

# **AEGEAN CONFERENCES**

*Linking the international scientific community  
Bringing the humanity scholars together*

## **4<sup>th</sup> International Conference on Pathways, Networks, and Systems**

**Royal Myconian Conference Center  
October 8 - 13, 2006  
Mykonos, Greece**

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## GENERAL INFORMATION

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### *Accommodations*

All participants will be staying at the Royal Myconian Hotel (5 star resort), which is located in Elia Beach, 12 km from Myconos Center, Myconos Airport, and Port. The most convenient way to reach the hotel is to hire a taxi.

### *Breakfast*

Breakfast will be served at your hotel during the hours scheduled in this program.

### *Lunches and Other Events*

Lunches will be served at the indicated times to all registered participants and registered accompanying persons in the hotel. For those participants who have not registered for the events, lunch and other event, tickets may be purchased on site. **Badges** are **required** for admission.

### *Conference venue*

The Royal Myconian Conference Center.

### *Oral Presentations*

An LCD projector will be available for the oral presentations. Speakers are asked to bring their USB flash drive or CD to the conference reception desk at least 30 minutes prior to the session. The allocated time for all presentations, unless otherwise indicated, includes five minutes Q&A.

### *Posters*

Posters should be mounted Sunday morning, September 24, on the designated boards and dismounted at the end of the meeting. The dimensions of the boards are 90W x 150H cm. Adhesive tape for mounting the posters on the boards will be available at the poster area.

### *Delos Tour*

Buses for the Delos Tour will be leaving from the Royal Myconian Hotel on Wednesday, October 11 at 8:20 am. **Badges** or tickets are required for admission.

### *Tour and Travel Information*

A desk manned by the personnel of our official Travel Agency, "ERA Ltd" will be located at the Royal Myconian Hotel throughout the Workshop.

**All Aegean Conferences events are smoke free.**

*The organizers gratefully acknowledge the generous help provided by Dimitrios Lambris in managing the organization of this meeting, and designing and publishing this program.*

**AEGEAN CONFERENCES**  
*4th International Conference on Pathways, Networks, and Systems*  
Royal Myconian Conference Center  
October 8 - 13, 2006  
Mykonos, Greece

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**ORGANIZERS**

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## PROGRAM OUTLINE

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### Sunday, October 8

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|                             |              |                                   |
|-----------------------------|--------------|-----------------------------------|
| Registration                | 5:30-8:00 PM | Royal Myconian Hotel<br>Lobby     |
| Welcome<br>Reception/Dinner | 8:00 PM      | Royal Myconian Main<br>Restaurant |

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### Monday, October 9

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|                                  |                      |                                                                                           |
|----------------------------------|----------------------|-------------------------------------------------------------------------------------------|
| Breakfast                        | 7:30 AM              | Royal Myconian Main<br>Restaurant                                                         |
| Registration                     | 9:00 AM –<br>2:00 PM | Conference Center                                                                         |
| Welcome and Opening<br>Remarks   | 9:00 AM              | Conference Center                                                                         |
| <b>Session I</b>                 | 9:15 AM              | Conference Center                                                                         |
| Coffee Break & Poster<br>Viewing | 11:15 AM             | Conference Center                                                                         |
| <b>Session I Cont'd</b>          | 12:15 PM             | Conference Center                                                                         |
| Lunch                            | 2:00 PM              | Royal Myconian Main<br>Restaurant                                                         |
| Dinner                           | 8:00 PM              | Local Greek Tavern<br><i>The bus for the tavern will depart from the hotel at 7:30 PM</i> |

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### Tuesday, October 10

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|                   |          |                                   |
|-------------------|----------|-----------------------------------|
| Breakfast         | 7:30 AM  | Royal Myconian Main<br>Restaurant |
| <b>Session II</b> | 9:00 AM  | Conference Center                 |
| Coffee Break      | 11:00 AM | Conference Center                 |

|                                                                     |          |                                |
|---------------------------------------------------------------------|----------|--------------------------------|
| <b>Session II Cont'd</b>                                            | 11:30 AM | Conference Center              |
| Lunch                                                               | 1:30 PM  | Royal Myconian Main Restaurant |
| Dinner                                                              | 8:00 PM  | Local Greek Tavern             |
| <i>The bus for the tavern will depart from the hotel at 7:30 PM</i> |          |                                |

