

“ΑΡΙΣΤΕΙΑ”

The e-Newsletter of the Graduate Program
“Molecular Basis of Human Disease”
University of Crete, School of Medicine

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Inside this issue:

- Note from the Directors
- Scientific Retreat Highlights
 - Opening, closing and special lectures
 - Scientific Program
- A tribute to V. Zannis
- Meet our new faculty
- Meet our new students
- Awards and Distinctions
- Graduate Program News
 - Students Lab
 - New SAC
 - Visitors
 - New Guide
- Merry Christmas and a Happy New Year

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Note from the directors

We welcome you to “ΑΡΙΣΤΕΙΑ», the triannual e-Newsletter of our graduate program. This Newsletter will be circulated via e-mail as well as posted on the Program’s web site: www://molmedgp.med.uoc.gr.

On October 5-7, 2007, the Graduate Program held its 1st Scientific Retreat at the “Kalimera Kriti Resort” in Sissi. This, together with its 1st external evaluation last year, represents a major milestone in the life of the Graduate Program.

In this issue of the Newsletter, you will find highlights from the Retreat along with other news from the Program.

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Scientific Retreat Highlights

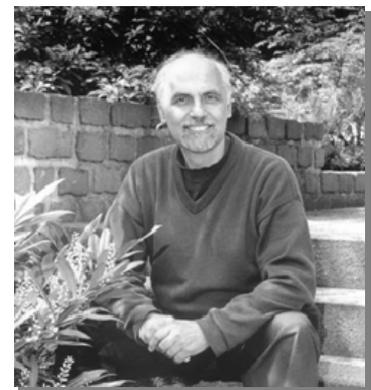
Opening, closing and special lectures

by *Dimitrios T Boumpas*

The first Scientific Retreat of the Graduate Program was attended by approximately 90 faculty and members. The scientific program included an opening lecture by Professor Fotis C. Kafatos and special lectures by invited speakers and faculty of the Program, as well as oral and

poster presentations from the students (see page 3). The Retreat concluded with the closing lecture by Professor V. Zannis.

Opening lecture



Fotis C. Kafatos

*“When you set out for Ithaka
Ask that your way be long,
Full of adventure, full of
instruction”
(Ithaka, K Kavafis)*

In his presentation entitled “Excellence in Science and Higher Education: from Crete to the European Research Council”, Professor F. Kafatos gave an inspiring chronicle of his course from his high-school in Heraklion, Crete to Cornell for undergraduate and graduate studies, to Harvard University as a faculty, to his repatriation to the Universities of Athens and Crete, to his tenor at the EMBL and finally, the creation and organization of the European Research Council.

Using examples from his own professional life, Fotis emphasized the importance of good teachers and schools and of role models. More specifically, his synopsis of the essentials in the pursuit of excellence can be summarized in the tetrptych:

1. Good teachers in a good school.
2. Do not hesitate to ask (“Ask and shall be given”)
3. Choice of demanding mentors (“on the shoulders of giants we can see even further”).
4. Interdisciplinary approach in research that crosses the boundaries of individual scientific fields.



V. Zannis (left) with the Dean of the Medical School O. Zoras, F. Kafatos and D. Boumpas at the retreat

Fotis gave credit to the “giants” of Modern Hellenic Education, (Koraes, Karatheodoris and Zervas) and the Hellenic Diaspora which in his words represents the “other Megali Ellada”.

After a small tribute to the pioneers of innovation in Greece (Dimotikismos at the University of Thessaloniki, the Dimokritos Research Institute, the International electorate first used by A Papandreou at the University of Patras in 1960), he

then reflected on the successes and shortcomings of the creation of the University of Crete and the Foundation for Research and Technology Hellas (FoRTH) where he played a pivotal role in their creation and organization. He emphasized that both the University of Crete and the FoRTH represent “islands” of Excellency in Research and Education that need to be “preserved and protected from mediocracy”.

