

# Hellenic Bioscientific Association in the USA

## Newsletter

WWW.HBA-USA.ORG

OCTOBER 2011

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We would like to invite all our members to the 2nd Pan-American Conference of the HBA-USA, which will be hosted in Columbia University, October 15-16th.

In this Newsletter, you will also find an announcement for the upcoming elections of the HBA-USA, which will be in January 2012 and we invite interested candidates to consider submitting applications.

Below please find a welcome message from the HBA-USA president and please check the next page for the final conference program.

attended the 2011 Nobel Lindau Meeting.

Featured in this issue is an interview with Dr. M. Kellis, who authored the best peer-reviewed publication in our top10 list. Finally, please join us in welcoming our newest members.

We also present updates on awards and other distinctions of our members along with an interview of two HBA-USA members who

**The Board of Directors**

## Message from the President

Esteemed Members, Colleagues and Friends,

On behalf of the Board of Directors of the Hellenic Bioscientific Association in the USA and the Organizing Committee of the 2nd Pan-American Conference of the HBA-USA, I would like to extend an official welcome to all participants and members of this 2nd bi-annual conference.

The HBA-USA, an endeavor that was initiated 6.5 years ago by a small group of young scientists, grew and expanded to a scientific network of great potential and impact with more than 350 Bioscientists of Greek origin actively involved in basic or clinical research. The 2nd Pan-American Conference of the HBA-USA that will be held in New York City, NY on October 15-16, 2011, the successor to the 1st Multidisciplinary Workshop in Biomedical Sciences in 2009 in Boston, is the greatest undertaking our association has put forward to date in order to fulfill the major goal of this network: To promote the interests of all HBA-USA members by getting them in proximity, enabling the exchange of ideas and the establishment of scientific collaborations.

One major aim of this meeting is to create a forum, through which young scientists can be presented with the opportunity to interact with and gain valuable insights from established principal investigators and scientists of great impact within the American academic and research environment.

I would like to seize the opportunity to thank all basic and clinical scientists who have joined this network, saw it grow steadily through the past years and share the vision of creating a scientific framework. Especially, I would like to thank the members of the

organizing committee of this meeting for their tireless efforts over the past year that made this meeting possible. In addition, I want to extend my gratitude to the members of the Advisory Board, the scientific committee and our sponsors for providing us critical advice and guidance in all operational and organizational matters. Last but certainly not least, our sincere appreciation is owed collectively to the entire faculty and all the participants who give life to the conference and energize our association.

Again, a very warm welcome to all attending the conference!

Thomas Thomou, PhD,  
President, HBA-USA  
Research Fellow in Medicine, Harvard University

#### **Conference Organizing committee**

Konstantinos Drosatos, Columbia University  
Emmanouela Filippidi, NYU  
Ioannis Karagiannides, UCLA  
Thomas Thomou, Harvard Medical School  
Athanasios Vassilopoulos, Vanderbilt University  
Ioannis Zervantonakis, MIT



## **2nd HBA-USA Conference Information**

The conference will be hosted at Columbia University, Schermerhorn Building, Room 501

Please visit our website for detailed information on registration, housing and transportation:

<http://www.hba-usa.org/Conference2011.html>



**The Schermerhorn Building**

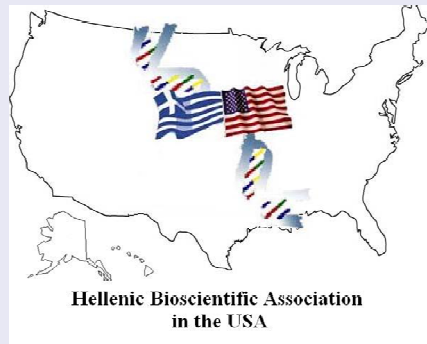
We would like to cordially invite interested participants and attendees to submit a poster through the online registration form.

