

Aristides Lytras, MD, Ph.D.

Marie Curie International Outgoing Fellow (MC-IOF-2009)

Biomedical Research Foundation, Academy of Athens, Greece

Joslin Diabetes Center/Harvard Medical School, Boston



Metabolic Plasticity - 253131

Markers of prenatal metabolic plasticity and their reversibility by postnatal interventions

July 2010 – June 2013

***MCAA Greek Chapter
Athens, April 22, 2016***

August – December 2011

Impact of Marie Curie Actions on Fellows and Host Organizations with Respect to NCP Services
 People Specific Programme Success Stories Booklet
 EU FP7 People Network

www.fp7peplenetwork.eu



Greece

Aristides Lytras, MD, PhD
 Markers of prenatal metabolic plasticity and their reversibility by postnatal interventions - Metabolic Plasticity



"The Marie Curie IOF award is a reassuring honor signifying Europe's investment and best wishes for the success of my efforts."

Host Organization : Biomedical Research Foundation, Academy of Athens (BRFAA)
Former Organization : Joslin Diabetes Center, Harvard Medical School
Scientist in Charge : Prof. George P. Chrousos
Start-End Date : July 2010 - June 2013
Total Budget : € 238.375
Keywords : Health sciences, diabetes, insulin resistance, mTOR, low birth weight



Assistance of Marie Curie National Contact Points



Application
 The NCP was very supportive during the application process. They welcomed my visits setting appointments in at least two occasions. The NCP was able to convey the basic philosophy of MC-IOF, suggest the appropriate path to identify critical information for the application process and its specific requirements, and provided relevant brochures and guidance for web access.

Negotiation
 The NCP was also able to support me during the negotiation phase by providing information regarding the actual stage of the selection process and allowing a gross estimation of the time frame for the announcement of the final result. Indeed, the process of selection was delayed and no information was available on the MC-IOF site at the time. Considering that information is crucial for planning and in fact for making the final commitment on a number of important issues, prior to a possible inter-continental translocation, this information provided the necessary flexibility to plan in advance.

Implementation
 So far, there have been no major implementation problems. However, several issues arise and are reason for temporary distress. I will communicate such issues to the NCP, in order to help the planning for some preventive measures for future MC-IOF fellows.
 Overall, I consider the current role of NCP very positive and a solid ground for further development of this important service that may become a "guardian angel" for MC-IOF fellows.

Main Research Objectives

General aim is to develop a model animal system to study preventive and therapeutic interventions in states of compromised metabolism. Specific aims are (a) identification of serum and tissue markers that characterize the metabolic derangements associated with in utero metabolic stress; (b) examination of the effects of medicinal/hormonal and life-style interventions on these markers and their association with changes in insulin resistance, fuel partitioning, and metabolic balance.

Benefits of Participation in this Marie Curie Action

Fellow's View

In my case, the MC-IOF represents a solid opportunity for the "rebirth" of a full research potential after a long period of research inactivity. It is undoubtedly an honor which, however, carries a strong functional outcome, as well; the potentiating of my commitment to pursue my research goals that were "valicited" by this highly competitive process. In my view this award substantiates the investment and the best wishes of Europe for the success of my efforts.

Host Organisation's View

We worked closely with the Scientist in Charge and the Outgoing Host Mentor to plan a set of research training activities that will allow the transfer to the Return Host of important and largely missing technologies; these will also help establishing long term collaborations with the Outgoing Host and other International and Greek Institutions. My goal is the development of a multidisciplinary research program in energy metabolism in the Return Host (BRFAA) and the shaping of a competitive transatlantic metabolic research network that will create a permanent vital research platform sharing common scientific aims, infrastructure and expertise. I consider such a setting ideal for conducting research in Greece as it will amplify Greek research potential, as well as, training opportunities for young Greek scientists within the platform, and will increase the reciprocal efficiency of research funding.



EU FP7 People Specific Programme Success Stories Booklet
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 with Respect to NCP Services





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by postnatal interventions - Metabolic Plasticity



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Benefits of Participation in this Marie Curie Action

Host Organisation's View

- ***Transfer to the Return Host (BRFAA) of important and largely missing technologies***
- *Establishing long term collaborations with the Outgoing Host and other International and Greek Institutions.*
- ***The development of a multidisciplinary research program in energy metabolism in BRFAA***
- ***Shaping a competitive transatlantic metabolic research network***
*(permanent vital research platform sharing common scientific aims, infrastructure and expertise which **amplify Greek research potential, as well as, training opportunities for young Greek scientists within the platform**)*



Greece

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Benefits of Participation in this Marie Curie Action

Fellow’s View

- *A solid opportunity for the “rebirth” of a full research potential after a long period of research inactivity.*
- *An honor with strong functional impact:*
 - *validating my research goals by a highly competitive process*
 - *potentiating of my commitment to pursue these goals*
- *This award substantiates the investment and the best wishes of Europe for the success of my efforts.”*

Metabolic Plasticity - 253131

Markers of prenatal metabolic plasticity and their reversibility by postnatal interventions

Ranked #14 out of 177 applications submitted to the MC-IOF/Life Sciences competition in 2009 (38 out of 177 awarded)

Arriving in Boston JULY 2010:

- **Day 1: We need to change the research plan** (First meeting with the Outgoing Host Mentor)
- **Day 3: “There are many plans that we have not been able to pursue because we did not have hands, but now you are here”... (Outgoing Host Mentor welcoming the newly arrived MC Fellow, a new lab technician, and a summer student-recent M.D. graduate during the first Lab meeting)**