Fotis concluded with an overview at the research initiatives of the newly-founded *European Research Council (ERC)* which he directs and presented data for the overwhelming response to the first call for Starting Grants for new independent researchers (the “IDEAS” program), which supports the choice of this first initiative as a first priority for European Research.

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Closing lecture

Professor V. Zannis, who retired this summer from the University of Crete, talked about his life experiences from his early childhood at the island of Chios to Athens and then to USA and how they shaped his research and education initiatives.

Vassilis gave credit to his parents and the rest of his family for their sacrifices in order to enable him to complete his university studies. He spoke vividly of the challenges in Greek

universities and how he was able to overcome them.



D. Kardassis (left) with Vassilis Zannis (middle) and Iannis Talianidis (right) at the retreat

Being a faculty member both at Boston University and the University of Crete, Vassilis reflected on major achievements at the University of Crete which included: a) the election of high-standard faculty at the Medical School; b) the establishment of academic criteria for academic promotion at the Basic Sciences; c) the introduction of the course of Molecular Medicine in the late 1980’s in Crete; d) the Exchange Program with Boston University which allows selected medical students from Crete to rotate in Boston University and get exposed to its stimulating environment ; and e) his life-long dream to establish a high-level Graduate Program at the Medical School which finally became a reality five years ago.

Throughout his talk, the audience could feel the sense of pride, love and commitment to his motherland and the “sense of the call” to pay back the motherland for the many blessing that bestowed upon his life.

* * *



Charalambos Savakis

The European Molecular Biology Laboratory (EMBL) is a center of Excellence of Biomedical Research in Europe. Professor Charalambos Savakis, who is the Director of its Board, gave a lively, in-depth overview of its structure, organization and activities.

EMBL is a non-profit organisation and a basic research institute funded by public research funds from 20 member states. EMBL's mission is: to perform basic research in molecular biology, to train scientists, students and visitors at all levels, to offer vital services to scientists in the member states, and to develop new instruments and methods in the life sciences and technology transfer.

Research at EMBL is conducted by approximately 80 independent groups covering the whole spectrum of molecular biology. The Laboratory has five units: the main Laboratory in Heidelberg, and Outstations in Hinxton [the European Bioinformatics Institute], Grenoble, Hamburg, and Monterotondo near Rome. EMBL's international PhD Programme has a student body of about 170. Professor Savakis concluded his talk with an outline of the future initiatives of the EMBL.

Scientific Program

By Dimitris Kardassis

a) General organization of the retreat

The scientific program of the retreat was organized into six sessions based on the research interests of its members: a) Novel Technologies; b) Signal Transduction; c) Immunity/ Inflammation/Infection; d) Stem cell biology; e) Genetics; and f) Metabolic Diseases. Each session included short introductory comments from one or two senior investigators followed by short 10 min presentations of graduate students as well as presentations of recently recruited junior faculty of the University of Crete and IMBB. There were also invited lectures throughout the meeting by outside collaborators.

b) Invited lectures

The first invited scientific lecture of the retreat was delivered by Nektarios Tavernarakis, group leader at IMBB-FORTH. He presented his most recent findings on the relationship between protein synthesis and ageing. Nektarios is using the nematode *C elegans* which has exceptionally well characterized anatomy and development, as a model organism for studying ageing. The key conclusion from Nektarios' work was that by reducing the synthesis of the translation initiation factor eIF4E, the organism extends its life span by shifting the energy equilibrium towards repair and maintenance or the so called

“disposable soma” theory of ageing.

The second invited lecture of the retreat was given by Manolis Pasparakis from the University of Cologne. Manolis delivered a stimulating presentation of his work on IKK/NFκB signalling in inflammation and cancer. Using knockout mice that do not express the NEMO/IKKγ gene specifically in the intestinal epithelium, Manolis showed that these mice develop spontaneous colitis. Searching deeply into the pathogenesis of colitis in these animals, he found increased expression of inflammatory cytokines and chemokines, immune cell infiltration and increased apoptosis in the colon of these mice. Finally, Manolis showed that colitis in the NEMO KO mice could be prevented by the simultaneous ablation of the TNF receptor I or the MyD88 suggesting the involvement of these pathways in the pathogenesis of colitis.

