"ΑΡΙΣΤΕΙΑ"

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"Molecular Basis of Human Disease"
University of Crete, School of Medicine
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Editorial

Biomedical Research: New challenges in graduate training

By Dimitrios T. Boumpas and Dimitris Kardassis

Biomedical research has increased in scope and complexity during the last decade. New research fields such as regenerative medicine, functional genomics, systems biology and others develop at an unprecedented speed. Keeping up with the latest advances is a cumbersome task while finding the right people to teach the new technological advances is a challenge.

Our program has worked hard and invested a considerable amount of its resources to achieve this goal by inviting people from advanced biomedical centers in Europe or the US to teach and transfer the technology. However, the resources are not unlimited. As of August 2008, the Ministry of Education has terminated the funding of all new graduate programs that were created in the context of ΕΠΕΑΕΚ ΙΙ, including ours. This practically means that from now on, the program has to support itself from internal revenues. This is a big challenge for the program. At the same time we strongly believe that the program has matured and created the critical mass to face this challenge successfully.

The ultimate goal of graduate training is to prepare independent researchers at a reasonable age in their life so that they can go on with their careers and be able to support their families from a decent position as soon as possible. Here lies another challenge: can we prepare them for more complex tasks in a shorter period of time?

While for the purists this may sound as a heresy, nevertheless this is an issue that we need to tackle upon if we still want to attract the best minds in biomedical research. This is especially true for the physicians aspiring to become physician-scientists in a country like ours where the plethora of physicians has created a sense of devaluation of the profession and has undermined the prospects for training and finding a reasonable job at a reasonable age.

As we strive for excellence in our program, we need to address this issue. To this end we invite faculty and students to voice their opinions regarding whether assuring top quality graduates is feasible within a shorter period of time and how could this be achieved.

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Postgraduate education in Biochemistry

By Vassilis I. Zannis

"Postgraduate Education in Biochemistry" *was the topic of a session in the 33rd FEBS and 11th IUBMB Meeting in Athens on June 30, 2008.* The session had six 20-minute presentations (posted in the IUBMB/FEBS website: http://www.febs.org/), and a 30-minute panel discussion and was attended by over 200 participants.

The topics discussed were:

- What skills do graduate students need for their PhD (and beyond) (Heather Sears, Univ. Leeds, UK)
- PhD supervising skills (Edward Wood, Univ. Leeds, UK)
- Excellence in graduate education in biological sciences (Anne Ephrussi, Heidelberg, Germany)
- Enriching doctoral education with interdisciplinary and inter-institutional training (Fotis Kafatos, Imperial College, UK)
- Council of Education of the European Universities Association (Jean Chambaz, Univ. Paris, France)
- The impact of evaluation/accreditation and the Bologna Directives on graduate education in the biological sciences in Europe (Vassilis Zannis, Univ. of Crete, Greece)

The session touched on larger issues of higher education, graduate education research and technology and their importance and impact on society.

The six presentations outlined the objectives of graduate programs as well as the duties and responsibilities of graduate students and their advisors. They explored the means to promote excellence and interdisciplinary interactions. They pointed out the need to utilize the human and material resources of the universities and the research institutes in order to create critical mass of scientists and the infrastructure that is required for the establishment of outstanding graduate programs.

The advantages of creating national or trans-national graduate programs that involve different universities and/or research institutes as well as the need to guarantee financial support for the graduate students were emphasized.

The role of quality assurance agencies (QAA) that are mandated by the Bologna Declaration in order to establish quality and uniformity in education in the EU, was explained and discussed.

The EMBL international program was presented as a model of excellence in interdisciplinary graduate education and transnational cooperation.

As stated by Dr. Fotis Kafatos,

"The doctoral education in Europe is the lifeline of research and contributes to the renewal of higher education, and the creation of new industries. In the 21st century, Europe can only compete through the knowledge triangle between higher education, research and innovation."

Below are some key points made by the different presenters.

Dr. H. Sears emphasized the knowledge and the skills that a graduate student should acquire and the difficulties the students encounter.

Dr. E. Wood emphasized the functions, the qualifications, the skills and the responsibilities of the supervisor as well as the proper communication with the student.

Dr. A. Ephrussi explained the mission and the accomplishments of EMBL. She described the EMBL International PhD program (EI(PP) that cooperates with 29 universities, including Crete, and awards joint degrees. She also described the EMBL Collaborative Training Program (CTP) for high level PhD training and the commitment of EMBL in women's careers.

Dr. F.C. Kafatos explained the mission of the European Research Council (ERC), and the importance of excellence in higher education and research in order to create a knowledge-based society. He outlined the task

required for the creation of the knowledge society of the future. He emphasized the importance of the doctorate programs and means to attain excellence with national and transnational collaborations of universities and research institutes.

