

7th Conference of the Hellenic Society for Computational Biology and Bioinformatics - HSCBB12 -

4 - 6 October 2012

Foundation for Research and Technology – Hellas

Heraklion, Crete, Greece

<http://hscbb12.hscbb.gr/>

Thursday, 4 October

- 11.00 - 11.30 **Registration opens** (registration will be open throughout the meeting)
- 11.30 - 12.00 **Opening Remarks** (IMBB/ICS Director, S. Hamodrakas – President of HSCBB)
- 12.00 - 13.00 Keynote Speaker [Chair: I. Iliopoulos]
Anton Enright
Computational Genomics of Small RNAs

Session 1: **Systems Biology** [Chairs: P. Poirazi, Ch. Ouzounis]

- 13.00 - 14.00 **Rapsomaniki, M.A.**, Cinquemani, E., Kotsanis, P., Lygeros, J. and Lygerou, Z.
Identification of Protein Dynamics in vivo using Stochastic Modeling and Simulation of Fluorescence Recovery after Photobleaching (FRAP) Experiments
- Panagiotou, G.**
The Chemical Interactome Space between the Human Host and the Genetically Defined Gut Metabo-types
- Nikolaou, C.**, Pandis, Y., Koliarakis, V., Reczko, M., Ragoussis, J. and Kollias, G.
Assessing Epigenetic Regulation of Gene Expression in Chronic Versus Acute Inflammatory Response in Rheumatoid Arthritis
- 14.00 - 15.00 Lunch Break
- 15.00 - 16.30 Poster Session No 1: *Genome and Comparative Biology (Poster No 22, 28)*
Structural Biology (Poster No 03, 13, 14)
Algorithms (Poster No 01, 07, 18, 23, 24, 27, 32)
Evolution (Poster No 17, 31, 38)
Databases and Ontologies (Poster No 06, 20, 34)

Session 2: **Sequence Analysis** [Chairs: V. Promponas, Ch. Nikolaou]

- 16.30 - 17.30 **Manioudaki, M.**, Bazakos, Ch., and Kalaitzis, P.
Pyrosequencing Based Transcriptome Analysis of Olive Response to NaCl Stress
- Chitranshi, N.**, Tiwari, A.K. and Tripathi, P.K.
Investigating the Function of Single Nucleotide Polymorphism (SNPs) in CTSB Gene (cathepsin B): a Computational Approach
- Pavlopoulos, G.A.**, Sifrim, A., Sakai, R., Moreau, Y., and Aerts, J.
A Visualization Approach to Explore the Structural Variome with Meander
- 17.30 - 18.00 Coffee Break
- 18.00 - 18.30 Invited Speaker [Chair: G. Potamias]
Kitsos Louis
Bio-Ontologies and New Biology

Friday, 5 October

- 10.00 - 11.00 Keynote Speaker [Chair: A. Oulas]
Alice McHardy
Inferring Genotype-Phenotype Relationship in the Evolution of Human Influenza A
- 11.00 - 11.30 Coffee Break
- 11.30 - 12.00 Invited Speaker [Chair: I. Tsamardinos]
Ioannis Kontodinas
Knowledge Management for Systems Biology - from Personalized Medicine to Synthetic Biology

Session 3: Algorithms [Chairs: I. Tsamardinos, V. Lagani]

- 12.00 - 12.40 **Malatras, A.** and Michalopoulos, I.
MM: An Algorithm for Automated Tree Pruning
- Papadopoulos, A., Kirmitzoglou, I., **Promponas, V.J.** and Theocharis, Th.
GPU_CAST: GPU Technology as a Platform for Accelerating Low-complexity Region Detection in Protein Sequences
- 12.40 - 14.00 Lunch Break
- 14.00 - 15.30 Poster Session No 2: *Systems Biology (Poster No 02, 05, 08, 15, 26, 29, 33, 36)*
Applied Bioinformatics (Poster No 09, 10, 12, 19, 21, 30, 37)
Translational Bioinformatics (Poster No 04, 11, 16, 25, 35)

Session 4: Gene Regulation and miRNA [Chairs: Ch. Nikolaou, V. Pafilis]