In the third invited lecture of the retreat, Iannis Talianidis of the Fleming Institute in Athens presented his most recent data on “Transcriptional cross-regulatory circuits linking major metabolic pathways in the liver”. Iannis' work, which was based on the utilization of transgenic mice expressing the Small Heterodimer Partner (SHP) and knock out mice for Hepatocyte Nuclear Factor 4 (HNF-4), can be summarized as follows: a) The expression of genes involved in cholesterol-bile acid and fatty acid homeostasis is coordinated by a cross-regulatory circuit between various hormone nuclear receptors including HNF-4, SHP,

LXR, LRH1 and PPARgamma; b) Transcription factors in the liver can act as activators or repressors by employing different modes of action (direct or indirect) on target genes.

c) Lectures from junior faculty

The junior faculty of the program that were invited to present their work at the retreat included Despina Sanoudou of the BRF of the Academy of Athens who spoke on her recent work towards understanding the molecular pathophysiology of skeletal muscle, Jorge Ripoll of IMBB-FORTH who presented the latest developments on in vivo optical tomography and its applications in biology Evangelia Papakosntanti of the Medical School of the University of Crete who presented her recent data on the role of PI3 kinase isoform p110d in the control of PTEN, Iannis Tassioulas of the Medical School of the University of Crete who spoke on the role of Tpl2 kinase in the regulation of FcgR and integrin signalling in macrophages, George Goulielmos of the Medical School of the University of Crete who gave an overview of Familial Mediterranean Fever (FMF) and his work on the genetics of FMF in a Cretan population and the role of Pyrin in the pathogenesis of this disease, Kostas Papadakis of the Medical School of the University of Crete who spoke on the role of effector and regulatory cells in Crohn's Disease and Maria Venyhaki of the Medical School of the University of Crete who spoke on the role of CRF (Corticotropin

Releasing Factor) in cutaneous wound healing.



Graduate students with our secretary Mary Adamaki at the retreat

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d) Student presentations

The scientific program of the retreat included oral and poster presentations from graduate students. The students that presented their work and the titles of their presentations are the following:

- “PD-1 is a potent regulator of effector T cell function in Lupus patients and may represent a target for immunomodulatory therapy”, George Bertsiias
- “Multiple actions of spinophilin modulate opiate addiction”, J.J. Charlton
- “Cytomegalovirus as a potential cause in the pathogenesis of chronic idiopathic neutropenia”, Efterpi Dalpa
- “The enhanced host-cell permissiveness of human cytomegalovirus is mediated by the oncogenic ras signaling pathway”, Charilaos Filippakis
- “Familial Mediterranean Fever (FMF): A genetic approach in the Cretan population and structural implications of the pyrin pryspry domain interactions”, E. Fragouli

- “HCMV microRNAs and potential cellular targets”, Nektaria Goulidaki
- “Structural and functional analysis of the interaction between TPL-2/COT and NPM”, Dimitris C. Kanellis
- “Corticotropin Releasing Factor (CRF) affects breast cancer cell proliferation, apoptosis and invasiveness”, Efi Karagianni
- “Functional characterization of naturally occurring APOA-I mutations found in the Copenhagen city heart study: Mutation L144R causes an abnormal HDL phenotype that can be corrected by treatment with LCAT”, Andreas Kateifides
- “Study on the involvement of the cytokine osteopontin in the initiation and development of intestinal inflammation”, E. Kourepini
- “Mannose-binding lectin MBL2 gene polymorphisms and outcome of hepatitis C virus-infected patients”, Eirini Koutsounaki
- “Transcriptional regulation of the human HDL receptor SR-BI gene in the liver and steroidogenic tissues”, Sofia Mavridou
- “Distribution and function of CD40/CD40L in the BM granulocytic progenitor cells-possible pathophysiologic significance”, Irene Mavroudi
- “Analyses of high density lipoprotein (HDL) composition and functions in Greek patients who survived myocardial infraction before the age of 36 years and in mouse models”, George Michas
- “Identification and characterization of proteins interacting with the signaling adaptor TRAF3”, Sophia Miliara
- “Mechanisms of transcriptional regulation of human apolipoprotein genes that participate in the metabolism of high density