Dr. J. Chambaz explained the objectives of the newly created Council of Doctorate Education of the European University Association (EUA-CDE). He also outlined the new vision and the policies required to attain the objectives set by EUA-CDE.

Dr. V.I. Zannis explained the impact on higher education of the policies agreed upon by the education ministers at various European Union summit meetings, starting with the Bologna Declaration in 1999 and continuing until now. Key elements of these policies were:

i) To create two main cycles of studies: a 3-year undergraduate cycle that leads to BA/BS and a graduate cycle that includes a 2-year Master's and ~3-year PhD program.

ii) To establish a system of uniform credit such as the European credit transfer system (ECTS) in order to have courses recognized across Europe.

iii) To promote the mobility of students and educators.

iv) To promote the European cooperation in quality assurance.

v) To integrate lifelong learning into the overall strategy of education.

vi) To affirm the role of the institutions of higher education and students as competent active and constructive partners.

vii) To establish a European research area, thus affirming the role of research as one of the pillars of a modern university.

These objectives should be attained by different institutions and countries with full respect of the diversity of cultures, languages, national education systems and taking into account the autonomy of the university.

Dr Zannis explained in detail the function of the national Quality Assurance Agencies (QAA) and their critical role for the accurate internal and external evaluation of departments or the entire universities. Based on these evaluations (that are currently going on in the Greek AEI), the QAA writes an overall report to inform the government on the status of individual universities and the overall status of higher education. Based on these reports, the national government is supposed to formulate its policy on higher education in order to converge with the Bologna objectives by the year 2010. The national QAA themselves are subject to self-evaluation and a peer review European evaluation every 4 years and it is important that the evaluations of the AEI they conduct are accurate and reflect the reality.

Dr Zannis described the joint graduate program in Molecular Biology and Biomedicine and the MD/PhD program on the Molecular Basis of Human Disease of the Medical School of the University of Crete. He emphasized that both programs have critical mass of 15-30 well-trained faculty and visiting faculty that have adopted a quality culture, have regular internal and external evaluation and implements proposed recommendation, and have international collaborations that allow students to do part or all of their thesis work abroad.

Closing his presentation, Dr Zannis offered some guidelines on the steps required to achieve quality and uniformity of graduate degrees based on the Bologna Directives, as follows:

a) Quality graduate programs require **critical mass of expert faculty** (15-30) for the specific area covered by the graduate program, coupled with promotion of a quality culture. Graduate programs without critical mass of expert faculty should not be allowed to start. In addition, existing graduate programs without critical mass of expert faculty should merge with other national or European programs to become viable

b) **Regular assessment** of the adequacy of the graduate programs is essential. Such assessment must be performed by independent experts with strong scientific records (nominated for instance by

professional societies such as FEBS, FASEB, IUBMB, etc.). The process can be under the auspices of the European Network of Quality Assurance (ENQA) or other quality assurance agencies. It will then be left to the universities and the national governments to correct or eliminate weak programs.

c) Creation of **extensive networks of European laboratories** with common graduate programs and expansion of collaboration in graduate programs with non-European Universities or individual scientists working in Universities and research institutions in North America. Participating scientists can contribute to short-term teaching in graduate programs, can serve as mentors of young scientists who return to Europe, can accept European graduate students to do part or the entire Master's or PhD thesis work in their labs and vice versa.

d) Creation of **competitive funding** of graduate programs. Without sustainable support, graduate programs cannot reach excellence.

It is hoped that the concepts discussed, as well as the models of and the mechanism available to reach excellence in graduate education can be valuable to educators, students and the policy makers in their quest to reach excellence in graduate education and avoid unnecessary mistakes in the future.

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Meet Our Faculty

by Dimitris Kardassis

Despina Sanoudou, PhD, FACMG, CBiol

Despina Sanoudou is a faculty member of the Center of Basic Research of the Biomedical Research Foundation of the Academy of Athens and an elected Assistant Professor of Pharmacology at the Medical School of the University of Athens. She has been a member of our graduate program since the beginning of its operations in 2003. Despina Sanoudou received a BSc degree in Molecular Biology from the University of Hertfordshire and a PhD on Cytogenetics from the Department of Pathology of the University of Cambridge. She then crossed the Atlantic and did post-doctoral work in the lab of Alan H. Beggs at Children's Hospital Boston. Despina was responsible for the set up of the Microarray Core Facility at the Genetics Division of Children's Hospital for the study of neuromuscular disorders. In 2002, she became board certified by the American Board of Medical Genetics and in 2003, she was promoted to Instructor at the Department of Pediatrics, Harvard Medical School. Her major research interests aim at deciphering the molecular pathophysiology of neuro-muscular and cardiovascular disease. Despina is the organizer of the Outreach Programs on Science Education and Career Development. She has been elected member of the American College of Medical Genetics and the British Institute of Biology. Last year, Despina received the 2007 Unesco-L' Oreal Prize for "Women in Science" which is awarded to women with outstanding contribution in science.