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**Wednesday, October 11**

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|                                                                   |         |                                |
|-------------------------------------------------------------------|---------|--------------------------------|
| Breakfast                                                         | 7:30 AM | Royal Myconian Main Restaurant |
| Delos Tour                                                        | 8:30 AM |                                |
| <i>The bus for the tour will depart from the hotel at 8:20 AM</i> |         |                                |
| Lunch                                                             | 1:30 PM | Royal Myconian Main Restaurant |
| <b>Session III</b>                                                | 3:00 PM | Conference Center              |
| Coffee Break                                                      | 5:00 PM | Conference Center              |
| <b>Session III Cont'd</b>                                         | 5:30 PM | Conference Center              |
| Dinner                                                            | 7:30 PM | Royal Myconian Main Restaurant |

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**Thursday, October 12**

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|                               |          |                                |
|-------------------------------|----------|--------------------------------|
| Breakfast                     | 7:30 AM  | Royal Myconian Main Restaurant |
| <b>Session IV</b>             | 9:00 AM  | Conference Center              |
| Coffee Break & Poster Viewing | 11:15 AM | Conference Center              |
| <b>Session IV Cont'd</b>      | 12:15 PM | Conference Center              |
| Concluding remarks            | 1:45 PM  | Conference Center              |
| Lunch                         | 2:00 PM  | Conference Center              |

|             |         |                                   |
|-------------|---------|-----------------------------------|
| Gala Dinner | 8:00 PM | Royal Myconian Main<br>Restaurant |
|-------------|---------|-----------------------------------|

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**Friday, October 13**

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|           |         |                                   |
|-----------|---------|-----------------------------------|
| Breakfast | 7:30 AM | Royal Myconian Main<br>Restaurant |
|-----------|---------|-----------------------------------|

**Departure**



# **PROGRAM**





8:00 PM Dinner at a Local Greek Tavern  
*The bus for the tavern will depart from the hotel at 7:30 PM*

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**Tuesday, October 10**

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7:30 AM Breakfast

**Session II Evolution and Development**  
**Session chair:** A Wagner

9:00 AM **7** *Genetic networks and natural selection*  
A Wagner

9:45 AM **8** *A systems biology approach for understanding pathways controlling ectodermal organ formation*  
M Bei, V Gupta, L Raj, A Datta, D Karatzas, and H Xuan

10:30 AM **9** *PATHCASE: a web-based exploratory, querying and visualization tool for biological pathways*  
M Ozsoyoglu, G Ozsoyoglu, J Nadeau, B Elliott, A Cakmak, M Kirac, F Akgul, G Yavas, M Reynolds, G Strnad, M Starke, B Evans, and M Tasan

11:00 AM **Coffee Break**

**Session Chair:** P Hunter

11:30 AM **10** *Cardiac modeling: From ion channels and protein pathways to integrative cell, tissue and organ function*  
P Hunter

12:15 PM **11** *Dynamics of cardiac energy conversion: Computational module for adaptation of oxidative phosphorylation to changing heartbeat rhythm*  
J HGM van Beek

12:45 PM **12** *Transcription regulatory circuitry in embryonic stem cells: Ubiased mapping of Oct4, Sox2 and Nanog binding sites using chip-pet technology*  
HH Ng, YJ Ruan, CL Wei, B Lim, P Robson, L Stanton, Q Wu, YH Loh, JL Chew, X Chen, Z Weiwei, VB Vega, CWH Lee, S Kandhadayar, J Liu, G Bourque, J George, KW Sung, L Lipovich, and VA Kuznetsov