lipoproteins (HDL)", Ioanna Mosialou

- "Gene expression in the bone marrow vs peripheral blood in human systemic Lupus Erythematosus: Bone marrow better differentiates active from inactive patients, and displays apoptosis and granulopoiesis signature", Magda Nakou
- "In vitro expansion of cardiac side population cells for cardiac regeneration", Angelos Oikonomopoulos
- "Live imaging of developmental process in platelet precursors", Nicholas Papadantonakis
- "The immunoglobulin domains of the IGSF member TAG-1/CNTN-2 are necessary and sufficient for its physical interaction with CASPR2 and potassium channels", Maria Savvaki
- "Cardiac side population cells: Role of BCRP1", Konstantina I. Sereti
- "Study of PCSK9 interaction with LDLR and other LDLR family proteins", Alexandros Sykaras
- "Pulmonary fibrosis genetics and telomerase reverse transcriptase mutations", Kalliopi Tsakiri
- "Association of the Nitric Oxide Synthase gene (ENOS) polymorphism with increased risk for both Lupus glomerulonephritis and rheumatoid arthritis in a genetically homogeneous Cretan population", V. Vazgiourakis
- "Effects of respiratory rate on ventilator induced lung injury at constant PaCO₂ in a mouse model of normal lung", Giorgos Voloudakis
- "Adiponectin signal transduction leading to macrophage activation and tolerance to pro-inflammatory stimuli via induction of IRAK-M", Vassiliki Zacharioudaki

e) Input from the students

The students of the program recognized the retreat as "a great occasion to meet and get acquainted with several faculty of the program and the research work performed". They thought that it was "an excellent opportunity for the students to present their work in real "conference" conditions" and they also had the chance to "meet researchers with whom they could probably work with in the future and all this in a very friendly environment".

More senior graduate students recognized "impressive progress of the program" and "improvement in the curriculum" and also "had the opportunity to talk to the new students share experiences and talk about their future plans".

* * *

A tribute to Vassilis I. Zannis, the Professor of "us"

by Dimitrios Boumpas



Vassilis Zannis

Είμαστε στο «εμείς» και όχι στο «εγώ» (Μακρυγιάννης) –
"It is «us», not «me»"
(Makriyiannis)

With the end of the last academic year (2006-2007), Vassilis I. Zannis, Professor of Biochemistry, retired from the University of Crete. A native of Chios, Vassilis completed his undergraduate studies at the University of Athens and then pursued his graduate studies in USA.

A pioneer in the field of dyslipidaemias, V. Zannis served with distinction both Boston University and the University of Crete. During his tenor as a Professor in Greece, Vassilis cultivated many ideas of fundamental importance for the Hellenic University for which, however, he never sought "patronage". He was instrumental in upgrading the basic science curriculum and uncompromising in the pursuit of excellence within the school. As a founding member of the Authority for the Evaluation of Hellenic Universities, he established the system and the standards for the evaluation of the Medical Schools with unrelenting enthusiasm and energy. Thanks to his vision and efforts, our graduate program finally became a reality and has started to enrich the academic lives of all of us.

Vassilis mentored students and faculty and was instrumental to recruiting of high-calibre faculty members at the Medical School. Without ever pursuing leadership positions in Crete, Vassilis was a true leader for the School with a vision for all, students and faculty alike.

Although formally retired from the University of Crete, Vassilis continues at full-speed to work at Boston University and for the

Graduate Program but he intends to spend more time with the family: Dr. Eleni Zanni, his wife, a Professor of Nutrition, Dr. Markella Zanni, his daughter, a fellow in Endocrinology at Harvard and his son John Zannis, a Sports News Director at a TV station in Boston, Massachusetts.