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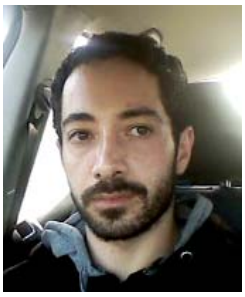
Meet our students

by Vanna Zachariou



Giorgos Siakallis, 1st year PhD student (Sourvinos lab)

Giorgos Siakallis was born and raised in Cyprus. He moved to Heraklion in 2000 to study Medicine. In 2006, George joined the Graduate Program in the Molecular Basis of Human Disease.

Q: Did you have any research experience before enrolling in graduate school?

A: In fact I spent several months in Dr Gikas's laboratory as a Medical Student. This was my first exposure to Infectious Diseases research and literature. I decided to follow the graduate school path, because I'd like to understand more about the

molecular mechanisms underlying clinical problems. My goal is to be able to combine research and medicine, in an Academic environment some time in the future.

Q: Graduate courses are quite different from Medical courses. Was it a tough transition for you?

A: I didn't really have a problem with the course curriculum, and I found most of the lectures very interesting. The big challenge for me was to get into the logic of a research lab, learning how to use literature resourses, analyzing data or designing a study.

Q: What type of techniques are you using?

A: I am working in a Virology lab, under the supervision of Dr. Sourvinos. My project involves the investigation of the effects of TGF-β on HSV-1 life cycle. Experimentally, methods such as isolation and propagation of herpes viruses, plaque assays and viral titrations along with immunofluorescence are applied. I am also monitoring the dynamics of viral proteins fused to autofluorescent tags, e.g. GFP, in live infected cells using an inverted microscope.

Q: Tell me about your residency plans

A: I am going to specialize in Infectious Diseases.

Q: What's the big question in the Infectious Diseases field these days?

A: I find it very interesting that many groups are following a novel treatment mentality towards certain diseases. Till now antibiotics have been broadly applied, but they are not always effective, and in most cases the development of tolerance and other side effect complicate their use. A better understanding of the mechanism via which a particular pathogen infects a host, and the development of vaccines, may provide more efficient tools against certain diseases.

Q: We'd hope for more affordable treatments as well. Which diseases you consider the bigger challenges today?

A: Climate changes, globalization and travel frequency, facilitate the transmission of diseases such as Tuberculosis and Malaria all over the world.

Q: It is interesting you mention Malaria. A friend of mine who lives in Manhattan was hospitalized last week with Malaria. I was so surprised to hear this but based on what you describe, this is a sign of the days. Since today's date is December 1st, I'd like to hear some comments from you about AIDS awareness in Greece

A: It is really disappointing. Prevention policy is minimal, and a big part of the population behaves like HIV does not concern them. This is the reason we see a rise in the amount of HIV infections in Greece. This year several organizations have requested to sharpen AIDS prevention policies on youth.

Q: It is such a paradox to live in a part of the world we can have access to all these resources via the Internet and yet to remain so ignorant… Which breakthroughs would you expect in the field in the coming years?

A: The extinction of Multidrug Resistant Tuberculosis, and AIDS. These two diseases affect a large percentage of the population universally.

Q: Good luck with your studies, and keep us informed! My last question concerns the lab dynamics. I know you are a supporter of the Anorthosis football team, whereas George Sourvinos is a well known fun of Olympiakos….How do you guys get along?

A: Let's say we avoid meeting the day after a match….But I have to say that George is a great mentor and I really want to thank him for being so patient with me.

* * *

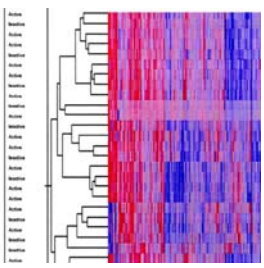
Research Activities

by Aris Eliopoulos and Helen Papadaki

CD105 as a marker of immature mesenchymal progenitor cells. Bone marrow (BM) mesenchymal stem cells (MSCs) represent an interesting field of research for their in vitro properties and the in vivo therapeutic applications. A restriction in MSC research is the absence of a unique identification marker for their isolation. In a recent study from Dr Helen Papadaki's lab, two MSC containing BM cell populations namely the $CD45^-/CD105^+$ and the $CD45^-/GlycoA^-$ cells, were studied in regards to the clonogenic/proliferative capacity and the capacity to differentiate towards adipocytes, chondrocytes and