1:30 PM Lunch

8:00 PM Dinner at a local Greek Tavern

The bus for the tavern will depart from the hotel at 7:30 PM

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**Wednesday, October 11**

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|                    |                                                                                                                                                                                                                                                                                                                                                         |
|--------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 7:30 AM            | Breakfast                                                                                                                                                                                                                                                                                                                                               |
| 8:30 AM            | Delos Tour<br><i>The bus for the tour will depart from the hotel at 8:20 AM</i>                                                                                                                                                                                                                                                                         |
| 1:30 PM            | Lunch                                                                                                                                                                                                                                                                                                                                                   |
| <b>Session III</b> | <b>Metabolism and Regulation</b><br><b>Session chair:</b> J Kelleher                                                                                                                                                                                                                                                                                    |
| 3:00 PM            | <b>13</b> <i>Evaluation of regression models in metabolic physiology: Predicting fluxes from isotopic data without knowledge of the pathway</i><br>JK Kelleher, MR Antoniewicz, and G Stephanopoulos                                                                                                                                                    |
| 3:45 PM            | <b>14</b> <i>Genetic control of physiological constraints and functional dependencies in metabolic systems</i><br>DS Sinasac, H Shao, and JH Nadeau                                                                                                                                                                                                     |
| 4:30 PM            | <b>15</b> <i>The genetic regulatory networks in Arabidopsis</i><br>J Fu, JJB Keurentjes, CH Ric de Vos, D vreugdenhil, M Koornneef, and RC Jansen                                                                                                                                                                                                       |
| 5:00 PM            | Coffee Break<br><br><b>Session Chair:</b> J Lusic                                                                                                                                                                                                                                                                                                       |
| 5:30 PM            | <b>16</b> <i>Integration of genetic and gene expression data to dissect complex cardiovascular and metabolic traits</i><br>J Lusic, A Arnold, R Castellanos, C Culler, R Davis, S Doss, C Farber, L Drake, T Drake, P Gargalovic, A Ghazalpour, S Horvath, M Mehrabian, H Meng, J Pagnon, J Peregrine, E Schadt, A Van Nas, S Wang, X Yang, and B Zhang |
| 6:15 PM            | <b>17</b> <i>Genetic switches that tip complex systems between alternative states in chromosome substitution strains</i><br>H Shao, LC Burrage, D Sinasac, AE Hill, SR Ernest, W O'Brien, KJ Jepsen, K Broman, MJ Daly, ES Lander, and JH Nadeau                                                                                                        |
| 6:45 PM            | <b>18</b> <i>Decoding the human genome – a chip-chip approach</i>                                                                                                                                                                                                                                                                                       |

B Ren

7:30 PM Dinner at the Royal Myconian Hotel

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**Thursday, October 12**

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7:30 AM Breakfast

**Session IV**      **Host Responses**  
**Session chair:** S Subramaniam

9:00 AM      **19**      *Systems biology of macrophages*  
S Subramaniam

9:45 AM      **20**      *The mosquito immune system and vector/parasite interactions*  
FC Kafatos

10:30 AM      **21**      *Systems approach to prion pathogenesis*  
I Lee, D Hwang, H Yoo, D Baxter, N Gehlenborg, RK  
Giri, R Kumar, B Ogata, M Orr, R Pitstick, D Spicer, R  
Young, SJ DeArmond, LE Hood, and GA Carlson

11:15 AM      **Coffee Break & Poster Viewing**

**Session Chair:** R Germain

12:15 PM      **22**      *A New Biologist-friendly Software Approach to Complex Multiscale Spatially-resolved Modeling and Simulation*

M Meier-Schellersheim, X Xu, B Angermann, E Kunkel,  
T Jin, A Wise, F Klauschen, and RN Germain

1:00 PM      **23**      *A “multidisciplinary” approach to understand disease pathogenesis and develop therapeutics*  
JD Lambris

1:45 PM      **Concluding Remarks**

2:00 PM Lunch

8:00 PM      **Gala Dinner** at the Royal Myconian Hotel

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**Friday, October 13**

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**POSTERS**

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- 24 *Construction and modeling of Tunable synthetic Gene circuits in S. cerevisiae*  
N Ostroff, C Grilly, and J Hasty
- 25 *Lessons from an artificial regulatory network model*  
W Banzhaf, PD Kuo, and A Leier
- 26 *Genome-wide binding site map of mammalian transcription factors reveals rapid turnover*  
G Bourque, V Berlian Vega, CL Wei, Y Ruan, and ET Liu
- 27 *Monitoring and modeling dynamics of single-cell gene expression over multiple cell cycles*  
S Cookson, N Ostroff, W L Pang, D Volfson, and J Hasty
- 28 *Cell identity defined through transcriptional regulatory networks*  
J Drouin, D Langlais, L Budry, and A Balsalobre
- 29 *Infer functional linkages from time-series microarray data based on the change trend and level of gene expression*  
F He, AP Zeng, and R Balling
- 30 *Distinct and predictive chromatin signatures of transcriptional promoters and enhancers in the human genome*  
ND Heintzman, RK Stuart, G Hon, Y Fu, CW Ching, RD Hawkins, LO Barrera, S Van Calcar, C Qu, KA Ching, W Wang, Z Weng, RD Green, GE Crawford, and B Ren
- 31 *Deductive arguments explaining biochemical control*  
J Tienari
- 32 *Inference of genetic network model related to the neuronal differentiation of mouse embryonic stem cells using cDNA microarray data*  
J Hyuk Kim, H Young Kim, M Jung Kim, Y Sung Lee, and S Yong Moon
- 33 *An upper level statistical analysis of exon specific arrays for gene discovery*  
K Kim, S Chiu, K Haus, and CH Warden
- 34 *Proteomic methods for discovery of signaling networks*  
MA Knepper, JD Hoffert, B Simons, M-J Yu, C-L Chou, and T Pisitkun
- 35 *Mathematical modeling of shear stress signaling in*