* * *

Meet Our New Faculty

by Dimitris Kardassis



Babis Spilianakis

This year, Charalambos (Babis) Spilianakis, a recent recruit of the Institute of Molecular Biology and Biotechnology of FORTH joined the faculty of our graduate program. Babis received his B.Sc. degree from the Department of Biology of the University of Crete. He then enrolled to the Inter-Departmental graduate program in Molecular Biology and Biomedicine of the University of Crete, where he received his MSc and PhD degrees. His PhD thesis was entitled: "Transcriptional regulation of MHC class II genes via CIITA. The class II enhanceosome and post-transcriptional modification of transcription factors and chromatin during DRA transcription".

For his PhD thesis, Babis worked with Prof. Sifis Papamatheakis of the School of Biology of the University of Crete, also a faculty member of our program.

Babis left Crete for a 4 year post-doctoral training in the lab of Dr. Richard A. Flavell in the Section of Immunobiology, Yale University School of Medicine, working on the mechanisms of long-range intramolecular interactions in the T helper type 2 locus applying novel technologies such as 3C and 4C. He recently returned to Greece and joined the faculty of the Institute of Molecular Biology and Biotechnology.

The program welcomes Babis Spilianakis to its faculty and wishes him a successful career in Greece.

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Meet our new students

For the academic year 2007-2008, the program enrolled 12 new graduate students.

The students are:

- Eleni Vergadi (MD, Univ. Crete Medical School),
- Andreas Zaragoulas (BSc School of Biology, Univ. Thrace),
- Athanasia Zafiri (BSc, School of Biology, Univ. Thessaloniki),
- Melina Kavousanaki (MD, Univ. Crete Medical School),
- Eleni Kontaki (MD, Univ. Thessaloniki Medical School),
- Marina-Eleni Mela (BSc Univ. Ioannina, School of Biological Applications and Technologies),

- Kalliopi Stratigi (BSc School of Biology, Univ. Crete),
- Ioanna Tiniakou (BSc School of Biology, Univ. Athens),
- Antonis Fanouriakis (MD, Univ. Athens Medical School)



The new graduate students (class of 2007) with faculty (V. Zannis, V. Panoutsakopoulou, C. Tsatsanis and G. Goulielmos)

Welcome aboard!

* * *

Awards and Distinctions

a) Despina Sanoudou receives the Unesco-L'Oreal's prize for "Women in Science"

This November, Despina Sanoudou, a Molecular Biologist at the BRF of the Academy of Athens and a member of our program, shared the 2007 Unesco-L' Oreal Prize for "Women in Science" with biologist Marilena Kampa, also from the Medical School of the University of Crete and physicist Maria Katsiki from the University of Thessaloniki. This prize is awarded to women with outstanding contribution in science and is accompanied by a financial reward of 10.000 Euros each.

The program would like to congratulate Despina for this prestigious award and wish her more successes in her career.



Despina Sanoudou (right) with Mrs Rodi Kratsa, Vice President of the European Parliament (left) at the ceremony

b) Professor Nikolaos Siafakas was elected Vice President of the European Respiratory Society

Professor Nikolaos Siafakas, Chief of the Division of Thoracic Medicine and a member of the Co-ordinating Committee, was elected Vice President of the European Respiratory Society. Dr Siafakas, one of the leaders of European Pulmonology, has played a key role in European Respiratory Society and thus his election came of no surprise. We are proud of his achievement and wish him every success.



Prof. Nikolaos Siafakas

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Graduate Program News

a) Student Lab

This year, the curriculum of our graduate program was enriched with the graduate student lab. This practical course includes basic training on widely performed laboratory methods such as genomic DNA isolation, RNA purification, standard molecular cloning methods, Real Time PCR, Western Blotting, ELISA, Flow Cytometry and others. The ultimate goal of this course is to help students integrate faster into the laboratory environment and familiarize themselves into basic laboratory equipment. The course will be offered immediately prior to the laboratory rotations. The course coordinators are George Goulielmos and Christianna Choulaki.