Finally, we would like to thank our Sponsors (Atlantic Bank of New York, Pangregorian Enterprises of New York and LI, The Christos Polentas Family and UTOG) for their generous support. See last page of this newsletter for more information

# 2ND PAN-AMERICAN MEETING OF THE HELLENIC BIOSCIENTIFIC ASSOCIATION IN THE USA

"Moving from basic to translational research via novel technologies"

**Columbia University  
Schermerhorn Building, Room 501,  
October 15-16, 2011,**



with the support of the Columbia University Hellenic Association

**DAY 1 — Saturday, Oct 15**

***Meeting Registration (2:00pm)***

***Opening session (3:00 pm)***

**Thomas Thomou, PhD**, President of the HBA-USA

**Thomas Nikolakakis**: Board member of the Columbia University Hellenic Association

**Aghie Balta**: Consul General of Greece in New York

**Koula Sophianou**, Consul General of Cyprus in New York

## ***Nomination of HBA-USA Honorary Members***

Dr. Stavros Vougiouklakis

Mrs. Niki Sideris

## ***Presentation of the Award for Outstanding Contribution in Biosciences Education***

**Professor Vassilis I. Zannis**, Boston University & University of Crete

Presentation of the award recipient by *Dr. Konstantinos Drosatos*, Coordinator of the Organizing Committee  
Columbia University & World Hellenic Biomedical Association

**4:00 – 5:00**

## ***Presentation of the 2nd "Aristoteles Award" for outstanding achievements in Biosciences***

**Professor Charalambos Gavras**, Boston University

Presentation of the award recipient by *Professor Litsa Kranias*, University of Cincinnati

## Plenary session

- 5:00 – 5:30**                    **Iannis Aifantis, Ph.D**  
Associate Professor, New York University & Howard Hughes Medical Institute, New York, NY  
"Epigenetic regulation of stem cell differentiation and transformation" (*Published in Cancer Cell*)
- 5:30 - 6:00**                    **Charalampos Kalodimos, Ph.D**  
Associate Professor of Chemistry and Chemical Biology, Rutgers University, NJ  
"Dynamic activation of an allosteric regulatory protein"  
(*Published in Nature*)
- 6:00 -6:30**                    **Poulikos Poulikakos, Ph.D**  
Research Associate, Memorial Sloan Kettering, New York, NY  
"RAF inhibitors transactivate RAF dimers and ERK signalling in cells with wild-type BRAF" (*Published in Nature*)
- 6:30 – 7:00**                    **Nicholas E. Vlahakis, MD**  
Mayo Clinic, Rochester, MN  
"Thrombosis in the ICU: mechanisms and prophylaxis"

## *Reception (8:00—10 pm)*

## Day 1 — Sunday, October 16th

### Scientific Session 1: Novel technologies and applications

Coordinators: Emma Filippidi (New York University), Ioannis Zervantonakis (MIT)

Remarks by Ambassador Dimitris Caramitsos-Tziras, Deputy Permanent Representative of Greece to the United Nations

- 9:45 – 10:15**                    *The Christos S. Polentas Distinguished Lecture*  
**Nikos Kyrpides, Ph.D**  
Department of Energy Joint Genome Institute, Walnut Creek, CA, Head of the Genome Biology Program  
"The future of Microbial Genomics"
- 10:15 – 10:35**                    **Nikos Chronis, Ph.D**  
Assistant Professor, Mechanical Engineering, University of Michigan, Ann Arbor, MI  
"Enabling Translational Research through Bio-MicroElectroMechanical Systems (BioMEMS)"
- 10:35 – 10:55**                    **Maria P. Limberis, Ph.D**  
University of Pennsylvania, Philadelphia PA  
Research Assistant Professor of Pathology and Laboratory Medicine,  
Department: Pathology and Laboratory Medicine  
"Virus vector-mediated antibody expression in vivo to prevent pandemic flu"

### Scientific Session 2: Metabolism & Cardiovascular biology

Coordinators: Iordanes Karagiannides (UCLA), Konstantinos Drosatos (Columbia University)