- 15.30 - 16.30 Hadjimichael, **C.**, **Potamias, G.**, Stratidaki, I., Zoumadakis, C., Kafetzopoulos, D. and Kretsovali, A.
Patterning MicroRNA Profiles in the Course of Mouse Embryonic Stem Cell Differentiation: a Graph-theoretic Clustering Approach
- Karathanasis, N.**, Armen, A.P., Tsamardinos, I. and Poirazi, P.
DuplexSVM: a miRNA-duplex Prediction Tool
- Dritsou, V.**, Topalis, P., Dialynas, E., Mitraka, E. and Louis, C.
Expressing Information about miRNAs: The miRNA Ontology
- 16.30 - 17.00 Coffee Break

Session 5: Applied Bioinformatics [Chairs: P. Bagos, G. Pavlopoulos]

- 17.00 - 18.00 **Vatsiou, A.**, Cokelaer, T. and Saez-Rodriguez, J.
Comparison of Stochastic Optimization Methods in CellNOpt
- Pafilis, E.**, Frankild, S., Fanini, L., Faulwetter, S., Pavloudi, C., Vasileiadou, K., Arvanitidis, C. and Jensen, L.J.
SPECIES: Organism Name Identification in the Scientific Literature
- Koumandou, V.L.** and Scorilas, A.
Evolutionary and Functional Relationships between Plasma and Tissue Kallikreins
- 18.00 - 19.00 Keynote Speaker [Chair: Ch. Ouzounis]
Manolis Dermitzakis
Regulatory Genomics in Human Populations

Saturday, 6 October

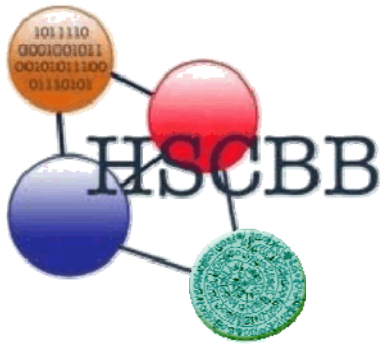
- 10.00 - 10.30 Invited Speaker [Chair: G. Kotoulas]
Guy Cochrane
European Nucleotide Archive: Scaling for Data and Facing the Biodiversity User
- 10.30 - 11.00 Invited Speaker [Chair: D. Kafetzopoulos]
Graham Ball
Modelling Estrogen Receptor Pathways in Breast Cancer using an Artificial Neural Network Based Inference Approach
- 11.00 - 11.30 Coffee Break

Session 6: **Translational Bioinformatics** [Chairs: I. Michalopoulos, P. Topalis]

- 11.30 - 12.30 **Moschopoulos, C.** and Moreau, Y.
Collaborative Knowledge Bases for Genomic Medicine
- Tsamardinos, I.**, Lagani, V. and Pappas, D.
Discovering Multiple, Equivalent Biomarker Signatures
- Kafetzopoulou L.E.**, Dhondalay, G.K.R., Powe, D.G. and Ball, G.R.
Biomarker Identification in Breast Cancer: Pathways to Therapeutic Response
- 12.30 - 14.00 Lunch Break
13.00 - 14.00: HSCBB General Assembly
- 14.00 - 15.30 *The Future of Bioinformatics in Greece / Cyprus, the Role of the HSCBB, and Briefing and Views on ELIXIR*
Round Table / Discussion

Session 7: **Genome and Comparative Biology** [Chairs: P. Bagos, V. Promponas]

- 15.30 - 16.30 **Kontopoulos, D.-G.** and Glykos, N.
Pinda: a Web Service for Detection and Analysis of Intraspecies Gene Duplications
- Desiniotis, A.**, Kouvelis, V.N., Davenport, K., Bruce, D., Detter, Ch., Tapia, R., Han, C., Goodwin, L., Woyke, T., Kyrpides, N.C., Typas, M.A. and Pappas, K.M.
*Analysis of the Genome Sequence of the Ethanol-Producing *Zymomonas mobilis* subsp. *mobilis* centrotypic ATCC 29191*
- Psomopoulos, F.E.**, Argiriou, A., Tsaftaris, A.S. and Ouzounis, Ch.A.
A Pangenome Analysis of the Glucosinolate Pathway in Plants
- 16.30 - 17.00 Coffee Break
- 17.00 - 18.00 Keynote Speaker [Chair: V. Promponas]
Alexis Stamatakis
Biodiversity Informatics: Problems and Challenges for an Emerging Computational Science
- 18.00 - 18.30 **Best Poster Awards**
- 18.30 - 19.00 **Concluding Remarks** [HSCBB Board, Local Organizing Committee]