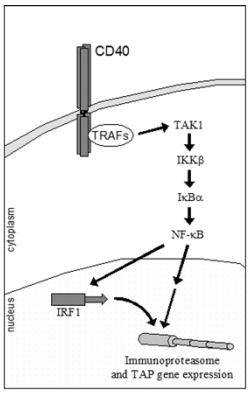
osteocytes. The investigators found that the $CD45^-/CD105^+$ cell contains a more immature fraction of MSC with increased potential to generate colony-forming unit fibroblasts (CFU-F) at a single clone level compared to the $CD45^-/GlycoA^-$ cells. In keeping with this finding was the increase mRNA expression of the embryonic MSC markers Oct-4 and Nanog in the $CD45^-/CD105^+$ cells compared to $CD45^-/GlycoA^-$ cells. The investigators concluded that the $CD45^-/CD105^+$ cell fraction is enriched in immature MSCs and, accordingly, represents an appropriate source for MSC culture initiation. Our post-graduate student Irene Andreakou has been involved in this study during her rotation in Dr Papadaki's lab and has co-authored the publication *(Tissue Eng Part C Methods. 2008 Sep 18;Epub ahead of print)*

Bone marrow gives clues of active disease in system lupus erythematosus. An interesting work has been performed by our PhD student Magda Nakou in Dr Boumpas' lab in collaboration to Oklahoma Medical Research Foundation Microarray Research lab and has been published in the most prestigious journal in the field of Rheumatology, Arthritis & Rheumatism. The investigators have examined 21,329 genes in the bone marrow (BM) of patients with active and inactive system lupus erythematosus (SLE) in comparison to healthy individuals or patients with osteoarthritis, by means of a genome-scale DNA microarray. The analysis identified 102 genes involved in various biologic processes that were differentially expressed between patient and control BM cells; 53 of them were genes involved in major networks, including cell death, growth, signaling, and proliferation. Interestingly, two major clusters were identified on the basis of disease activity in SLE patients' BM but not in peripheral blood that included genes involved in cell death and granulopoiesis. This is the first study providing evidence for the role of BM in the discrimination between active and inactive SLE and for the role of apoptosis and granulocytes in the pathogenesis of the disease *(Arthritis Rheum. 2008; 58:3541-9)*.



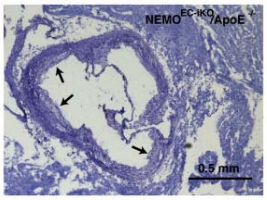
TRAF1/STAT4 polymorphisms predispose for rheumatoid arthritis in Crete. Rheumatoid arthritis (RA) is a multifactorial disease with many genes being involved in the development and progression of the disease. Genome-wide association studies in different populations have revealed a significant association between a TRAF1/C5 and a STAT4 polymorphism and the development of RA. George Goulielmos and his team comprising students from our Graduate Program, has investigated the presence of these polymorphisms in RA patients and healthy controls living in the island of Crete. The mutated allele A or genotypes A/A and G/A of the TRAF1/C5 rs10818488 SNP were more frequently found in individuals with RA than in controls. Similarly, mutated allele T or genotypes T/T and G/T of the STAT4 rs7574865 SNP were associated with susceptibility to RA. It seems, therefore, that the mutant alleles or genotypes of TRAF1 and STAT4 genes polymorphisms are associated with the development of RA in the population of Crete *(Hum Immunol. 2008 69:567-71)*.

CD40 'wakes-up' immune pathways in cancer cells: Cancer cells develop powerful mechanisms to evade immune surveillance, including defects in processing and presentation of tumor antigens. A paper by Eliopoulos' team published in *Molecular & Cellular Biology* has revealed an interesting new mechanism by which CD40 receptor engagement overcomes these defects in human carcinoma cells. The authors have studied a number of genes involved in the regulation of antigen transport and processing and found that their transcriptional activation is coordinated by the transcription factors IRF-1 and NF-κB. IRF-1 is a potent immuno-modulator and tumor suppressor known to be induced by interferon-mediated STAT signaling. CD40 ligation, however, utilizes NF-κB but not STATs to up-regulate IRF-1 expression. The sequential mobilization of NF-κB and *de novo*-synthesized IRF-1 thus ensures coordinated and enhanced transactivation of components of the antigen-processing machinery, the



synthesis of which is required for the CD40-induced anti-tumor immune response. The results of this study also help to appreciate the significance of such "feed-forward" cascades for the regulation of gene expression. (Moschonas et al., *Mol. Cell. Biol*. 2008; 28: 6208-6222).