- 11:15 – 11:45**                    *The Atlantic Bank of New York Distinguished Lecture*  
**Litsa Kranias, Ph.D**  
University of Cincinnati College of Medicine, Cincinnati, OH,  
Distinguished University Professor, Director, Cardiovascular Biology  
"Calcium circuits in Heart Failure"
- 11:45 – 12:10**                    **George Tellides, MD, Ph.D**  
Yale University, School of Medicine, New Haven, CT  
Professor of Surgery, Cardiothoracic and Investigative Medicine, Chief of Cardiothoracic Surgery  
"Immune-Mediated Vascular Remodeling"
- 12:10 – 12:35**                    **Chris J. Vlahos, Ph.D**  
Lilly Research Laboratories, Indianapolis, IN,  
Manager, Global External R&D  
"Cardiovascular Drug Development: Challenges and Promises"
- 12:35 – 12:55**                    **Anastasios Lympereopoulos, Ph.D**  
Nova Southeastern University, Fort Lauderdale, FL

Assistant Professor of Pharmaceutical Sciences  
“A new therapeutic target in heart failure: adrenal  $\beta$ -arrestin-1 and aldosterone regulation”

### Lunch Break

#### Scientific Session 3: Cancer & Immunology

Coordinator: Athanasios Vassilopoulos (Vanderbilt University)

Remarks by Dimitris Kafchitsas, President & CEO, The Pangregorian Enterprizes of Mero new York & LI

- 2:00 – 2:30**      ***The Pangregorian Enterprizes of Metro NY & LI Distinguished Lecture***  
**John M. Kyriakis, Ph.D.**  
Professor of Medicine - Tufts University School of Medicine, Boston, MA  
“Novel functions for the Mst2 tumor suppressor”
- 2:30 – 2:55**      **Constantine A. Stratakis, MD, DSc**  
Director & Chief, Section on Endocrinology & Genetics  
DEB & Heritable Disorders Branch, National Institute of Child Health & Human Development, Bethesda, MD  
“cAMP signaling defects and tumors”
- 2:55 – 3:20**      **Gabriela Chiosis, Ph.D**  
Principal Investigator, Molecular Pharmacology and Chemistry  
Memorial Sloan-Kettering Cancer Center, New York NY  
“The Hsp90 inhibitor PU-H71: from bench to bedside”
- 3:20 – 3:40**      **Dimitrios Iliopoulos, Ph.D.**  
Assistant Professor of Pathology, Harvard Medical School & Dana Farber Cancer Institute, Boston, MA  
“Identification of selective inhibitors of colon cancer stem cells through high throughput screening”

#### Session 4:

#### Collaborations in Life Sciences Education and Research in the United States & Greece

- 4:00 - 4:15**      **Thomas Thomou, Ph.D. – President of the HBA-USA**  
Research Fellow, Harvard Medical School, Boston, MA  
**Science Teaching Exchange Program –**  
**HBA-USA & Univ. of Thessaloniki & Univ. of Ioannina**
- 4:15 – 4:30**      **Vassilis Zannis, Ph.D.**  
Professor & Director of the Division of Molecular Genetics, Boston University School of Medicine, Boston, MA  
**Boston University School of Medicine-University of Crete exchange program**
- 4:30 – 4:45**      **John Evans, D.Sc**  
Professor, Environmental Sciences, Harvard School of Public Health, Boston, MA  
**Harvard University & University of Cyprus Institute Program**
- 4:45 -5:00**      **Leon Stavrou**  
Executive Director , The Next Generation Initiative, Washington, DC  
“Working with American Students and Professors : The Next Generation Experience”
- 5:00 – 6:00**      **Panel discussion**  
Moderator: **Stelios Papadopoulos, Ph.D.**  
BG-Medicine & FondationSante - Non-profit organization aiming to foster multidisciplinary collaborative and educational efforts

### Closing remarks

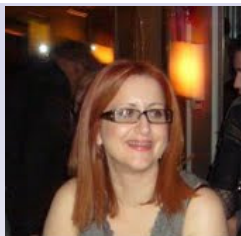
#### **Meeting summary and conclusions**

**Athanasios Vassilopoulos, Ph.D** – Vice president of the HBA-USA  
Vanderbilt University, Nashville, TN

## ELECTIONS for the Board of Directors 2012-2014

In January 2012 the members of HBA-USA will elect the new Board of Directors for the period 2012 - 2014, as the fourth election procedure of our association will take place. The procedure will be similar to the Elections in 2010 with electronic vote for the association, and the board will be contacting the HBA-USA members to submit their votes later this fall.