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Poster Presentations

Thursday, 4 October

15.30 - 17.00 **Poster Session No 1**

Genome and Comparative Biology

- Poster No 22 : Nikolaou, Ch., Tsiagas, G. and Almirantis, Y.
CpG Islands of Higher Eukaryotes Exhibit Potential Functions beyond their Regulatory Role
- Poster No 28 : Plakas, Th., Anastasiou, R., Ferreira, S., Supply, Ph., Papandreou, N.C., Pot, B., Tsakalidou, E. and Papadimitriou, K.
Analysis of the Lactococcal Plasmid pSMA198 found in Streptococcus macedonicus ACA-DC 198 Points towards the Habituation of the Strain to the Dairy Environment

Structural Bioinformatics

- Poster No 03 : Baltoumas, F.A., Theodoropoulou, M.C. and Hamodrakas, S.J.
Overlapping Interaction Sites on the Surface of the $G\alpha$ Subunits of G-proteins
- Poster No 13 : Kostiou, V.D., Theodoropoulou, M.C., Zoe Litou and Hamodrakas, S.J.
G-Proteins: Detection of the Four Distinct $G\alpha$ Families, the $G\beta$ and the $G\gamma$ Subunits using Profile Hidden Markov Models (pHMMs)
- Poster No 14 : Kotta-Loizou, I., Tsaousis, G.N. and Hamodrakas, S.J.
Membrane MoRFs and their Relations with "Aggregation-prone" Peptides on the Interaction Surface of their Partners

Algorithms

- Poster No 01 : Alachiotis, N., Vogiatzi, E., Pavlidis, P. and Stamatakis, A.
ChromatoGate: A Tool for Detecting Base Mis-Calls in Multiple Sequence Alignments by Semi-Automatic Chromatogram Inspection
- Poster No 07 : Dimou, N.L. and Bagos, P.G.
Tools for Robust Analysis in Genome-wide Association Studies using STATA
- Poster No 18 : Maniadi, E.M. and Tollis, I.G.
VisBolic: A Tool for the Analysis and Visualization of Metabolic Pathways and Networks
- Poster No 23 : Oulas, A., Karthanasis, N., Louloui, A., Iliopoulos, I., Kalantidis, K. and Poirazi, P.
A New microRNA Target Prediction Tool Identifies a Novel Interaction of a Putative miRNA with CCND2
- Poster No 24 : Oulas, A., Vogiatzaki, E., Zoumadakis, Ch., Doulis, A.G. and Iliopoulos, I.
MSAP Analyzer - A Comprehensive Web Tool for Processing Methylation Sensitive Amplified Polymorphism (MSAP) Data
- Poster No 27 : Patmanidis, I. and Glykos, N.M.
Folding Simulations of a Highly Frustrated Peptide
- Poster No 32 : Pyrgiotis, T.K. and Margaritis, K.G.
Hybrid Implementation of the Wu-Mander Algorithm using OpenCL and MPI

Evolution

- Poster No 17 : Lirakis, M., Kousathanas, A., Lika, K. and Ladoukakis, E.
Studying the Diversity of the Metazoan mtDNA Length
- Poster No 31 : Psomopoulos, F.E. and Ouzounis, Ch.A.
Ancestral Reconstruction of Metabolic Pathway Content at the Paleome Level
- Poster No 38 : Vitsios, D.M., Psomopoulou, F.E. and Ouzounis, Ch.A.
Null Entries for BioPAX Pathways, Visualization and Pathway Phylogenetic Profiling Based on Paxtools

Databases and Ontologies

- Poster No 06 : Dialynas, E., Redmond, S., MacCallun, R.M., Topalis, P., Christophides, G. and Louis, K.
Population Biology at Vector Base
- Poster No 20 : Mitraka, E., Topalis, P., Dialynas, E., Dritsou, V. and Louis, Ch.
Ontologies for Infection Diseases: The Paradigm of IDOMAL and IDODEN
- Poster No 34 : Theodoropoulou, M.C., Logaridi, A.S., Bagos, P.G. and Hamodrakas, S.J.
PLHG-DB: a Database of Peptide Ligands of Human G-protein Coupled Receptors (GPCRs)