NEMO guides good health: Atherosclerosis is a progressive disorder of the arterial wall and the underlying cause of cardiovascular diseases such as heart attack and stroke. It is recognized as a complex disease with a strong inflammatory component. The NF-κB signaling pathway regulates inflammatory responses and has been implicated in atherosclerosis. A recent publication by the Pasparakis' group in *Cell Metabolism* of Cell Press, has revealed important roles for NF-□B in atherosclerosis. The authors have used gene targeting approaches to selectively suppress NF-κB in mouse endothelium by knocking-out NEMO/IKKγ, a key NF-κB pathway regulator. They found that ablation of the NF-κB pathway resulted in strongly reduced atherosclerotic plaque formation in ApoE(-/-) mice fed with a cholesterol-rich diet. Inhibition of NF-κB abrogated adhesion molecule induction in endothelial cells, impaired macrophage recruitment to atherosclerotic plaques, and reduced expression of cytokines and chemokines in the aorta. Therefore, endothelial NF-κB signaling appears to orchestrate proinflammatory gene expression at the arterial wall and to promote the pathogenesis of atherosclerosis. (Gareus et al., *Cell Metab*. 2008; 8:372-83).



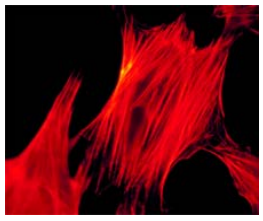
Learn your ABC by heart: The side population (SP) phenotype which is characterized by a unique efflux of the Hoechst 33342 dye, has been introduced as a reliable marker to identify subpopulations of cells with stem/progenitor cell properties in various tissues. A recent publication by Pfister *et al*. in the prestigious cardiology journal *Circulation Research* shows that ATP-binding cassette (ABC) transporters, such as *Abcg2* and *mdr1* control dye efflux in cardiac SP cells. This study, however, reveals additional new functional roles for ABC transporters in modulating the proliferation, differentiation, and survival of cardiac SP cells. Using *Abcg2* and *mdr1* deficient mice, the authors demonstrate that regulation of the SP phenotype in cardiac SP cells occurs in a dynamic, age-dependent fashion, with *Abcg2* as the molecular determinant of the cardiac SP phenotype in the neonatal heart and *Mdr* as the main contributor to the SP phenotype in the adult heart. Manipulation of *Abcg2* expression and function may therefore be of particular importance in promoting cardiac regeneration following injury by endogenous or exogenously delivered cSP cells. Angelos Oikonomopoulos and Konstantina Sereti, graduate students of our Program, are first co-authors in this publication. (Pfister et al., *Circ Res*. 2008;103:825-835).

Polymorphisms dictate HCV response: Hepatitis C virus (HCV) is a major etiological agent of viral hepatitis and a significant cause of chronic morbidity. Outcome in patients with HCV infection is the result of complex interaction between viral virulence factors and host's response and may vary from spontaneous recovery to asymptomatic healthy carriage and progression to liver fibrosis. A paper published in the *Journal of Clinical Immunology* by members of our post-graduate program describes a link between mannose-binding lectin 2 (*MBL2*) gene polymorphisms and liver disease progression. MBL functions as a pattern recognition molecule, able to bind onto microbial polysaccharide surface structures, enhance phagocytosis, and activate the complement system. The authors studied polymorphisms in exon-1 and promoter region of MBL2 in 80 HCV-positive patients and found a strong correlation between exon-1 polymorphisms and progression to inflammation and fibrosis in HCV infected patients. (Koutsounaki et al., *J. Clin. Immunol*. 2008; 28:495-500).

Viruses hit again: Warthin's tumor is a common benign neoplasm of the salivary gland. Human Herpes Virus 8 (HHV-8) is the etiologic agent for all forms of Kaposi's sarcoma, and HHV-8 DNA is present in saliva, suggesting that non-sexual transmission is associated with latent infection of the salivary gland. A recent publication in the *Journal of Clinical Virology* by the group of George Sourvinos showed that HHV-8 DNA is

present at a high proportion in these neoplasms and, in some cases, histologically normal adjacent epithelium, suggesting that HHV-8 may have a significant role in the pathogenesis of the disease. Efterpi Dalpa, a graduate student of our Program, is first author in this publication. (Dalpa et al., *J. Clin. Virol*. 2008; 42: 182–185).

RhoCKING the cell with TGFß. Transforming Growth Factor ß (TGFß) has a dual role in cell physiology: in normal cells, it protects from uncontrolled proliferation due to its cytostatic program. However, in cells bearing oncogenic mutations, TGFß promotes carcinogenesis and metastasis by affecting various processes including the dynamics of the actin cytoskeleton. In a recent paper published in FEBS Journal, the groups of Stournaras and Kardassis showed that a specific member of the Rho family of small GTPases called RhoB plays an essential role in TGFß-induced cytoskeleton reorganization in fibroblasts. Using adenovirus-mediated gene transfer technology the groups showed that Smad2 and Smad3 induced transcription of the endogenous RhoB gene but not the RhoA gene whereas in JEG-3 choriocarcinoma cells that lack endogenous Smad3, TGFß-induced transcriptional up-regulation of the RhoB gene was not observed, but it was restored by adenoviral Smad3 overexpression. In addition, Smad3, induced the transcription of the alpha-smooth muscle actin (α-SMA) gene, and enhanced the incorporation of α-SMA into microfilaments in Swiss 3T3 fibroblasts. These data reveal a novel mechanism of cross-talk between the classical TGFß/Smad pathway and Rho GTPases, regulating the rapid and the long-term actin reorganization that may control the fibroblast-myofibroblast differentiation program *(*Vardouli et al*., FEBS J. 2008; 275:4074-4087)*.