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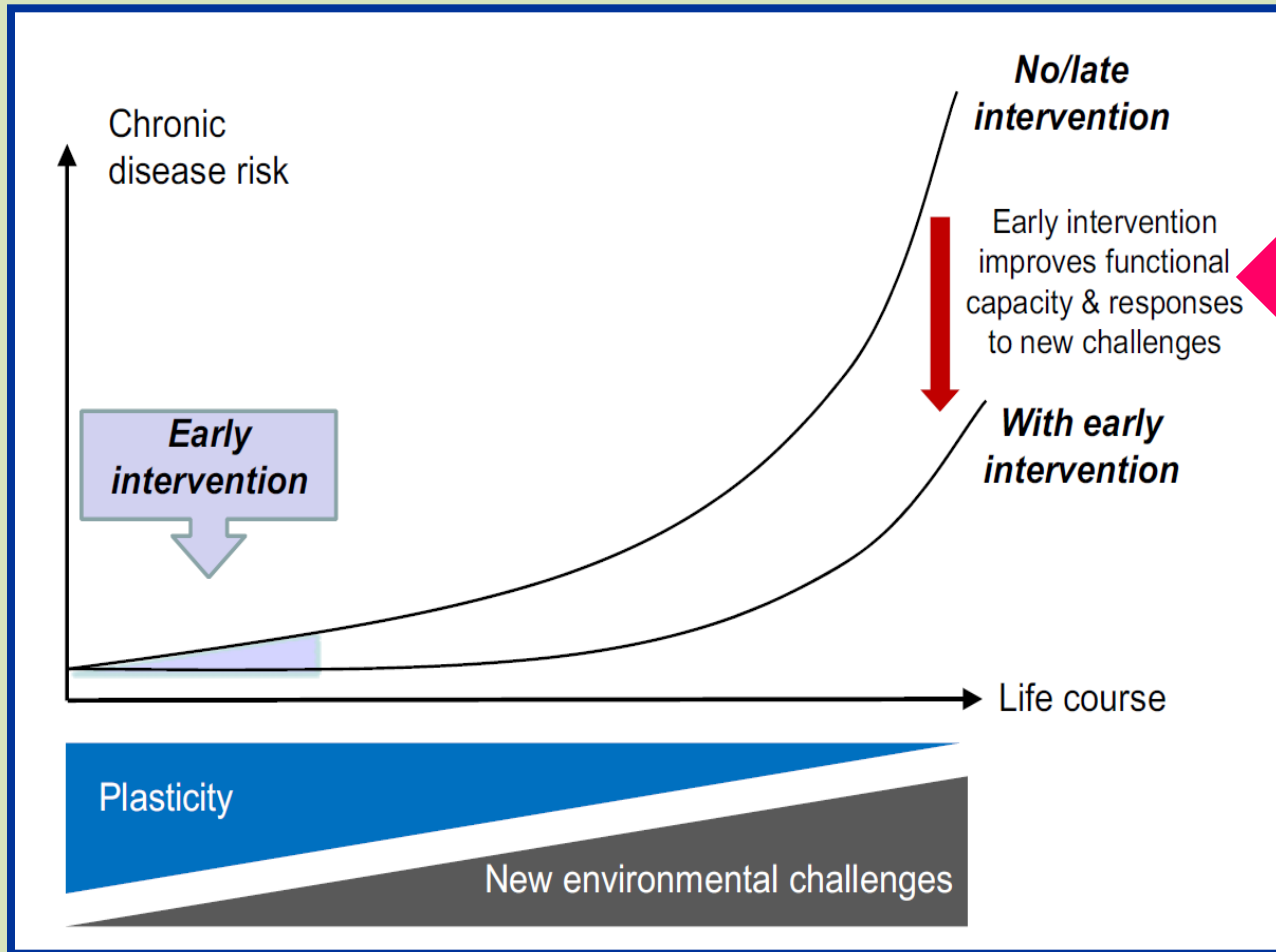
Metabolic Plasticity - 253131

***Markers of prenatal metabolic plasticity and
their reversibility by postnatal interventions***

July 2010 – June 2013

***REA monitoring event
MIT, Boston, MA
January 23-24, 2012***

Developmental plasticity, trajectories and responses to environmental challenges in adult life

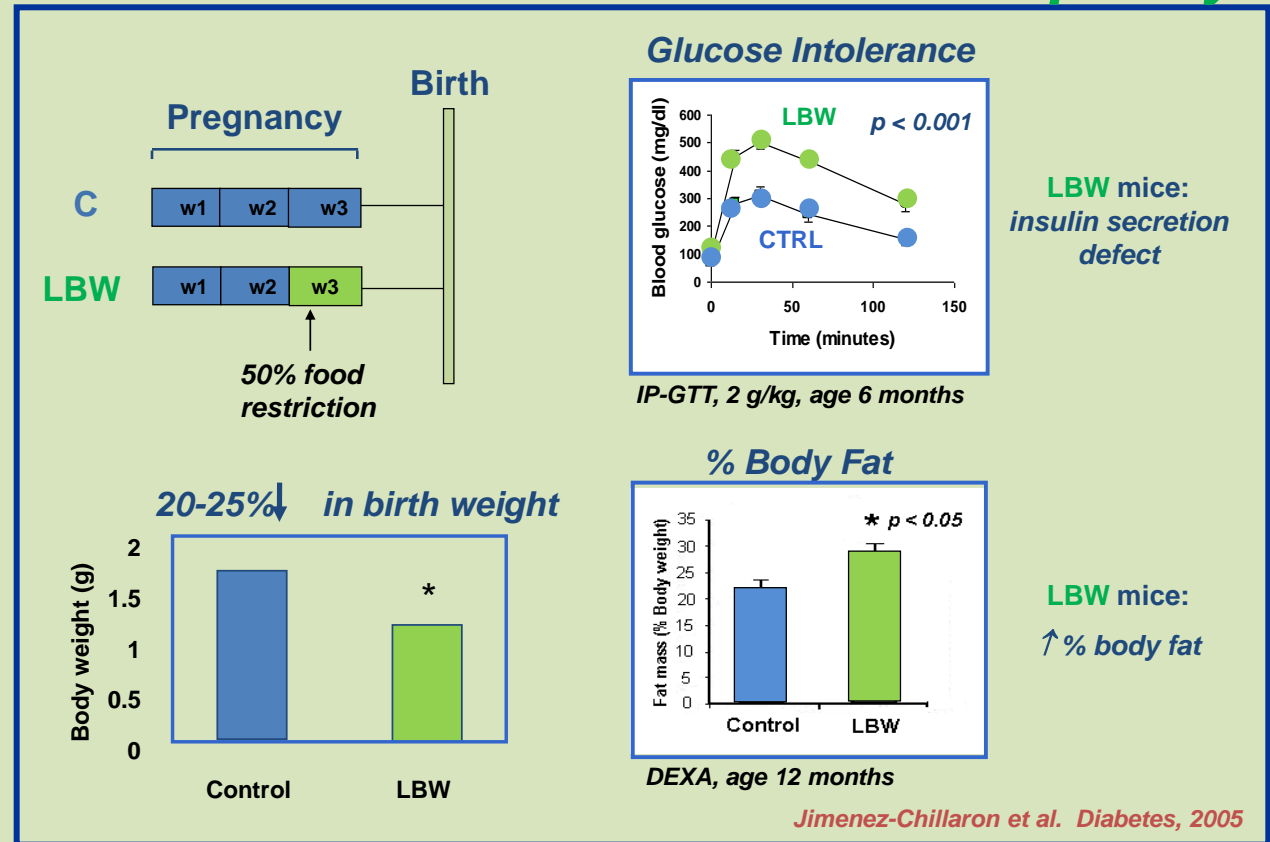


Hanson et al 2011 Developmental plasticity and developmental origins of non-communicable disease: theoretical considerations and epigenetic mechanisms. Prog Biophys Mol Biol. 106:272-80