Friday, 5 October

14.30 - 16.00 Poster Session No 2

Systems Biology

- Poster No 02 : Anastasakis, S. and Poirazi, Y.
Computational Modeling of Fear Memory Allocation in Amygdalar Neuronal Populations
- Poster No 05 : Charitou, Th., Pavlopoulos, G.A. and Bagos, P.G.
Large Scale Computational Analysis of Biological Networks: A Comprehensive Evaluation
- Poster No 08 : Kalantzaki, K., Bei, E., Garofalakis, M., Zervakis, M. and Kafetzopoulos, D.
Gene Interaction Networks based on Temporal Expansion of Graphical Models
- Poster No 15 : Jensen, K., Pletscher-Frankild, S., Jensen L.J., Brunak, S., Panagiotou, G and Kouskoumvekaki, I.
Disclosing the Medicine Value of the Vegetarian Diet by Global Characterization of the Plant Metabolic Space
- Poster No 26 : Papoutsis, A., Georgopoulou, D. and Poirazi, P.
Single-Neuron Integration of Background Activity Generates Prolonged Depolarized States in a PFC Model Cell
- Poster No 29 : Psarrou, M., Papoutsis, A. and Poirazi, P.
Influence of Dendritic Morphology on Single Neuron Arithmetic
- Poster No 33 : Roe, O.D. and Kerkentzes, K.
Differentially Expressed Genes of Major Lung Tumour Sybtypes and Normal Lung Tissue
- Poster No 36 : Tzamali, E., Sakkalis, V. and Marias, K.
Cancer Metabolism: Computational Study of the Lactate Secretion Metabolic Strategy

Applied Bioinformatics

- Poster No 09 : Kannas, Ch.C., Achilleos, K.G., Antoniou, Z., Nicolaou, C.A., Pattichis, C.S., Neophytou, C.M., Savva, Ch., Constantinou, A.I., Kalvari, I., Kirmizoglou, I. and Promponas, V.
GRANATUM-LISIs: Making complex in silico Predictive Models Accessible to Wet Biologists
- Poster No 10 : Kastellakis, G. and Poirazi, P.
Computational Modeling of Multiple Plasticity Rules in Dendritic Branches
- Poster No 12 : Konstantoudaki, X., Chalkiadaki, K., Papoutsis, A. and Poirazi, P.
Contribution of Distinct Interneuron Cell Types in Persistent Activity Properties in a Cortical Microcircuit Model
- Poster No 19 : Manioti, V.E., Kontou, P. And Bagos, P.G.
Empirical Assessment of Meta-Analysis of Gene Expression Data from Microarrays
- Poster No 21 : Nikolakakis, N.G., Braliou, G.G., Kontou, P.I. and Bagos, P.G.
The Role of Genetic Polymorphisms of Cytokines in End Stage Renal Disease (ESRD). A Meta-Analysis
- Poster No 30 : Psichias, K., Poirazi, P. and Sidiropoulou, K.
Biophysical Modulation of Persistent Activity in a Detailed Model Neuron of the Prefrontal Cortex
- Poster No 37 : Vainas, D., Roe, O.D. and Lagani, V.
Comparative Evaluation of Affymetrix and Illumina Genome-wide Expression Data in Pleural Mesothelioma

Translational Bioinformatics

- Poster No 04 : Borboudakis, G. and Tsamardinos, I.
Incorporating Causal Prior Knowledge in Causal Models
- Poster No 11 : Kerkentzes, K. and Tsamardinos, I.
A Feature Selection Algorithm for Identifying High-Order Interactions in High-Dimensional Biological Data
- Poster No 16 : Lagani, V., Kortas, G. and Tsamardinos, I.
Biomarker Signature Identification in "Omics" Data with Multi-class Outcome
- Poster No 25 : Papadakis, G., Garinis, G.A. and Lagani, V.
Analysis of Mouse Gene Expression Data in Ageing: a Temporal Clustering Approach
- Poster No 35 : Triantafillou, S. and Tsamardinos, I.
Predicting Associations from Multiple "Omics" Data Sets using Causal Discovery