- endothelial cells*  
K Lykostratis, H Bolouri, M Zvelebil, AJ Ridley
- 36 ***Toward canonical regulatory pathways: from genes to processes, functions and components***  
M Koyuturk and A Grama
- 37 ***Gene expression profiling of placentomes from cloned cattle: a model for mammalian systems biology***  
RE Everts, A Razzak, P Chavatte-Palmer, I Hue, CA Green, R Oliveira, S Rodriguez-Zas, XC Tian, X Yang, JP Renard, and HA Lewin
- 38 ***Functional genomics of mouse activity and anxiety: a systems approach***  
L Liu, C Fernandes, JL Paya-Cano, MJ Parsons, and LC Schalkwyk
- 39 ***Systematic method to categorize gene annotations of affymetrix microarrays***  
NJ Dickens, TJ Aitman, and J Mangion
- 40 ***Multi-color pituitary: a mammalian model for studying functionally intermingled cell networks***  
F Molino, N Courtois-Coutry, C Lafont, P Le Tissier, I Robinson, J Drouin, and P Mollard
- 41 ***Genetic analysis of the human genome from a systems perspective***  
ME Samuels
- 42 ***LIM kinase 1 coordinates microtubule stability and actin polymerization in human endothelial cells***  
T Voyno-Yasenetskaya and M Gorovoy
- 43 ***Computational FLUXOMic analysis of pre-steady-state single-time-point NMR spectra yields quantified metabolic fluxes in mammalian tissue***  
JHGM van Beek, J Groeneveld, and DJC Alders
- 44 ***Distinguishing metabolic from physical interactions in the evidence landscape***  
V van Noort, B Snel, and MA Huynen
- 45 ***Sex-bias, genetical genomics, and the regulation of obesity in a mouse model***  
N Yehya, S Wang, H Wang, EE Schadt, TA Drake, and AJ Lusis
- 46 ***Identification of pathways for atherosclerosis in mice: integration of quantitative trait locus analysis and global gene expression data***  
SS Wang, EE Schadt, H Wang, X Wang, L Ingram-Drake, TA Drake, and AJ Lusis

## SPONSORS

We are deeply grateful to the following sponsors for their generous support of the 4th International Conference on Pathways, Networks, and Systems

**Department of Energy**



**National Science Foundation**



**Genome Institute of Singapore**



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**Department of Genetics, Case Western Reserve University**



**Institute for Systems Biology**



**UCB**



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## UPCOMING EVENTS

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4<sup>th</sup> International Conference on Pathways, Networks, and Systems  
*Royal Myconian Conference Center*  
October 8 - 13, 2006 | Mykonos, Greece

1<sup>st</sup> International Summit on Hurricanes and Climate Change  
*Aldemar Knossos Royal Village*  
May 27 - June 1, 2007 | Rhodes, Greece

4<sup>th</sup> International Leukocyte Signal Transduction Workshop: Clinical implications of signaling pathways  
*Aldemar Paradise Village*  
June 3 - 8, 2007 | Rhodes, Greece

4<sup>th</sup> International Workshop on Complement Associated Diseases, Animal Models, and Therapeutics  
*Porto Heli Conference Center*  
June 10 - 15, 2007 | Porto Heli, Greece

2<sup>nd</sup> International Conference on Crossroads between Innate and Adaptive Immunity  
*Aldemar Knossos Royal Village*  
June 17-22, 2007 | Crete, Greece

5<sup>th</sup> International Conference on Pathways, Networks, and Systems  
*Porto Heli Conference Center*  
September 30 - October 5, 2007 | Porto Heli, Greece

3<sup>rd</sup> International Conference on Autoimmunity: Mechanisms and Novel Treatments  
*Aldemar Paradise Village*  
October 7 - 12, 2007 | Rhodes, Greece

2<sup>nd</sup> International Conference on Osteoimmunology: Interactions of the Immune and Skeletal Systems  
*Aldemar Paradise Village*  
June 8-13, 2008 | Rhodes, Greece

3<sup>rd</sup> International Conference on Tissue Engineering  
*Aldemar Paradise Village*  
September 21-26, 2008 | Rhodes, Greece