRS, Strasbourg, FR)

Vice-Chair: **Ed Louis** (University of Nottingham, Nottingham, UK)

With support from

INRA France (Institut National de la Recherche Agronomique)
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Final Programme

On line at: <http://www.esf.org/conferences/lc05196>

Saturday 12 November

Late afternoon / early evening	Registration at the hotel reception and ESF desk
19.30	Dinner
21.00 – 22.00	Get-together-drinks

Sunday 13 November

Session 1: Mechanisms of genome evolution in eukaryotic microorganisms

Chair: Bernard Dujon (Institut Pasteur, Paris, FR)

09.00-09.10 Conference Opening – **Jean-Luc Souciet** (ULP, Strasbourg, FR)

09.10-09.40 **Ken Wolfe** (University of Dublin, IE)
Rapid speciation associated with reciprocal gene loss in polyploid yeasts

- 09.40-10.10 **Gilles Fischer** (Institut Pasteur, Paris, FR)
Chromosomal maps reshaping in hemiascomycetes
- 10.10-10.40 **Marie-Josée Daboussi** (Université Paris-Sud, Orsay, FR)
Transposable elements in filamentous fungi
- 10.40-10.55 **David Barton** (University of Leicester, UK)
Multiple genome comparisons show unexpected diversity around yeast centromeres, and hybrid introgression of *S. cerevisiae* DNA into European strains of *S. paradoxus*
- 10.55-11.25 Coffee break
- 11.25-11.40 **Mary Logue** (University of Dublin, IE)
Genomic analysis of *Candida parapsilosis*
- 11.40-11.55 **Pascal Durrens** (Université de Bordeaux II, FR)
Gene accretion and fission events in hemiascomycete genomes
- 11.55-12.10 **Laurence Despons** (Université Louis Pasteur, Strasbourg, FR)
An evolutionary scenario for one of the largest yeast gene families
- 12.10-14.00 Lunch
- 14.00-16.00 Poster Session 1

Session 2: Comparative genomics in eukaryotic microorganisms

Chair: Ken Wolfe (University of Dublin, IE)

- 16.00-16.30 **Masayuki Machida** (BRF, National Institute of Advanced Industrial Science and Technology, Tsukuba, JP)
Sequencing and characterization of the *Aspergillus oryzae* genome
- 16.30-16.45 **Hans Roubos** (DSM, Delft, NL)
Functional genomics of *Aspergillus niger* strains
- 16.45-17.15 **Linda Sperling** (CNRS, Gif-sur-Yvette, FR)
Paramecium tetraurelia somatic genome organization
- 17.15-17.45 **Martin Gorovsky** (University of Rochester, US)
Studies on an RNAi-like Mechanism of germline DNA elimination in *Tetrahymena thermophila*
- 17.45-18.15 Coffee break
- 18.15-18.45 **Angela Falciatore** (Stazione Zoologica Anton Dohrn, Naples, IT)
Revealing the molecular secrets of marine diatoms through genomics approaches
- 18.45-19.15 **Hervé Moreau** (CNRS, Banyuls, FR)
Oestreooccus genome and related algae
- 19.15-19.30 **Gwenael Piganeau** (CNRS, Banyuls, FR)
Shotgun sequencing of the Sargasso Sea : the picoeukaryotic point of view
- 20.00-21.00 Dinner

21.00-23.00

Workshop databases, access to databases

Chair: Matthew Berrimann (Wellcome Trust Sanger Institute, Hinxton, UK)

Ulrich Gueldener, (MIPS, DE)

- MIPS (CYGD, MNCDB, FGDB, MUMDB etc.),
<http://mips.gsf.de/projects/fungi>

Comparative genomics using the MIPS comprehensive fungal resources

Dianna Fisk, (SGD, Stanford, US)

- SGD, <http://www.yeastgenome.org/>

David Sherman, (Génolevures, Bordeaux, FR)

- Genolevures, <http://cbi.labri.fr/Genolevures/>

Génolevures complete genomes provide data and tools for comparative genomics of hemiascomycetous yeasts

Valerie Wood, (Wellcome Trust Sanger Institute, Hinxton, UK)

- SPombe http://www.sanger.ac.uk/Projects/S_pombe/

The *Schizosaccharomyces pombe* Genome Project

Marc Feuermann SwissProt (CH)

- The Fungal Proteome Annotation Program (FPAP) in the frame of the UniProt knowledgebase

Teemu Kivioja (VTT Technical Research of Finland, Espoo, FI)

- Comparison of protein coding gene content of fungal genomes

Monday 14 November

Session 3: Comparative genomics and pathogenesis - Part 1

Chair: Claude Gaillardin (INA-PG, Thivernal-Grignon, FR)