The mouse *UN-LBW* model of *adiposity*

Background

A variety of gestational stressors leading to low birth weight (*LBW*) establish predisposition to obesity/adiposity & diabetes in animals and humans



Objectives

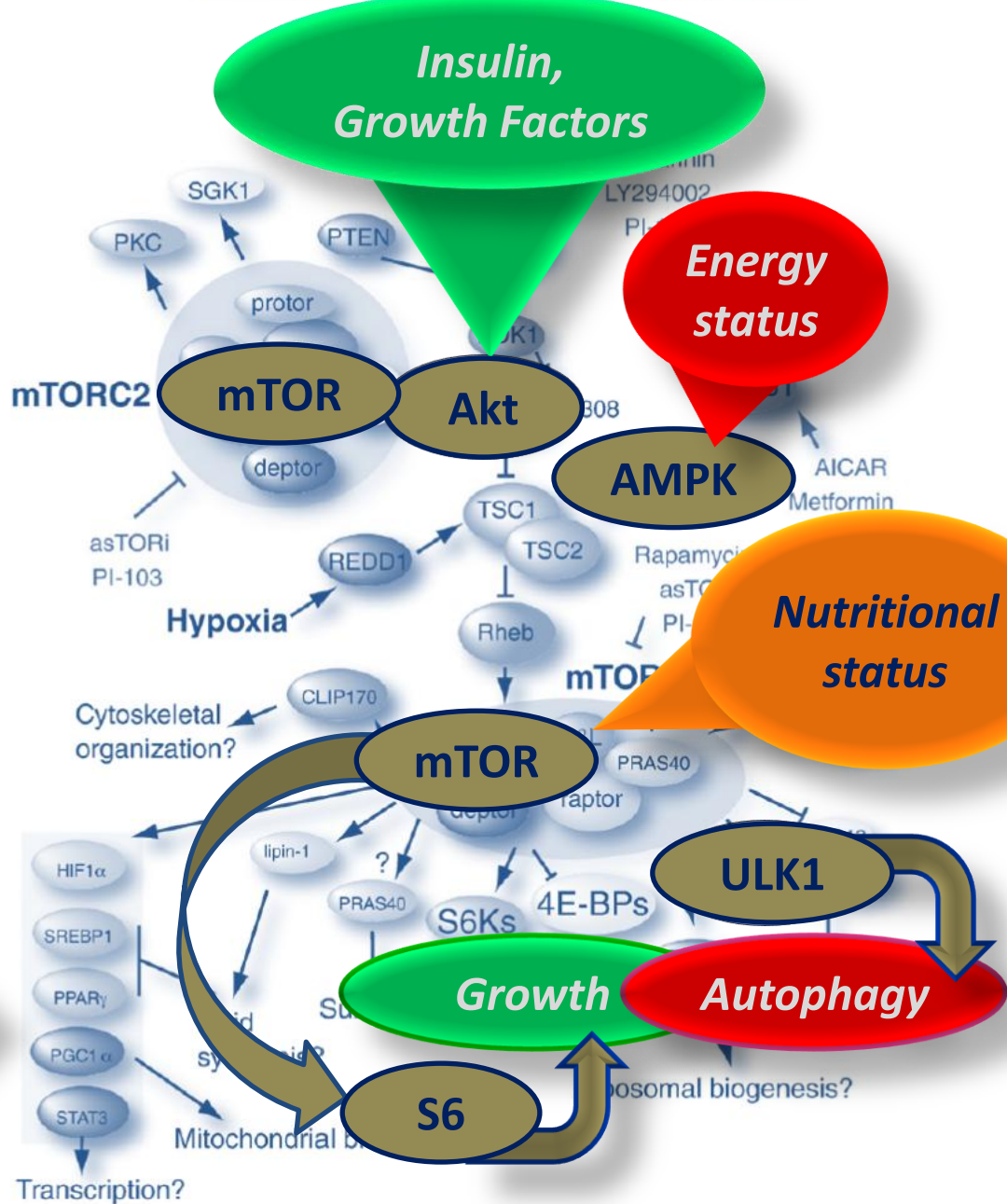
- 1a. To identify alterations in serum & tissue metabolomes, as well as cellular markers of metabolic aberrations in mice exposed to metabolic stress during prenatal life.
- 1b. To examine aspects of energy/fuel partitioning in animals exposed to metabolic stress during development.
- 2a. To determine whether interventions which can alter AMPK/mTOR sensor pathway responses can modulate phenotypes associated with intrauterine metabolic stress.
- 2b. To assess & validate the metabolic serum and muscle/adipose-specific markers identified in the outgoing phase, in a human model of metabolic stress & altered insulin sensitivity.

B. Molecular analysis

The AMPK/mTOR energy/nutrient sensor (e/Ns) system

The mTOR pathway activity has been implicated in the determination of cell/tissue size