Interested applicants are cordially invited to contact the current board for additional information.



### Meet our Councilor

#### ANASTASIA NIKOLOPOULOU, Ph.D.

In 1994, I graduated from Aristotle University of Thessaloniki, Greece, with the bachelor degree of Chemistry. Soon after my graduation, I moved to Paris to pursue a Master's degree program in Biochemistry at Paris VII (Denis Diderot) University with specialization in Structure, Function and Engineering of Proteins. In 1998, I joined the Molecular Radiopharmacy Lab at NCSR "Demokritos", Athens, Greece, as a Research Associate working on the development and preclinical evaluation of a series of peptide-based target-specific radiopharmaceuticals for SPECT imaging and imaging applications. In 2002, I was accepted at the School of Pharmacy of Aristotle University of Thessaloniki, Greece, as a PhD candidate. In 2008, I received my PhD diploma for the synthesis and pharmacological study of two novel radiolabeled somatostatin peptide analogs with potential use in the diagnostic imaging of neuroendocrine tumors. Prior to defending my PhD thesis, I joined Biomedica Life Sciences S.A. - a pharmaceutical company focused on the field of Nuclear Medicine - as the Chief Scientific Officer. During my 2 years in Biomedica, I was involved in the launching and marketing of novel Molecular Imaging agents and Targeted Therapies in Greece. On January of 2009, I moved to New York to initiate my post-doctoral training; I currently work at the Radiology Department of Weill Medical College of Cornell University as Post-doctoral research fellow. My main research interests include molecular targeting with radiolabeled mAbs for Oncological applications in addition to the development of  $^{11}\text{C}$ -tracers for brain studies with positron emission tomography.

### DISTINCTIONS & AWARDS

#### 2011 Lindau Nobel Laureates Meeting

The Hellenic Bioscientific Association was involved in nominating candidate bioscientists of hellenic origin to attend the 61st Meeting of Nobel Laureates. We are proud to announce that two out of the five member delegation from Greece were HBA-USA members. The meeting was held on June 26th—July 1st at Lindau in Germany. Below is an Interview with two of our members who attended the meeting ( [www.lindau-nobel.org](http://www.lindau-nobel.org) )

#### THALES PAPAGIANNAKOPOULOS, Ph.D.



1) *Could you please give us a brief description of your academic profile?*

My research aims to elucidate the complex molecular/cellular events that give rise to cancer. During my doctoral studies, I performed research that highlighted the importance of non-coding RNAs (microRNAs) in cancer and stem cell identity. Currently, for my postdoctoral research, I am utilizing autochthonous pre-clinical mouse models of cancer to uncover mechanisms involved in tumor initiation and maintenance. These mouse models allow for better understanding of the diseased cancer state with direct implications to cancer prevention and therapy in the clinic.

*2) What are your expectations for the 2011 Lindau Meeting?*

I am enthusiastic to attend the Lindau meeting, which offers a forum for interaction with fellow peers and notable Nobel laureates from around the world. It's a unique opportunity for the exchange of ideas that can lead to the advancement of biological research.

*3) If you could only attend one nobel laureate lecture, which one would you choose to attend?*

I would attend Elizabeth Blackburn's lecture. I am fascinated by her work on Telomeres. Her research has uncovered the importance of telomere integrity in ageing and disease.

## EIRINI P. PAPAPETROU, M.D. PH.D.

*1) Could you please give us a brief description of your academic profile?*

I received a M.D. and a Ph.D. in Human Molecular Genetics from the University of Patras, Greece. After a residency in Internal Medicine/Hematology, in 2006 I joined the laboratory of Michel Sadelain at Memorial Sloan-Kettering Cancer Center in New York. My graduate and initial post-doctoral work addressed safety issues of current gene therapy using gene transfer into hematopoietic stem cells. After the breakthrough of induced pluripotent stem (iPS) cell technology, in the past 3.5 years I focused my research on the generation and genetic modification of human iPS cells. I was among the first to establish this technology in the US and have to date derived a large number of patient-specific iPS cell lines. I provided proof-of-principle studies of using iPS cells to model the pathogenesis and treatment of genetic diseases and to develop new strategies towards safer genetic engineering. My future research interests are at the interface between stem cell biology, genetic engineering and molecular genetics to study hematologic disease mechanisms and develop novel combined cell and gene therapy approaches to treat human disease.