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Research grants

by Dimitris Kardassis

Dr Nektarios Tavernarakis

* Nektarios Tavernarakis, a researcher at the Foundation for Research and Technology - Hellas (FORTH) and a member of our graduate program, has recently been awarded the prestigious European Research Council (ERC) Advanced Investigator Grant for his research proposal titled "Molecular Basis of Neuronal Ageing - NeuronAge."

The objectives of NeuronAge are four-fold. The first is to develop a microfluidics platform for high-throughput manipulation and imaging of specific neurons in individual animals in vivo, as well as to use the platform to monitor neuronal function during ageing in isogenic populations of wild type animals, long-lived mutants and animals under caloric restriction, a condition known to extend lifespan from yeast to primates.

A follow-up activity will be the investigation of how ageing modulates susceptibility to neuronal damage in nematode models of human neurodegenerative disorders. In addition, an important part of the proposed research programme will be to conduct both forward and reverse genetic screens for modifiers of resistance to ageing-inflicted neuronal function decline.

"We will seek to identify and thoroughly characterize genes and molecular pathways involved in neuron deterioration during ageing. Ultimately, we will investigate the functional conservation of key isolated factors in more complex ageing models such as Drosophila and the mouse," said Nektarios Tavernarakis. "Our hope is that these studies will lead to an unprecedented understanding of age-related breakdown of neuronal function and will provide critical insights with broad relevance to human health and quality of life," he concluded.
(source: http://www.forth.gr)

* In October of 2008 the “TACIT” (Targeted Amphoteric Carriers for Immune Therapy) research consortium between the laboratories of Christos Tsatsanis at the University of Crete and Evangelos Andreakos (co-ordinator) at the BRFAA, Athens, and the biotech company Novosom AG in Halle, Germany,

was awarded an FP7-People grant under the Industry-Academia-Partnerships and Pathways funding scheme. Aim of TACIT is to develop novel therapeutic strategies for the cure of inflammatory diseases by delivering anti-sense oligonucleotides, si-RNAs and miRNAs encapsulated in amphoteric liposomes. Novel targets will be evaluated in mouse models of Rheumatoid Arthritis (BRFAA) or Inflammatory Bowel disease and Sepsis (University of Crete). TACIT will facilitate mobility of researchers between the academic and the industrial partners and training of postdoctoral fellows.

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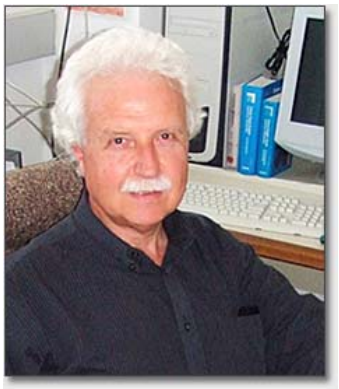
Awards and Distinctions

by Christos Tsatsanis

* This year, *Dr Christos Stournaras*, Prof. of Biochemistry of the University of Crete Medical School was awarded a Mercator Professorship in the University of Tubingen Medical School, supported by the DFG (Deutsche Forschungsgemeinschaft).



Prof. Christos Stournaras

* *Dr Despina Sanoudou* of the Biomedical Research Foundation of the Academy of Athens (BRFAA) received an award by the Panhellenic Union of Bioscientists (PEV) for her contribution to bridging Biological Research and High school Education, and promoting the education of high school students and teachers through the High school Outreach Program she established and runs at BRFAA. Since its establishment 4 years ago, this program has hosted more than 600 high school students from over 45 different schools in Greece. The award was presented to Dr Sanoudou during the 3rd Panhellenic Conference of PEV in Thessaloniki on September 27th 2008.

* The researchers from the Haematology Research Laboratory of *Dr Helen Papadaki* have been awarded for the best presentation in the Annual Hellenic Haematology Association Meeting for their work on the "Mode of action of lenalidomide in the bone marrow of patients with Myelodysplastic Syndromes".

* Drs *Vily Panoutsakopoulou* and *Georgina Xanthou* of the Biomedical Research Foundation of the Academy of Athens (BRFAA) received the Glaxo-Smithkline prize for the best research proposal on Pneumonology in 2008. The title of the proposal was: "Protective actions of activin A in allergic asthma: induction of regulatory T cells".