Cell decisions

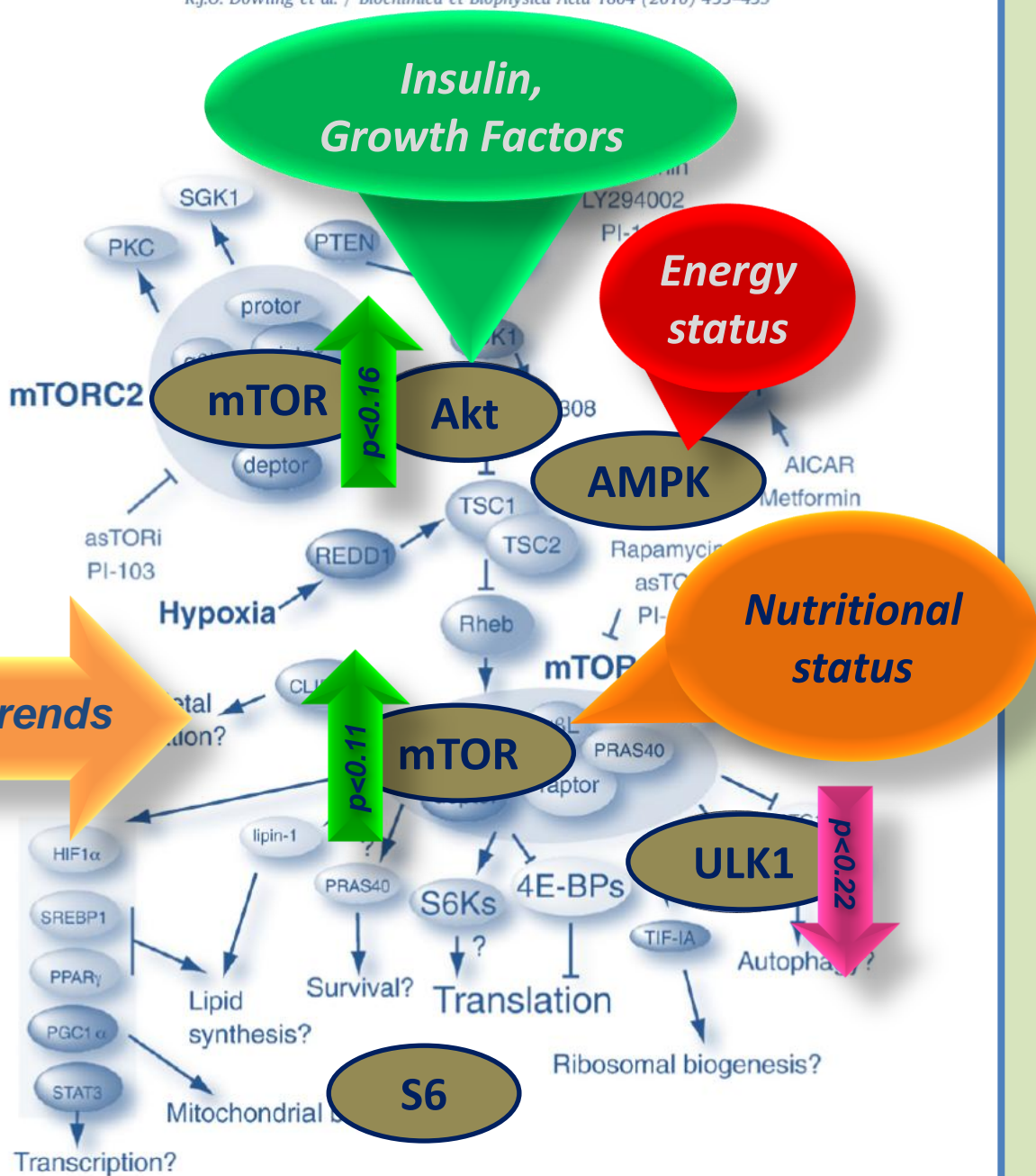


B. Molecular analysis

Comparison of phosphorylated components of the **AMPK/mTOR** sensor system

Hepatic tissue
UN vs. **C**

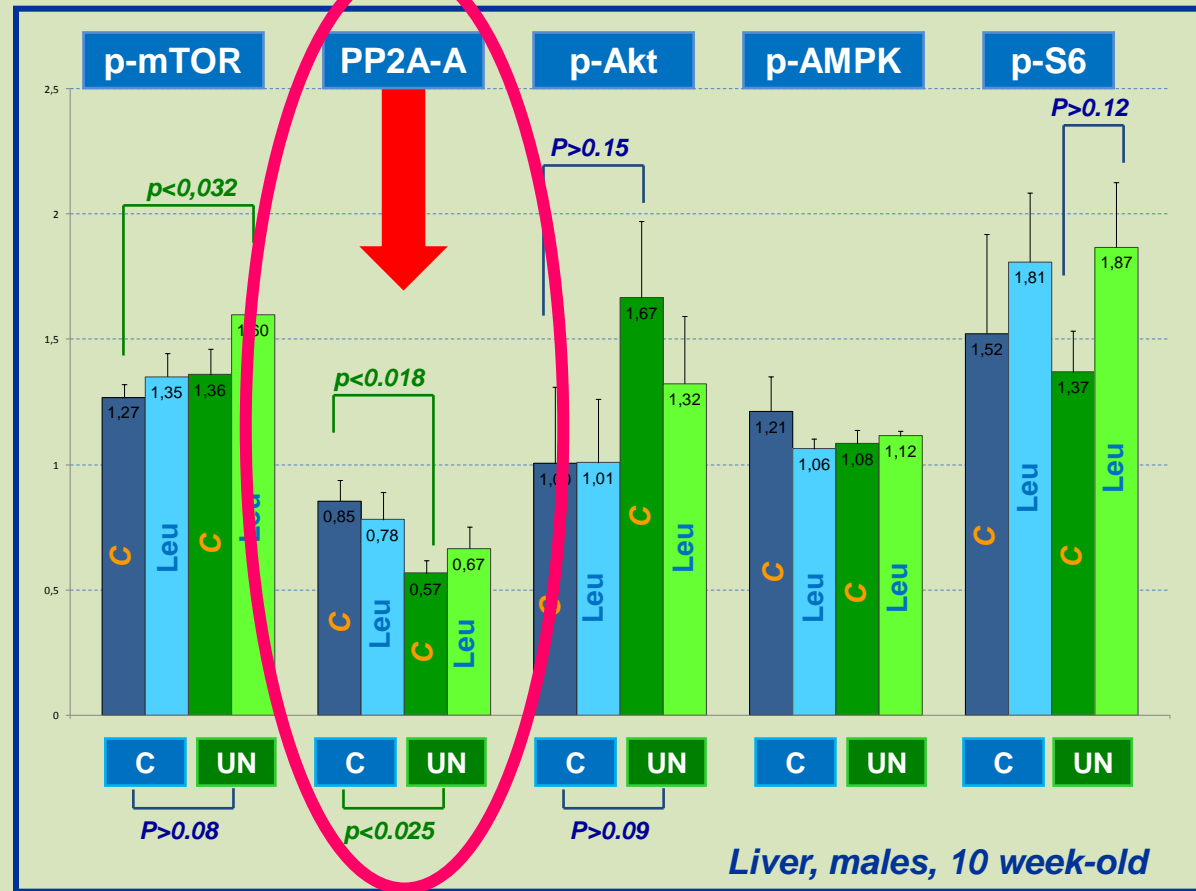
Statistical trends



Specific hypotheses

1. Serum and tissue metabolomes and components of the **AMPK/mTOR energy/nutrient sensor pathway** are differentially altered under various types of intrauterine stress and may serve as **markers** of metabolic maladaptation.
2. Nutritional, caloric, exercise, medicinal or hormonal **interventions**, during developmentally critical periods in postnatal life can **normalize** these metabolic **markers**.

Results of the outgoing phase



Ongoing/pending studies during the outgoing phase

1. In vitro assessment of the metabolic impact of liver PP2A-A reduction
2. Insulin/glucose clamp and stable isotope metabolic studies (energy/fuel partitioning)
3. Assessment of AMPK/mTOR pathway components after animal intervention studies

Objectives of the return phase

- Assessment of *reversibility of markers* of prenatal metabolic plasticity in animal intervention studies, including life-style *interventions*

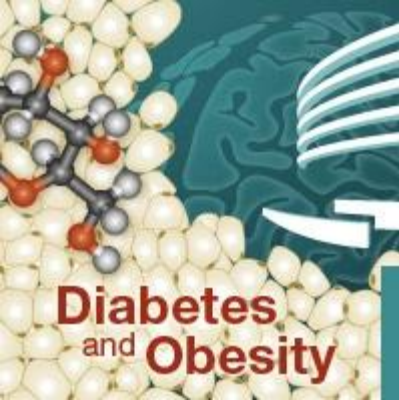
Applications & Impact

- Identification of *markers* of prenatal metabolic plasticity associated with insulin resistance will, in the long-term, facilitate *individualized* management of patients with compromised carbohydrate metabolism.
- Advancements in the preventive management of diabetes-susceptible patients, in particular with *life-style interventions*, will considerably alleviate socioeconomic burden.