*2) What are your expectations for the 2011 Lindau Meeting?*

I believe the opportunity to meet and interact with some of the most prominent scientists in biomedical research will be a uniquely inspiring experience. I look forward to hearing the stories behind the discoveries that shaped modern biomedical science and opened new frontiers for its applications in medicine.

*3) If you could only attend one Nobel laureate lecture, which one would you choose to attend?*

Because of my own scientific background, I would choose Drs Sir Martin Evans and Oliver Smithies, who together with Mario Capecchi received the Nobel prize in Physiology/Medicine in 2007 for establishing methods to introduce specific genetic modifications in murine embryonic stem cells, a discovery that opened up an entire new field (mouse transgenics) which has impacted tremendously the study of physiology and disease. There remain, however, many human diseases that cannot still be adequately modeled in the mouse. Today with the advent of iPS cell technology, I and others are applying similar principles to those developed by these Nobel laureates to human pluripotent stem cells towards the development of cellular models for a number of human diseases for which no good models are currently available, as well as towards potential future applications in regenerative medicine.

## DISTINCTIONS & AWARDS CONTINUED

### GREGORY STEPHANOPOULOS, Ph.D.

Professor Gregory Stephanopoulos, MIT was elected to the Academy of Athens in June 2011.

Dr. Stephanopoulos, also recently was first runner-up for the 2010 ConocoPhillips Energy awards for his project Bioprocess and Microbe Engineering for Total Carbon Utilization in Biofuel Production. Prof. Stephanopoulos is a member of the HBA-USA advisory board. For more information on the award visit: <http://www.conocophillips.com/EN/tech/energyprize/Pages/2010Finalists.aspx>



### MARIA KONTARIDIS, Ph.D



Professor Maria Kontaridis, Assistant Professor in Medicine at Harvard Medical School, received an Early Independent Career Research Award at the Keystone Symposium on Molecular Cardiology: Disease Mechanisms and Experimental Therapeutics (x4) in February 2011 for her work on "Rapamycin normalizes hypertrophic cardiomyopathy in a mouse model of Leopard syndrome-associated PTPN11 Mutation".

This work was featured in the Journal of Clinical Investigation. Prof. Kontaridis has been a member of the HBA-USA since 2009.

## LOCAL EVENT AT THE MAYO CLINIC



**Dr. Thomou presenting about funding opportunities in research**



**Dr. Vasmatzis giving a lecture about next generation sequencing and potential applications**



**Dinner following the local event including Minnesota State representative Dr. Tsirikos-Karapanos**

The Board of Directors organized an event in Rochester, MN to promote the interaction of our members from MN and adjacent states as well as to present HBA-USA to potential new members. The event was held on April 1 at the Mayo Clinic. The event included a short introduction by president Dr. Thomas Thomou, followed by a seminar highlighting potential funding opportunities in translational research. Later, Dr. George Vasmatzis (Mayo Clinic) gave a lecture about novel technologies and in particular about next-generation sequencing and potential applications. The event ended with a dinner at a local restaurant which gave the opportunity for further interaction among the Greek and Greek-American scientists.