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b) New Scientific Advisory Committee

Entering its sixth year of operation, the program felt the need to renew its Scientific Advisory Committee (SAC). The new SAC (2008-2009) is as follows:

- Dr G. Stamatoyiannopoulos, University of Washington (Chair)
- Dr D. Seldin, Boston University (Vice Chair)
- Dr S. Antonarakis, University of Geneva
- Dr D. Logothetis, Virginia Commonwealth University

- Dr N. Madias, Tufts University
- Dr H. Moutsopoulos, University of Athens
- Dr C. Platsoukas, Temple University
- Dr P. Tsihliis, Tufts University
- Dr Y. Kapetanaki, BRF-Academy of Athens Ad Hoc)
- Dr K. Sekeris, University of Athens (Ad Hoc)
- Dr O. Tsolas, University of Ioannina (Ad Hoc)

We are grateful to past and new SAC members for their significant contribution to the success of our program.

c) Visitors from abroad

As in previous years, this year we had the privilege to host a small number of visiting faculty who lectured in our graduate course "Multidisciplinary approach to understand human disease". The visitors included:

- Konstantin Kandror, Boston University School of Medicine
- Nikolaos K. Robakis, Mount Sinai School of Medicine
- Abdulmaged M. Traish, Boston University School of Medicine
- Diomedes E. Logothetis, Mount Sinai School of Medicine
- Christine Kim Garcia, The University of Texas Southwestern Medical Center
- Joseph Garcia, The University of Texas Southwestern Medical Center

We thank them for their generosity with their time

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d) *New Program Guide*

The program published recently its first “Graduate Program Guide”. The guide includes a short introduction to the program, descriptions of all

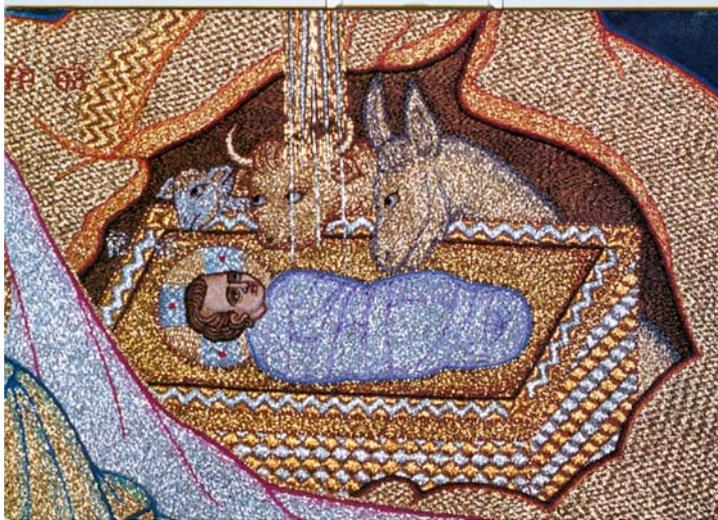
graduate courses, the 1st Report of the External Evaluation Committee and profiles of all faculty members. Many thanks to our secretary Mary Adamaki and the publishing team of Dimitris Tzanis for their enormous contribution and effort

to have this guide ready on time. The guide will be soon posted in our web site: <http://molmedgp.med.uoc.gr>.

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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”.



[Detail from a hand-embroidered episcopal dalmatic (sakkos). Holy Convent of the Annunciation, Ormylia Monastery, 1992]



ΥΠΟΥΡΓΕΙΟ ΕΘΝΙΚΗΣ ΠΑΙΔΕΙΑΣ ΚΑΙ ΘΡΗΣΚΕΥΜΑΤΩΝ
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Η ΠΑΙΔΕΙΑ ΣΤΗΝ ΚΟΡΥΦΗ
Επιχειρησιακό Πρόγραμμα
Εκπαίδευσης και Αρχικής
Επαγγελματικής Κατάρτισης