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| 08.30-09.00 | Regine Kahmann (MPI für Terrestrische Mikrobiologie, Marburg, DE)
The <i>Ustilago maydis</i> genome: a resource for understanding the biotrophic life style of this fungus? |
| 09.00-09.30 | Gregory A. Buck (Virginia Commonwealth University, Richmond, US)
Comparative genomics of <i>Cryptosporidium hominis</i> and <i>C. parvum</i> . |
| 09.30-10.00 | Joseph Heitman (Duke University Medical Center, Durham, US)
MAT, sex, and the genome: evolution of the <i>Cryptococcus</i> species complex |
| 10.00-10.30 | Mark Ramsdale (University of Aberdeen, UK)
Comparative analysis of cell death in the yeasts <i>Candida albicans</i> and <i>S. cerevisiae</i> |
| 10.30-11.00 | Coffee break |

- 11.00-11.30 **Marc-Henri Lebrun** (CNRS, Lyon, FR)
Fungal genomes and plant pathogenicity
- 11.30-11.45 **Sabine Fillinger** (INRA, Versailles, FR)
Whole genome analysis of the grey mould agent *Botrytis cinerea*
- 11.45-12.00 **Ane Sesma** (John Innes Center, Norwich, UK)
Magnaporthe grisea, a paradigm system for the understanding of fungal plant infection
- 12.00-12.15 **Thomas Baldwin** (Rothamsted Research, Harpenden, UK)
Bioinformatic and molecular genetic tools for identifying genes involved in the pathogenicity of *Fusarium graminearum* on wheat ears
- 12.15-12.30 **Bronislava Profotova** (INRA, Versailles, FR)
Analysis of LmCys1, a cystein-rich protein of *Leptosphaeria maculans* homologous to the Six1 avirulence protein of *Fusarium oxysporum*
- 12.30-14.00 Lunch
- 14.00-16.00 Free time/open discussion: informal discussion

Session 4: Comparative genomics and pathogenesis - Part 2

Chair: Regine Kahmann (Max-Planck-Institut für Terrestrische Mikrobiologie, Marburg, DE)

- 16.00-16.30 **Matthew Berrimann** (Wellcome Trust Sanger Institute, Hinxton, UK)
Comparative *Plasmodium* genomics
- 16.30-17.00 **Matthew Berrimann** (Wellcome Trust Sanger Institute, Hinxton, UK)
Comparative *Trypanosomatid* genomics
- 17.00-17.30 **Patrick Wincker** (Génoscope, Evry, FR)
Analysis of gene duplications in a ciliate
- 17.30-18.00 Coffee break
- 18.00-18.30 **Bill Wickstead** (University of Oxford, UK)
Building a flagellum in *Trypanosoma*: comparative genome analysis
- 18.30-19.00 **Dave Barry** (University of Glasgow, UK)
Trypanosoma and telomeres
- 19.00-19.15 **Abhijeet Bakre** (Jawaharlal Nehru University, New Delhi, IN)
The LINEs and SINEs of *E. histolytica*: comparative analysis and genomic distribution
- 19.30-21.00 Dinner
- 21.00-23.00 Access to databases and open discussion

Tuesday 15 November

Session 5: Networks and cis-regulatory elements

Chair: Hans Westerhoff (Vrije Universiteit Amsterdam, NL)

- 08.30-09.00 **James Galagan** (Broad Institute/MIT, Cambridge, US)
Fungal Comparative Genomics at the Broad Institute

09.00-09.30	Mark Johnston (Washington University Medical School, Saint-Louis, US) Phylogenetic footprinting in yeasts
09.30-10.00	Manolis Kellis (Broad Institute/MIT, Cambridge, US) Discovery and evolution of regulatory networks in yeast
10.00-10.30	Coffee break
10.30-11.00	Gaëlle Lelandais (Ecole Normale Supérieure, Paris, FR) Methodologies for Intra and inter-Species comparisons of yeast transcriptome states
11.00-11.30	Timothy Hughes (University of Toronto, CA) Identifying transcription factor targets by phenotypic activation
11.30-11.45	Sascha Thewes (Robert Koch Institute, Berlin, DE) Comparative transcriptomics: a tool to understand <i>Candida albicans</i> pathogenesis
11.45-12.00	Serge Casaregola (INRA, Paris, FR) Variability in gene regulation in <i>Kluyveromyces lactis</i> strains revealed by micro-array analysis
12.00-12.15	Emmanuelle Beyne (Université de Bordeaux II, FR) A whole-cell proteomics approach for comparing hemiascomycete yeast genomes
12.15-13.30	Lunch
13.30-19.30	Social programme: half-day excursion
19.30	Get-together-drinks and Conference Dinner