* *Dr Constantinos Deltas* of the University of Cyprus was selected by the World Scientists Forum of the International Research Promotion Council for "Eminent Scientist of the Year 2008" International Award, in the field of "Nephrology and Human Genetics" based on his innovative research ideas, academic excellence and research initiatives in molecular diagnostics, kidney diseases and Nephrogenetics.

* *Sofia Mavridou*, a 3rd year PhD student of the program (Kardassis lab) received the Bodossakis prize for her work entitled: "Role of hormone nuclear receptors in the expression of the human SR-BI gene in the liver and steroidogenic tissues" that was presented in the 33rd FEBS/11th IUBMB meeting in Athens

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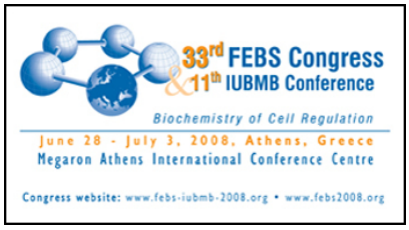
Graduate Program News

a) Meetings (by Drs H. Papadaki and A. Gravanis)

The 33rd FEBS/11th IUBMB meeting in Athens.



Greece hosted for the first time the 33rd FEBS -11th IUBMB Congress held in Megaron, Athens June 28- July 3. About 2550 scientists participated in the Congress, coming from the four continents. Among the delegates were the Nobel Prize laureates Tim Hunt (Nobel Prize in Physiology or Medicine, 2001), Sidney Altman (Nobel Prize in

Chemistry, 1989) and Richard Axel (Nobel Prize in Physiology or Medicine, 2004). The presentations of distinguished scientists such as Axel Ullrich (who decisively contributed to the insulin production using biotechnical methods, as well as the production of Herceptin, a medication for the treatment of Cancer), Carl-Henrik Heldin (who helped understanding the carcinogenesis and finding treatments against cancer) and Nicolaus Rajewski (a pioneer of the microRNA research) were highly anticipated.

Young scientists have separately organized their Forum that was held at Loutraki (23-26/6). The Forum was critical not only for the professional evolution of the young scientists but for the evolution of the Science itself.

Dr Achilleas Gravanis speaking at at the 33rd FEBS/11th IUBMB meeting

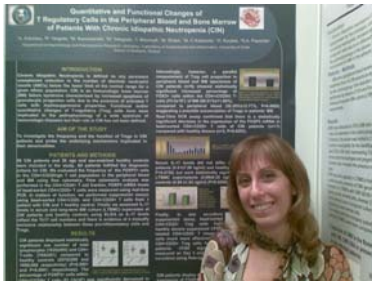
The latest developments on cutting edge issues of the contemporary biochemistry and molecular biology were presented at the Congress. Some of the issues that were discussed are the following:

- the differentiation of the blastocytes (both adult and embryonic), as well as their exploitation in cellular treatments.
- the protein structure analysis and the analysis of the protein-protein interactions in view of producing more effective medication and understanding normal procedures like ageing.
- the interaction of pathogens with their hosts (including human beings) and clearing out how they relate to one another. This research is expected to lead to new ways of treatment of infectious diseases.
- the way the cells communicate with each other and how this can be considered as a target for developing new medications.
- Pharmacogenomics and its "promise" for personalised treatments.
- the contribution of plant biotechnology to renewable sources of materials.

The 3rd Neutropenia Network Conference in Heraklion

Dr Helen Papadaki in collaboration with Professor of Medicine Jan Palmbland (Karolinska Institute), one of this year's visiting faculty of our Program, organized in Heraklion September 26-27, 2008 the "3rd Neutropenia Network Conference" under the auspices of the European Haematology Association. The meeting covered all major fields of congenital and acquired neutropenias in a clinical, laboratory, cellular and molecular biology level. More than a hundred participants, including our graduate students, had the opportunity to interact with invited experts from Europe and USA during the stimulating presentations

Our graduate students Irene Mavroudi, Efterpi Dalpa and Antonia Antoniou presented their results on chronic idiopathic neutropenia.



Graduate student Antonia Antoniou presenting her work at the 3rd Neutropenia network conference

b) "Epidemiology for Clinicians" – A seminar course organized by the Graduate Program (by Drs Maria Vassilaki and Manolis Kogevinas)

Drs M. Vassilaki & M. Kogevinas

Epidemiology is one of the newest branches of science, which has developed extensive research methodology. Most health-related research nowadays utilizes epidemiologic methodology and concepts, but clinicians are not necessarily well equipped to take advantage if it. Therefore, a gap could be developed between clinicians'

knowledge and current demand for understanding epidemiologic research.