Long term goal

Multi-disciplinary research program in energy metabolism

- Biomedical Research Foundation, Academy of Athens, **GR**
- Joslin Diabetes Center, Boston, **USA**
- Liverpool Obesity Research Network (LORN), **UK**
- Experimental Physiology, University of Athens, **GR**
- Bariatric Center, 1st Department of Surgery, University of Athens, **GR**
- Department of Nutrition and Dietetics, Harokopion University, Athens, **GR**
- Endocrine & Metabolic Diseases, University of Manitoba, Winnipeg, **CAN**



EMBO/EMBL Diabetes & Obesity Symposium
September 13-16, 2012, Heidelberg, Germany



Hepatocyte levels of the scaffolding subunit of protein phosphatase 2A control the sensitivity of the AMPK/mTOR sensor system and modify autophagy marker responses to nutrient deprivation

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Biomedical Research Foundation, Academy of Athens
Joslin Diabetes Center, Harvard Medical School



Session OR18: Diabetes-Associated Genes & Pathways-Basic/Translational

OR18-6

**Metabolic plasticity and
energy/nutrient sensing distortion
in mice exposed to gestational undernutrition**

***Aristides Lytras, MD, PhD^{1,2}, Elvira Isganaitis, MD, MPH¹, Yusuke Adachi, PhD¹,
Michael Chen, BSc¹, Wen Kong, MD, PhD¹, Aparna Sharma, MD¹,
Huijuan Ma, MD¹, Vicencia Sales¹, Alison Burkart, PhD¹,
George P. Chrousos, MD², Mary Elizabeth Patti, MD¹***

¹Joslin Diabetes Center/Harvard Medical School

²Biomedical Research Foundation, Academy of Athens



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Manuscripts submitted or in preparation

Reductions of the scaffolding subunit of protein phosphatase 2A contribute to hepatocyte energy/nutrient sensing distortion in male adult mice following prenatal undernutrition

Aristides Lytras, Elvira Isganaitis, Yusuke Adachi, Michael Chen, Wen Kong, Aparna Sharma, Huijuan Ma, Vicencia Sales, Alison Burkart, George P. Chrousos, Mary Elizabeth Patti.

(submitted to Endocrinology)

Hormetic associations of energy/nutrient sensing system effectors with birth weight may explain tissue allometric scaling in mice exposed to gestational undernutrition.

Aristides Lytras, Elvira Isganaitis, Yusuke Adachi, Michael Chen, Wen Kong, Aparna Sharma, Huijuan Ma, Vicencia Sales, Alison Burkart, Mary Elizabeth Patti, George P. Chrousos.

(in preparation)

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Joslin Diabetes Center/Harvard Medical School, Boston



Manuscripts (published)

Developmental programming by maternal insulin resistance: Hyperinsulinemia, glucose intolerance, and dysregulated lipid metabolism in male offspring of insulin-resistant mice.

Isganaitis E, Woo M, Ma H, Chen M, Kong W, Lytras A, Sales V, Decoste-Lopez J, Lee KJ, Leatherwood C, Lee D, Fitzpatrick C, Gall W, Watkins S, Patti ME.

Diabetes. 63:688-700 (2014)

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Education

<u>Year</u>	<u>Degree</u>	<u>Institution</u>
2009	<i>Medical Specialty</i> (Endocrinology, Metabolism & Diabetes)	Div. of Endocrinology & Metabolism <u>Hippocrateion</u> General Hospital Athens, Greece
1995	<i>Ph.D.</i> (Molecular biology/ endocrinology)	University of Manitoba Faculty of Medicine Department of Physiology
1989	<i>M.D.</i>	University of Athens Medical School Athens, Greece
1983	<i>High School Diploma</i>	<u>Varvakeios</u> Model School Athens, Greece

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Licensure and Certification

<u>Year</u>	<u>Type of License or Board Certification</u>
12/2012	<i>Endocrinology & Diabetes Specialist Register</i> <i>General Medical Council, UK (GMC ref. number: 7057044)</i>
11/2009	<i>Medical Specialty Board Certification</i> <i>(Endocrinology, Metabolism & Diabetes)</i> <i>Prefecture of Athens, Greece</i>
11/2009	<i>License to Practice Medicine</i> <i>General Medical Council, UK (GMC ref. number: 7057044)</i>
10/1989	<i>License to Practice Medicine</i> <i>Prefecture of Athens, Greece</i>

Postdoctoral Training

<u>Year</u>	<u>Title</u>	<u>Specialty/Discipline</u>	<u>Institution</u>
7/2012 – 6/2013	Research Fellow	Endocrinology, Metabolism & Diabetes	Endocrinology & Metabolic Diseases, Biomedical Research Foundation, Academy of Athens, Greece
7/2010 – 6/2012	Research Fellow	Endocrinology, Metabolism & Diabetes	Joslin Diabetes Center, Harvard Medical School, Boston MA
11/2009 – 6/2010	Clinical Research Fellow	Endocrinology, Metabolism & Diabetes	Endocrinology & Metabolism Research Unit, University Hospital Aintree, Liverpool, UK
4/2006 – 5/2009	Clinical Fellow	Endocrinology, Metabolism & Diabetes	Division of Endocrinology & Metabolism, Hippocrateion General Hospital, Athens, Greece
7/2000 – 9/2001	Resident	Internal Medicine	Division of Internal Medicine, 401 Hellenic Army General Hospital, Athens, Greece
2/1998 – 6/2000	Post Doctoral Research Fellow	Endocrinology, Metabolism & Diabetes	University of Manitoba Faculty of Medicine Departments of Physiology, Medicine, Human Anatomy & Cell Science
1/1996 – 11/1996	Resident	Internal Medicine	Division of Internal Medicine, 251 Hellenic Air Force General Hospital, Athens, Greece