## The HBA-USA welcomes our new members

**Costas Arvanitis**, Research Fellow, Harvard Medical School

**Ann-Marie Axarlis**, Ph.D. Candidate, Milwaukee School of Engineering

**Stavroula Baritaki**, Research Associate, UCLA

**Konstantinos Biliouris**, Ph.D. Candidate, University of Minnesota

**Charalambos Chatzicharalampous**, Resident, Weill Cornell Medical College

**Aristotelis Filippidis**, Postdoctoral Fellow, Virginia Commonwealth University

**Antonis Ioannou**, Postdoctoral Fellow, Beth Israel Deaconess Medical Center

**Eleni Katifori**, Postdoctoral Fellow, Rockefeller

**Klitos Konstantinidis**, Postdoctoral Fellow, Albert Einstein College of Medicine

**Eftychia Koumarianou**, Postdoctoral Fellow, Duke University Medical Center

**Orestis Lyros**, Postdoctoral Fellow, Medical College of Wisconsin

**Eleftherios Makris**, Postdoctoral Fellow, UC Davis

**Terpischore Maras-Lindeman**, Research Associate, University of Kentucky

**Ioanna Mosialou**, Postdoctoral Fellow, Columbia University

**Konstantinos Michmizos**, Research Associate, MIT

**George Noutsios**, Postdoctoral Fellow, Pennsylvania State University

**Michail Papafaklis**, Postdoctoral Fellow, Brigham Women's Hospital

**Ioannis Papagiannis**, Clinical Fellow, Vanderbilt University

**Marilena D. Papaioannou**, Postdoctoral Fellow, Rockefeller University

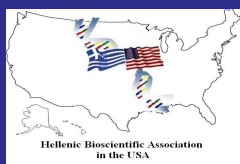
**Evangelos Pappas**, Associate Professor, Long Island University

**Spyros Stamatelos**, Postdoctoral Fellow, John's Hopkins University

**Christoforos Thomas**, Professor, University of Houston

**Panagiotis Vartholomaios**, Research Fellow, Children's Hospital Boston

**Theodora Ziongas**, Director, Patient Navigation, American Cancer Society



Congratulations  
to all!

Refer to the next page to read an interesting interview with Dr Kellis, about his publication

“Identification of functional elements and regulatory circuits in *Drosophila* by large-scale data integration”

The best 10 papers published during the period of Jan '11 - June '11 by members of the Hellenic Bioscientific Association in the USA as the first, second, or as corresponding last authors, have been posted on the association's website ([www.hba-usa.org](http://www.hba-usa.org)). This is an effort aiming to highlight and advertise the scientific achievements of the members of the Hellenic Bioscientific Association in the USA.

1. Cook D, Meade M, Guyatt G, Walter S, Heels-Ansdell D, Warkentin TE, Zytaruk N, Crowther M, Geerts W, Cooper DJ, Vallance S, Qushmaq I, Rocha M, Berwanger O, **Vlahakis NE**. : PROTECT Investigators for the Canadian Critical Care Trials Group and the Australian and New Zealand Intensive Care Society Clinical Trials Group . *N Engl J Med* Apr 7;364(14):1305-14. **IF: 50.02**
2. Klinakis A, Lobry C, Abdel-Wahab O, Oh P, Haeno H, Buonamici S, van De Walle I, Cathelin S, Trimarchi T, Araldi E, Liu C, Ibrahim S, Beran M, Zavadil J, Efstratiadis A, Taghon T, Michor F, Levine RL, **Aifantis I**. : A novel tumour-suppressor function for the Notch pathway in myeloid leukaemia. *Nature* 2011 May 12;473(7346):230-3. **IF: 34.48**
3. modENCODE Consortiu, Roy S, Ernst J, others, **Kellis M**.: Identification of functional elements and regulatory circuits by *Drosophila* modENCODE.. *Science* 2010 Dec 24; 330(6012):1787-97. **IF: 29.75**
4. **Papapetrou EP**, Lee G, Malani N, Setty M, Riviere I, Tirunagari LM, Kadota K, Roth SL, Giardina P, Viale A, Leslie C, Bushman FD, Studer L, Sadelain M. : Genomic safe harbors permit high  $\beta$ -globin transgene expression in thalassemia induced pluripotent stem cells *Nat Biotechnol*. 2011 Jan 29;29(1):73-8. **IF: 29.5**
5. **Sarafoglou K**, Rodgers J, Hietala A, Matern D, Bentler K. : Expanded newborn screening for detection of vitamin B12 deficiency *JAMA* 2011 Mar 23;305(12):1198-200. **IF: 28.9**
6. Kim S, Zaghoul NA, Bubenshchikova E, Oh EC, Rankin S, Katsanis N, Obara T, **Tsiokas L**.: Nde1-mediated inhibition of ciliogenesis affects cell cycle re-entry. *Nat Cell Biol*. 2011 Apr ;13(4):351-60. **IF: 19.53**
7. Sarkar P, Saleh T, Tzeng SR, Birge RB, **Kalodimos CG**. : Structural Basis for regulation of the Crk signaling protein by a proline switch. *Nat Chem Biol* 2011 Jan ;7(1):51-7. **IF: 16.06**
8. Veeravalli K, Boyd D, Iverson BL, Beckwith J, **Georgiou G**. : Laboratory evolution of glutathione biosynthesis reveals natural compensatory pathways. *Nat Chem Biol* 2011 Feb ;7(2):101-5. **IF: 16.06**
9. Marin TM, Keith K, Davies B, Conner DA, Guha P, Kalaitzidis D, Wu X, Lauriol J, Wang B, Bauer M, Bronson R, Franchini KG, Neel BG, **Kontaridis MI**. : Rapamycin reverses hypertrophic cardiomyopathy in a mouse model of LEOPARD syndrome-associated PTPN11 mutation. *J Clin Invest* 2011 Mar 1;121(3):1026-43. **IF: 15.39**
10. **Vergadi E**, Chang MS, Lee C, Liang OD, Liu X, Fernandez-Gonzalez A, Mitsialis SA, Kourembanas S.: Early macrophage recruitment and alternative activation are critical for the later development of hypoxia-induced pulmonary hypertension. *Circulation* 2011 May;123(18):1986-95. **IF: 14.6**
11. **Mentis GZ**, Blivis D, Liu W, Drobac E, Crowder ME, Kong L, Alvarez FJ, Sumner CJ, O'Donovan MJ.: Early functional impairment of sensory-motor connectivity in a mouse model of spinal muscular atrophy. *Neuron* 2011 Feb 10;69(3):453-67. **IF: 13.26**