Wednesday 16 November

Session 6: In silico genomics and new algorithms

Chair: Manuel Santos (University of Aveiro, PT)

09.00-09.30	Philipp Pagel (Institute for Bioinformatics, Neuherberg, DE) Phylogenetic profiling
09.30-10.00	Yves van de Peer (VIB University of Ghent, BE) Algorithmics of genome duplication
10.00-10.15	Kevin Byrne (Trinity College, Dublin, IE) The yeast gene order browser: visualising comparative genomics
10.15-10.45	Coffee break
10.45-11.15	Mihaela Perteza (The Institute for Genomic Research, Rockville, US) A comparative gene finding tool and its application to the <i>Aspergillus fumigatus</i> genome
11.15-11.30	Michael Sadovsky (Krasnoyarsk State University, RU) Statistical semantics in the problem of genome comparison
11.30-11.45	Hubert Renauld (The Wellcome Trust Sanger Institute, Hinxton, UK) Mining (sub)telomeric 'junk' DNA in eukaryotic parasites
11.45-12.00	Sergei Larionov (Moscow State University, RU) Lessons of large scale comparisons from 2D DNA Walk

- 12.30-14.00 Lunch
14.00-16.00 Poster Session 2

Session 7: Comparative genomics and phylogeny

Chair: Ed Louis (University of Nottingham, UK)

- 16.00-16.30 **Ian Roberts** (National Collection of Yeast Cultures, Norwich, UK)
Intraspecific variability and strain typing in yeasts
- 16.30-17.00 **Gennadi Naumov** (State Institute for Genetics and Selection of Microorganisms, Moscow, RU)
Factors of yeast speciation
- 17.00-17.15 **Gianni Liti** (University of Nottingham, UK)
Effect of sequence divergence and chromosomal evolution on reproductive isolation in *Saccharomyces cerevisiae*
- 17.15-17.45 **Amparo Querol** (Inst. of Agrochemistry and Food Technology, Valencia, ES)
Molecular evolution in yeasts of biotechnological interest
- 17.45-18.15 Coffee break
- 18.15-18.30 **Eladio Barrio** (University of Valencia, ES)
Genetic variability in the species of the *Saccharomyces 'sensu stricto'* complex
- 18.30-18.45 **Philippe Baret** (Université Catholique de Louvain, Louvain-la-Neuve, BE)
Evolutionary patterns of subfamilies of hemiascomycete transporters
- 18.45-19.15 **John Taylor** (University of Berkeley, US)
Comparative genomics: individual variation in the transcriptome
- 19.15-19.30 **Michael Hynes** (University of Melbourne, AU)
Peroxisomes differ significantly between *Neurospora crassa* and *Aspergillus*
- 19.30-20.00 **Teun Boekhout** (Centraalbureau voor Schimmelcultures, Utrecht, NL)
Evolution of fungi: genomics and biodiversity
- 20.00-20.15 **Jure Piskur** (University of Lund, SE)
A new model organism, *Brettanomyces/Dekkera*, to understand the yeast evolutionary history
- 20.15-21.15 Dinner

Session 8: Organelles or non nuclear comparative genomics

Chair: John Taylor (University of California, Berkeley, US)

- 21.15-21.45 **Franz Lang** (Université de Montréal, CA)
Mitochondria of Eukaryotic microbes
- 21.45-22.00 **Toni Gabaldon** (University of Nijmegen, NL)
Evolution of the mitochondrial metabolism in fungi
- 22.00-22.30 **Stuart Ralph** (Walter & Eliza Hall Inst. for Medical Research, Parkville, AU)
Plasmodium falciparum and other apicomplexan parasites

Thursday 17 November

Session 9: Non coding RNA

Chair: Jean-Luc Souciet

- 08.30-09.00 **Christian Marck** (CEA, Saclay, FR)
Comparative genomics of tRNA: fungi and other eukaryotes
- 09.00-09.30 **Manuel Santos** (University of Aveiro, PT)
EMBO Young Investigator Lecture
Genetic code reassignment in fungi: genomic view and consequences
- 09.30-10.00 **Eric Westhof** (Université Louis Pasteur, Strasbourg, FR)
Non coding RNA within the hemiascomycetous yeasts
- 10.00-10.30 Coffee break

Session 10: Prospectives and conclusions

Chair: Jean-Luc Souciet

- 10.30-11.00 **Hans Westerhoff** (Vrije University, Amsterdam, NL)
Systems Biology in eukaryotic microorganisms: dealing with challenges diversely
- 11.00-11.30 **Ed Louis** (Nottingham University, UK)
Conclusions and next meeting
- 12.30-14.00 Lunch and departure