Awards and Honors

<u>Year</u>	<u>Name of Award</u>
8/2012	EMBL Corporate Partnership Registration Fee Fellowship (Registration Fee Waiver) and Travel Grant (for participation to the EMBO/EMBL 2012 Diabetes & Obesity Symposium)
7/2010 – 7/2013	European Commission - Marie Curie International Outgoing Fellowship for Career Development
11/2009 – 6/2010	Exchange in Endocrinology Expertise (3E) Fellowship of the Endocrinology Section of the Union of European Medical Specialists (UEMS)
2000 - 2001 <i>(renewal/declined)</i>	Manitoba Health Research Council Post Doctoral Fellowship
6/2000	Manitoba Health Research Council Post Doctoral Fellowship Travel Award
7/1999 – 6/2000	Manitoba Health Research Council Post Doctoral Fellowship
1999 - 2000 <i>(declined)</i>	Health Sciences Centre Foundation Post Doctoral Fellowship (Winnipeg, Manitoba)
1999 - 2000 <i>(declined)</i>	University of Manitoba, Faculty of Medicine, Post Doctoral Fellowship
3/1997 – 2/1998	Research Stipend for "Greek Scientists Visiting From Abroad" awarded by the General Secretariat of Research and Technology (Hellenic Ministry of Development)
6/1994	Merck Frosst Canada Inc. Award for Excellence of Doctoral Research in Cell Biology (University of Manitoba)
6/1994	University of Manitoba, Faculty of Graduate Studies Travel Award
1994 – 1995 <i>(renewal)</i>	Manitoba Health Research Council Postgraduate Studentship
1993 - 1994	Manitoba Health Research Council Postgraduate Studentship
1985-1989	University of Athens, <u>Antonios Papadakis's Undergraduate Scholarship</u> (awarded after interdisciplinary competition, including all University Schools and Faculties, by written examination)



HELLENIC REPUBLIC
MINISTRY OF EDUCATION, LIFELONG LEARNING
& RELIGIOUS AFFAIRS
*GENERAL SECRETARIAT FOR RESEARCH
AND TECHNOLOGY*

EUROPEAN UNION
EUROPEAN SOCIAL FUND



OPERATIONAL PROGRAM
“*EDUCATION AND LIFELONG LEARNING*”

“**ARISTEIA**” ACTION

“*Metabolic Epigenesis*”

Title

Metabolic Plasticity and Postnatal Correction of
Stress-induced Epigenetic Changes

Submitted:
Boston, September 1, 2011

HELLENIC REPUBLIC
MINISTRY OF EDUCATION, LIFELONG LEARNING
& RELIGIOUS AFFAIRS
GENERAL SECRETARIAT FOR RESEARCH
AND TECHNOLOGY



EUROPEAN UNION
FINANCIAL FUND



NO POSITION ... NO REVIEW !!

OF
"EDUCATION AND LIFELONG LEARNING"
OPERATIONAL PROGRAM

Metabolic Epigenetics

Title

Metabolic Plasticity and Postnatal Correction of
Stress-induced Epigenetic Changes

European Research Council

ERC Starting Grants 2013



European Research Council

ERC Starting Grants 2015-2018

NOT ELIGIBLE
(TIME LAPSED SINCE MD/Ph.D.)



erc



*Submitted:
Athens, January 10, 2013*

ERC Grant Schemes

Guide for Applicants for the Synergy Grant 2013 Call

10 October 2012



EUROPEAN COMMISSION
FP7 Specific Programme
IDEAS





January 10, 2013

DECEMBER 2013

ERC Synergy Grants: 13 frontier research projects to get €150 million

Synergy Grants Call

10 October 2012

EUROPEAN COMMISSION
FP7 Specific Programme
IDEAS



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Markers of prenatal metabolic plasticity and their reversibility by postnatal interventions



Approaching JUNE 2013

Inquiring prospects at University of Athens & BRFAA:

- **University hires “frozen” - Internal Lecturer promotions to the Assistant Professor level accelerated**
- **80-85 % reduction in state funding to the Biomedical Research Foundation of the Academy of Athens (BRFAA)**
- **BRFAA does not intend to invest in Metabolism & Diabetes**
- **As candidate “may be not as attractive”**
- **... at the end “you are an *M.D.*, you have *options*”**

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JULY 2013:

**Initiation of
Endocrinology, Diabetes & Metabolism
Private Practice**

..... while always thinking about research.....

European Research Council

ERC Starting Grants 2014

“Applying” as collaborating investigator

*Submitted:
Athens, 27 March 2014*





European Research Council

ERC Starting Grants 2014

Press release

15 December 2014

ERC Starting Grants: 328 early-career top researchers funded with €485 million

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CONCLUSIONS

- *The MSCA offer wonderful opportunities to researchers*
- *However, people have their own agendas not the fellow's*
- *A Marie Curie Fellow may be **simply "hands" in another person's agenda** (understandable... but not pleasant)*
- *A Marie Curie **IOF/IEF** may not be as strong as a "passport", if the general scheme of things is not favourable*
- *The MSCA need to **protect Europe's investment in the MC fellows** (additional tools may be needed to support research activity after the end of MC fellowships?)*

Metabolic Plasticity - 253131

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QUESTIONS

- ***What is the significance of being a Marie Curie Fellow Alumni?***

Why?

- ***Greece is one of the top nations in Basketball.***

Why?

***Mary Elizabeth Patti
Elvira Isganaitis
Michael Chen
Yusuke Adachi
Wen Kong
Aparna Sharma
Huijuan Ma
Vicencia Sales
Alison Burkart***

***George P. Chrousos
Katia Karalis***

Acknowledgements

***Edward. J. Calabrese
(University of Massachusetts)***

Marie Curie - International Outgoing Fellowship (2010 -2013)



MC-IOF-2009-253131: Metabolic Plasticity

***“Markers of prenatal metabolic plasticity and
their reversibility by postnatal interventions”***



EXTRA SLIDES

OVERVIEW OF PROGRESS ON THEORETICAL AND PRACTICAL (HANDS-ON) TRAINING TARGETS DURING THE OUTGOING PHASE

1A. Progress on theoretical training targets for phase O1 (year 1)

Specific training theoretical targets achieved during the first year of the MC-IOF:

Training activities in ethics, high throughput methodologies, epigenetics, diabetes concepts, biochemistry & intermediary metabolism at Joslin Diabetes Center and Harvard Medical School

- (1) **Ethics training in animal use and care** (mouse and rat), as required by Joslin Diabetes Centre IACUC (3-day online training with multiple modules spreading over the full range of laboratory use of rat and mice, including review of relevant practices (AALAS Learning Library, July 6-8 2010, <http://www.aalaslearninglibrary.org/aboutall.asp?strKeyID=8CC03101-5C5F-4160-9583-829921883392-0&AboutAll=2>)
- (2) **Training in the principles of RNA microarray analysis** (including use of Gene Set Enrichment analysis (GSEA, Massachusetts Institute of Technology)- registered GSEA user Sept 30, 2010) by multiple one-on-one sessions (August 2010 – August 2011) with *J. Schroeder* (Joslin Diabetes Center Bioinformatics Core Manager), as well as, attendance of 2 specific short (2h) courses offered by the Harvard Medical School Countway Library (July 20 -27, 2010):
 - (a) *Introduction to Microarrays and Affymetrix Data analysis using R/Bioconductor* (July 20, 2010)
 - (b) *High-throughput Microarray analysis in a cluster environment* (July 27, 2010) (<http://catalyst.harvard.edu/news/news.html?p=1714&title=Register+now+for+bioinformatics+workshops+in+July+from+the+C3+Bioinformatics+Initiative>)