## Interview with Manolis Kellis, Ph.D.

*Q: Dr. Kelli, could you please describe your academic profile and your academic interests?*

The MIT CompBio group aims to further our understanding of the human genome by computational integration of large-scale functional and comparative genomics datasets. Our ultimate goal is to understand the molecular basis of genetic disease, which requires a detailed understanding of the functional role of each functional element at nucleotide resolution, the regulatory circuitry it is involved in, and the functional consequences of its disruption. To facilitate these goals, we have developed diverse genomic signatures that take advantage of comparative genomics information on the evolutionary history of each nucleotide across mammalian genomes and within the human population, chromatin signatures that reveal regulatory regions and their activity patterns using modifications of the DNA and the histone proteins around which it is wrapped, and activity signatures that study correlations in the dynamics of functional elements across cell types to reveal their regulatory interactions.



*Q: Could you give us a brief summary of the most important findings of your paper ?*

Our goal was the systematic annotation of the *Drosophila* genome, as a model for annotating the human using large-scale functional genomics datasets. What we learned however, is that in addition to revealing thousands of previously-unrecognized functional regions, these methods could be used to piece together regulatory networks predictive of gene function and gene expression levels, which has important implications for our understanding of human biology and disease.

*Q: Could you please describe the main challenges with integrating the different datasets using different experimental technical and at different developmental stages of *Drosophila* model organism?*

The greatest challenge in these projects is going from data exploration, to finding noteworthy patterns, generating hypotheses, gathering sufficient evidence to prove or disprove them, and weaving a compelling story by sorting through thousands of potential anecdotes. The diverse datasets required understanding each experiment and its intricacies, correcting for potential biases, distinguish signal from noise, and establishing the right levels of abstraction and data types for computation.

*Q: A fascinating finding of your work was the discovery of physical and functional regulatory networks. Could you please describe the challenges with this network identification process?*

The main challenges in network identification are the huge number of potential regulatory edges, the disproportionately small number of true regulatory edges compared to large number of false positives, and the small number of known interactions for model learning. We therefore had to develop new machine learning methods to cope with these challenges and integrate diverse lines of evidence including regulator binding on DNA, conserved sequence patterns (regulatory motifs) used in targeting, and correlations in the expression and chromatin profiles between regulators and their targets.