Drs D. Boumpas and D. Kardassis took the initiative to breech such a gap when they asked us to deliver a short and condensed course in Epidemiology catering to clinicians' needs. Given this opportunity, we enthusiastically designed a seminar course presenting the main epidemiologic methodology and key concepts that thought would be useful for a clinician when reading medical/research articles or thinking to design own research.

"Epidemiology for Clinicians", organized by the Graduate Program, is a 15-hour (three 5-hour sessions) seminar course. Participants invited were graduate students, as well as, medical residents and clinical attendings working at the University Hospital (PAGNI). They have to attend the three sessions, comprising of a theoretical and a practical exercises component and utilize the knowledge acquired by designing, in small groups, a short protocol concerning an epidemiologic study.

The main objective of this course is to introduce participants to core epidemiologic concepts, methodology and their use and help them acquire an ability to evaluate the quality of research. As of today we have realized the first session of the course and it was quite rewarding seeing such participation. This is in essence a pilot course aiming to both educate participants and understand their needs, which we would like to meet in this and/or future courses.

Such initiatives are always welcome by both epidemiologists and clinicians.

c) Our class of 2008

Our new graduate students (class of 2008).

Top row (left to right): J. Pediaditakis, G. Konstantinou, K. Georgila, M. Moysidou, I Liapis and Prof. V. Zannis
Bottom row (left to right): N. Orphanos, D. Theriou, S. Tousa, K. Pavlaki and A. Vardi.

In May 2008, the coordinating committee of our program selected the new graduate students (class of 2008). Among a total of 46 applicants, the committee selected the following students:

- Despina Theriou, MD, University of Crete Medical School
- Ioannis Liapis, MD, University of Crete Medical School
- Nikos Orphanos, BSc in Molecular Biology and Genetics, University of Thrace,
- Konstantina Pavlaki, MD, University of Crete Medical School
- Maria Moysidou, BSc in Molecular Biology and Genetics, University of Thrace,
- Sophia Tousa, MD, University of Thessaloniki Medical School
- Joseph Pediaditakis, BSc in Biology, University of Crete.
- Anna Vardi MD, University of Thessaloniki Medical School
- George Konstantinou, MD, University of Crete Medical School
- Konstantina Georgila, BSc in Biology, University of Athens.

The program wishes them good luck in their studies.

d) Visitors from abroad

This semester, the visiting faculty who lectured in our graduate courses included:

* **Dr. Dimitrios Iliopoulos,** Harvard University, Boston, USA
* **Prof. Diomedes Logothetis,** Medical College of Virginia, Virginia Commonwealth Univ, Richmond,USA
* **Prof. Stephen Farmer,** Boston University School of Medicine, Boston, USA
* **Prof. Abdulmaged Traish**, Boston University School of Medicine, Boston, USA
* **Prof. Konstantine Kandror**, Boston University School of Medicine,Boston, USA.

We thank them all for their generosity with their time

e) Graduation 2008

The winter 2008 graduation ceremony of our Medical School (for M.Sc. and PhD graduates)

took place on December 15, 2008 at the main auditorium of the new Building for Graduate Studies. The ceremony attended a large number of faculty including the Dean of the Medical School and the Rector of the University as well as by students and parents. The directors and the faculty of the program would like to congratulate them for this achievement.

Our graduate students that received their Master's diplomas on December 15, 2008.

From left to right: Panagiotis Fotakis, Aggeliki Klisarhaki, Chrysoula Deligianni, Maria Moutafi, Eirini Bibaki, Dimitra Terzi, Dimitra Virla, Giorgos Siakallis

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Merry Christmas and a Happy New Year

The directors, the faculty and the students of the graduate program wish you and your families "Merry Christmas and a Happy, Healthy and Productive New Year".

[The Nativity of Christ. Iconography workshop, Holy Convent of the Annunciation, Ormylia, 1986]]

ΥΠΟΥΡΓΕΙΟ ΕΘΝΙΚΗΣ ΠΑΙΔΕΙΑΣ ΚΑΙ ΘΡΗΣΚΕΥΜΑΤΩΝ
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ΣΥΓΧΡΗΜΑΤΟΔΟΤΗΣΗ
ΕΥΡΩΠΑΪΚΟ ΚΟΙΝΩΝΙΚΟ ΤΑΜΕΙΟ
ΕΥΡΩΠΑΪΚΟ ΤΑΜΕΙΟ ΠΕΡΙΦΕΡΕΙΑΚΗΣ ΑΝΑΠΤΥΞΗΣ
Η ΠΑΙΔΕΙΑ ΣΤΗΝ ΚΟΡΥΦΗ
Επιχειρησιακό Πρόγραμμα
Εκπαίδευσης και Αρχικής
Επαγγελματικής Κατάρτισης