- (3) **Training in metabolomics concepts & methodology principles** through interactions with M.E. Patti (outgoing host mentor) and E. Isganaitis (JDC senior research fellow) and Patti Lab meeting presentations..
- (4) **Training in recent epigenetic concepts and methodology principles** through a comprehensive half-day seminar offered by the Massachusetts General Hospital/ Harvard Medical School **“Epigenetics: An Introduction and Applications”** Wednesday, January 19, 2011. A “Nanocourse” in the context of the “Genetics & Bioinformatics Courses” (http://apps.dfhcc.harvard.edu/calendar/event_view.php?eid=2537&instance=2011-1-19).
- (5) **Training in advanced diabetes-focused biochemistry/intermediary metabolism** through exposure to the joint **Data Group Seminars** (Kahn, Patti, Kulkarni, Tseng) taking place weekly. This has been of fundamental aspect of the fellow’s theoretical progress in energy metabolism as these 4 labs, under the guidance of C. R. Kahn a world leading figure in insulin signalling research are among the ones contributing significant concepts to the field
- (6) The above is complemented by the **Joslin Diabetes Centre weekly seminars** (http://www.joslinresearch.org/EVENTNET/tues_onlineSchedule.asp), (up to 3/week) as well as, by multiple **Harvard Medical School Seminars** (Brigham and Women’s Hospital, Children’s Hospitals, Beth Israel Deaconess Medical Centre and Dana Farber Cancer Institute; (<http://www.bidmc.org/CentersandDepartments/Departments/Medicine/Divisions/Endocrinology/EndocrinologyGrandRounds.aspx>))
- (7) Attendance of the **2010 Joslin Research Retreat** (Newport, Rhode Island, November 8-9, 2010). In the annual 2010 Joslin Research Retreat the full range of research performed at Joslin is presented in an intense 2-day seminar, where lab leaders outline the most important results produced in the last year (https://store.joslin.org/cmeweb/CME_PT_1712.aspx?ActivityId=1712).

Scientific symposia and events at institutions outside Harvard Medical School

- (8) Attendance of the **2011 Keystone symposia on “Type 2 Diabetes, Insulin Resistance and Metabolic Dysfunction (J1)”**, January 12-17, Keystone, Colorado. The Keystone symposia are very highly regarded and bring together specialists on specific research subjects. Attendance of the 2011 Diabetes symposium allowed the fellow to be exposed to advanced current concepts of metabolic research and identify significant areas of interest for his own research, which influenced the reevaluation and positively affected the progress of the project (<http://www.keystonesymposia.org/meetings/viewPastMeetings.cfm?MeetingID=1114&CFID=3888373&CFTOKEN=81529473>)
- (9) Attendance of the **“4th Annual Isotope Tracers in Metabolic Research: Principles and Practice of Kinetic Analysis”** course, April 17-22, 2011, The Peabody Little Rock, Arkansas (www.mmpc.org/shared/tracers.aspx). During the course, the fellow had the opportunity to present the basic characteristics of the UN-LBW mouse model and to receive specific advice on the analysis and research planning of stable isotope studies (Drs M. Puchowicz, C. Croniger, Case Western MMPC, <http://www.case.edu/med/mmpc/index.html>).
- (10) Attendance of the **“The 93rd Annual Meeting of the Endocrine Society”**, June 4-7, Boston MA” (<http://www.endo-society.org/endo/program/>). The fellow attended this meeting that took place in Boston with specific focus on endocrine effects on the regulation of energy metabolism. Critical information presented included the impact of the HPA (hypothalamus-pituitary-adrenal)

Training activities in high throughput methodologies & bioinformatics at Harvard Medical School

- (11) **Training in metabolomics concepts & methodology principles:** Regional workshop: Practical Applications of Metabolomics, Friday, October 7, 2011, Boston Marriott Cambridge, Cambridge, MA, which completed a detailed introduction in metabolomics concepts and analytical approaches. <http://www.metabolon.com/BostonWorkshop/>.
- (12) **EBI Bioinformatics Roadshow Boston Workshops 1&2**, November 28-29, HMS - Countway Library - Room 403, Boston, MA, Bert Overduin, Gabriella Rustici EBI
http://www.ebi.ac.uk/Information/events/calendar/viewevent.php?events_data_id=2213
Description: The European Bioinformatics Institute (EBI) presents a lecture and hands-on workshop introducing its wide range of bioinformatics resources, with a focus on genomics and functional genomics resources. The first day of this workshop will be dedicated to the Ensembl Genome Browser. After covering the basics of browser navigation and genome annotation and the BioMart data retrieval tool, special attention will be given to comparative genomics data (orthologs and paralogs, whole genome alignments, synteny) as well as variation data (small variants, structural variants, variant effect predictor tool). The second day will focus on the functional genomics resources; we will illustrate how to browse, interpret and retrieve data from the ArrayExpress repository of transcriptomics data, the Gene Expression Atlas, which provides information on gene expression patterns within different biological conditions, and Reactome, a curated pathway database.
- (13) **BIOBASE Biological Knowledge Library for microarray and proteomic data**, Thursday, December 08, 2011; 10:00 – 13:00, HMS - Countway Library - Lower Level 2, Room 025
<http://www.biobase-international.com/>; <http://www.biobase-international.com/product/proteome;>)
- (14) **BIOBASE ExPlain Analysis System for microarray and proteomic data**, Thursday, December 08, 2011; 13:00 - 16:00, HMS - Countway Library - Lower Level 2, Room 025
<http://www.biobase-international.com/product/explain>)

Scientific symposia and events at Harvard Medical School

- (15) Harvard Catalyst Event Series: “**Team Science: The Importance of Collaboration in Biomedical Research**”, October 13, 2011, Cannon Room, Building C. A discussion with the Harvard Catalyst Research Navigators (<http://catalyst.harvard.edu/services/navigators/>) on clinical and translational (C/T) research, their relationship to NIH’s current agenda, and the importance of collaboration and interdisciplinary science. The event included a brief presentation on resources available to the Harvard community to support C/T research. <http://postdoc.hms.harvard.edu/events/featuredevents2011.html>
- (16) 14th Annual John B. Little Symposium “**Stress Responses in Radiobiology, DNA Repair and Aging**”, October 28-29, 2011, Harvard School of Public Health, Kresge Building G1, 677 Huntington Avenue, Boston, Massachusetts (<http://www.hsph.harvard.edu/research/jbl-center/archives/jbl-xiv/index.html>)
- (17) Harvard/Paul F. Glenn 2012 **Symposium on Aging**, June 18, 2012 (<http://www.hms.harvard.edu/agingresearch/pages/glennsymposium.htm> http://www.hms.harvard.edu/agingresearch/hms_2012_program.pdf)
- (18) **Training in Network Science concepts & methodology principles:** Attendance of a half-day seminar offered by Harvard Medical School/Harvard Catalyst: **Network Science in Biology and Medicine Symposium**: Amphitheater, Joseph B. Martin Conference Center at Harvard Medical School, New Research Building, 77 Avenue Louis Pasteur, Boston, MA, 02115, June 7, 2012 (<http://catalyst.harvard.edu/news/news.html?p=4406&title=Registration+Open%3A+Network+Science+in+Biology+and+Medicine+Symposium>) and <http://catalyst.harvard.edu/services/networkmedicine/>)