*Q: Could you elaborate on how your findings could help us understand disease processes and basic human biology?*

Genome-wide disease-association studies frequently reveal nucleotides whose changes are associated with disease, but the underlying mechanisms by which their changes contribute to disease are typically unknown. The methods presented here can help reveal both the regulatory functions of disease-associated nucleotides, and also their functional interconnections to their upstream regulators and downstream target genes.

## Interview with Manolis Kellis, Ph.D. (continued)

*Q: Do you have plans for following up with additional genomic mapping of different species, as well as comparison of general patterns identified from these genomes?*

Indeed, the next challenge of our consortium is to understand whether the regulatory principles revealed here are conserved across humans, mice, flies, and worms, and also whether genes with similar functions across the species also have similar regulatory properties. This is a major undertaking of even greater complexity than the current project, that can pinpoint genes in each model organism with relevance to human disease, reveal conserved regulatory circuits involved in disease-gene regulation, and lay the foundations for studying functional conservation across animal genomes.

*Thank you!*

## Awards, Grants and Fellowships Database

The Hellenic Bioscientific Association has created a database of calls and proclamations for awards and fellowships from trust funds, charities, non profit organizations and foundations. The awards and fellowships presented on our web-page are applicable to scientists conducting basic and translational research and encompasses several fields including Metabolic Diseases, Neurodegenerative diseases and Cancer. For a short description of each award including eligibility criteria, duration of the fellowship, awarded funds, and application deadlines please visit

The Boards of  
Directors of  
HBA-USA  
would like to  
wish good luck  
to all who will  
apply.

[Goldhirsh Foundation Brain Tumor Research Awards](#)

[Mary Kay Foundation Innovative/Translational Cancer Research Award](#)

[Davis Foundation Postdoctoral Fellowship Program in Eating Disorders Research](#)

[The National Pancreas Foundation Grant Program](#)

[Lalor Foundation Postdoctoral Research Fellowship](#)

[Alliance for Cancer Gene Therapy Investigator's Award in Clinical Translation of Cell and Gene Therapy for Cancer](#)

[Klarman Family Foundation Grants Program in Eating Disorders Research](#)

If you want to be instantly notified when a new award, grant or fellowship becomes available, please make sure to subscribe to our new awards & fellowships RSS feed in our [web-page](#)



## Available Positions

[Postdoctoral researcher](#) at the University of Crete, Medical School, Crete - 06/09/2011

[Research fellow at the Intensive Care Medicine Research Laboratory](#) at the University of Crete, Medical School, Crete - 08/06

[Post-doctoral research position](#) in gene pathways in inflammatory diseases at the University of Crete, Medical School, Crete, Greece - 17/04

[Post-doctoral research positions in Biological Chemistry](#) in proteomics/transcription factors/signaling pathways at the University of Athens, Medical School, Athens, Greece - 16/11

[Open Call for 3-year post-doctoral research positions](#) in Neuroscience/ microRNAs/ Hu proteins, at the Biomedical Research Foundation of the Academy of Athens, Athens, Greece - 08/11

[Two post-doctoral research positions in Biochemistry / Molecular Biology](#) and/or Drosophila research University of Athens, Athens, Greece - 25/10

[post-doc in Molecular Endocrinology lab](#) University of Patras Medical School, Rio, Greece - 24/10

[3-year post-doc at Bioengineering/Systems Biology lab](#) NTUA (Athens, Greece) - 15/10

[Funded post-doc / PhD / Master's position](#) in molecular endocrinology at Univ. Patras (Patra, Greece) - 18/9

[Funded post-doctoral positions](#) in molecular biology and biotechnology (IMBB , FORTH, Heraklio, Crete) 27/8

[2 PhD positions in food science](#) for non-Greek citizens only (Agricultural University of Athens, Greece)

[Lecturer or Assistant Professor](#) position in Molecular Biotechnology (University of Patras, Greece)

## Contact us

### 2011 Annual Dues Notice

We would like to remind you of the 2011 dues (\$20 for graduate students, \$30 for postdoctoral fellows and \$50 for faculty members). For more information with respect to annual dues payment options please visit our [web-page](#)

Since its creation, HBA-USA has had extremely limited outside financial support. HBA-USA is a member organization entirely supported by member dues in order to implement our association's goals.



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