Scientific symposia and events at institutions outside Harvard Medical School

- (19) **WORKSHOP: “Increasing research interaction between basic biomedical and clinician scientists”** Winnipeg, November 17, 2011 (Attendance and participation as a member of the **expert panel**)
http://blog.uwinnipeg.ca/research/2011/06/workshop_increasing_research_i.html

Training activities in complementary skills at Harvard Medical School/MIT

- (1) **Joslin Fellow's Council Series** (throughout the academic year):
 - a. **"How to write the perfect grant"**: A series of 4 presentations by distinguished PIs at the Joslin Diabetes Center
 - b. **"Setting up and running a lab"**: A series of 4 presentations by PIs at the Joslin Diabetes Center
 - c. **"Meet the professor"** series following the talk of selected invited speakers (2-4 annually). The speakers answer questions and give their unique perspective and career advice to the fellows in a 60-90 min round table format

- (2) **Career Development Series: "Presentation and Communication Skills"** Presenter: **Claudyne Wilder**, Organizational Consultant, (Organized by the Office for Diversity and Community Partnership, Harvard Medical School; Co-sponsored by CFHUF; COE; Harvard Catalyst PFDD; DCP/HMS). November 21, 2011, Minot Room, Countway Library, Harvard Medical School. <http://www.mfdp.med.harvard.edu/pastevents.html#2011>

- (3) **"Destination Europe: Your Research & Innovation Opportunities"**, Organizer: *European Commission, DG Research and Innovation*, January 20, 2012, Boston, Massachusetts, Hotel Hyatt Regency Cambridge, 575 Memorial DR, Cambridge, MA. <http://destinationeurope.teamwork.fr/>

- (4) **REA Marie Curie Monitoring Event**, January 23-24, 2012, Boston, MA, Massachusetts Institute of Technology, 77 Massachusetts Avenue, Cambridge, MA

- (5) **Resumes, Interviews, and Networking: A three part primer on successful job searching**, Presenter: **Kathy L. Brenner**, Writing Consultant, Harvard School of Public Health, Wednesday, March 21, 2012, Minot Room, Countway Library.
<http://postdoc.hms.harvard.edu/events/featuredevents2012.html>
- (6) **The Polished Postdoc: Getting Ready for the Next Step**, Presenter: **Derek Haseltine**, M.Ed., Director of Research Career Development & Co-director of the Office of Postdoctoral Scholars, University of Maryland School of Medicine, May 4, 2012, Cannon Room, Building C
<http://postdoc.hms.harvard.edu/PDF/PolishedPostdoc.pdf>,
<http://postdoc.hms.harvard.edu/events/featuredevents2012.html>
Description: In today's tough job market you have to set yourself apart from other jobseekers to achieve success. Derek Haseltine illustrates the importance of presenting yourself in the best possible light. Discussion topics include: (i) Fine-tuning your CV/resume, (ii) Developing new skills, (iii) Polishing your professional image, (iv) Taking advantage of career development opportunities, (v) Enhancing your visibility
- (7) **Networking in Academia**, Presenter: **Laura Malisheski**, PhD, Assistant Director, Graduate Student and Ph.D. Advising, Office of Career Services, Faculty of Arts and Sciences, Harvard University. May 9, 2012, Cannon Room, Building C.
<http://postdoc.hms.harvard.edu/events/featuredevents2012.html>
Description: Networking is not just for those outside the ivory tower. In fact, you may already be networking and not even know it! Shatter the schmoozing stereotype and join us to learn about the many ways networking can advance your academic career, your research, research productivity, and recognition in the field.
- (8) **Harvard Catalyst Clinical Courses: Craft of Scientific Presentations Workshop**. Presenter: **Melissa Marshall**, Instructor, Department of Communication Arts & Sciences Faculty Adviser, Penn State Engineering Ambassadors, Program Coordinator, Toshiba-Westinghouse Undergraduate Fellows Program, Department of Mechanical and Nuclear Engineering, The Pennsylvania State University, 201A Reber Building, University Park, PA May 10, 2012, Sheraton Commander Hotel, Harvard Square.
www.enqr.psu.edu/ambassadors



Host Organization : Biomedical Research Foundation, Academy of Athens (BRFAA)
Former Organization : Joslin Diabetes Center, Harvard Medical School
Scientist in Charge : Prof. George P. Chrousos
Start-End Date : July 2010 - June 2013
Total Budget : € 238.375

Main Research Objectives

General aim is to develop a model animal system to study preventive and therapeutic interventions in states of compromised metabolism. Specific aims are (a) identification of serum and tissue markers that characterize the metabolic derangements associated with in utero metabolic stress; (b) examination of the effects of medicinal/hormonal and life-style interventions on these markers and their association with changes in insulin resistance, fuel partitioning, and metabolic balance.

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Application

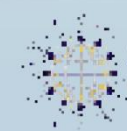
The NCP was very supportive during the application process. They welcomed my visits setting appointments in at least two occasions. The NCP was able to convey the basic philosophy of MC-IOF, suggest the appropriate path to identify critical information for the application process and its specific requirements, and provided relevant brochures and guidance for web access.

Negotiation

The NCP was also able to support me during the negotiation phase by providing information regarding the actual stage of the selection process and allowing a gross estimation of the time frame for the announcement of the final result. Indeed, the process of selection was delayed and no information was available on the MC-IOF site at the time. Considering that information is crucial for planning and in fact for making the final commitment on a number of important issues, prior to a possible inter-continental translocation, this information provided the necessary flexibility to plan in advance.

Implementation

So far, there have been no major implementation problems. However, several issues arise and are reason for temporary distress. I will communicate such issues to the NCP, in order to help the planning for some preventive measures for future MC-IOF fellows. Overall, I consider the current role of NCP very positive and a solid ground for further development of this important service that may become a "guardian angel" for MC-IOF fellows.



Assistance of Marie Curie National Contact Points



Loula Sigala - Georgia Ritou



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