

Katerina Gkirtzimanaki, M.Sc., Ph.D.
Molecular Biologist - Geneticist

1. PROFESSIONAL RESEARCH

2018: Post-doctoral researcher

Field: Genome (In)stability and Mammalian Physiology

Affiliation: IMBB-FORTH

Lab. Head: Prof. Garinis G.

2013- 2017: Post-doctoral researcher

Field: Inflammation and Autoimmunity, Molecular Immunology

Affiliation: IMBB-FORTH and Dpt. of Medicine, University of Crete

Autoimmunity and Inflammation Lab. Head: Prof. Boumpas T.D.

2. EDUCATION

Nov. 2008 – Jan. 2012: PhD in Molecular Biology and Biomedicine

Field: Molecular and Cell Biology, Cancer Immunology, Cancer Genetics, Cell Signaling

Affiliation: Dpt. of Medicine, University of Crete & IMBB, FORTH

Lab. of Molecular and Cellular Biology, Head: Prof. Eliopoulos A.G.

Oct. 2005 – Sept. 2007: M.Sc. in Molecular Biology and Biomedicine

Affiliation: Health Sciences School, Dpts. of Medicine and Biology of the University of Crete & IMBB-FORTH

Thesis: Lab. of Molecular and Cellular Biology, Head: Prof.

Eliopoulos A.G.

Grade: 9/10 (Excellent)

Sept. 2001 – Nov. 2005: B. Sc. (Ptychio – 4yrs) in Molecular Biology and Genetics

Health Sciences School, Dpt. of Molecular Biology and Genetics – DUTH

Grade: 8,7/10 (Excellent)

1998 – 2001: High School of N.Epivates, Thessaloniki

Grade 18,7 (Excellent)

3. LIST OF PUBLICATIONS IN PEER-REVIEWED JOURNALS
(SCOPUS h-index: 4, Citations: All-209)

2018, Cell Reports. (Impact Factor 8,28) – in press

“IFN α impairs autophagic degradation of mtDNA promoting autoreactivity of

SLE monocytes in a STING dependent fashion” K. Gkirtzimanaki, E. Kabrani, A. Mplanas, P. Sidiropoulos, G. Bertsias, D. Boumpas* and P. Verginis*

* equal contribution

2018, *Ann. Rheum. Dis.*

“*Characterising the role of net-derived IL-33 in SLE pathogenesis*”

S. Georgakis, G. Papadaki, I. Gergianaki, C. Adamichou, S. Polia, P.

Sidiropoulos, P. Verginis, K. Gkirtzimanaki, G. Bertsias

2017, *Ann. Rheum. Dis.*

”Unravelling the role of IL33/ST2L axis on sustained IFN- α production in systemic lupus erythematosus” S. Georgakis, G. Papadaki, I. Gergianaki, Prodromos Sidiropoulos, P. Verginis, K. Gkirtzimanaki*, George Bertsias*
*equal contribution

2016, *Ann. Rheum. Dis.* (Impact Factor 12,384)

“IFN α mediated deregulation of mitochondrial DNA clearance as an inciting event for the development of SLE autoimmunity” K. Gkirtzimanaki, E. Kabrani, A. Mplanas, P. Sidiropoulos, G. Bertsias, D. Boumpas, P. Verginis. (**Abstract A1.23 – Innate Immunity**)

2015, *Ann. Rheum. Dis.* (Impact Factor 10,3)

“*Deregulated, IFN α driven autophagy shapes the phenotype of autoreactive SLE monocytes*” K. Gkirtzimanaki, E. Kabrani, A. Mplanas, P. Sidiropoulos, G. Bertsias, D. Boumpas, P. Verginis. (**Abstract A2.23 - Within the cell**)

2014, *Cancer Immunol. Immunother.* (Impact Factor: 3,6 – Citations: 7)

“*Enhanced therapeutic anti-tumor immunity induced by co-administration of 5fluorouracil and adenovirus expressing CD40 ligand*” Liljenfeldt L, Gkirtzimanaki K., Vyrla D., Svensson E., Loskog A.S., Eliopoulos A.G.

2013, *PNAS* (Impact Factor: 9,7 – Citations: 17)

“*The Tpl2 kinase is a suppressor of lung carcinogenesis*”. Gkirtzimanaki K., Gkouskou K.K., Oleksiewicz U., Nikolaidis G., Vyrla D., Lontos M., Pelekanou V., Kanellis D.C., Evangelou K., Stathopoulos E.N., Field J.K., Tsihchlis P.N., Gorgoulis V., Liloglou T., Eliopoulos A.G.

2010, *Cancer Research* (Impact Factor: 8,7 – Citations: 44)

“*Suppression of integrin $\alpha 3\beta 1$ in breast cancer cells reduces COX2 gene expression and inhibits tumorigenesis, invasion and cross-talk to endothelial cells*”. Mitchell K. Svenson K.B., Longmate W.M., Gkirtzimanaki K., Sadej R., Wang X.H., Zhao J.H., Eliopoulos A.G., Berdichevski F., DiPersio C.M.

2009, *Mol. Cancer. Res.* (Impact Factor: 4,5 – Citations: 57)

“*CD151 Regulates Tumorigenesis by Modulating the Communication between Tumor Cells and Endothelium*”. Sadej R. Romanska H., Baldwin G.,

Gkirtzimanaki K., Novitskaya V. Filer A.D. Krcova Z., Kusinska R., Ehrmann J., Buckley C.D., Kordek R., Potemski P., Eliopoulos A.G., Lalani E.N., Berditchevski F.

4. FELLOWSHIPS – AWARDS

Greek Rheumatology Association

2016: 1st Basic Translational Research Prize at the 25th Conference of Greek Rheumatology Society (as co-last author) (1.200€)

State Scholarships Foundation-IKY

Sept.2014 – Aug.2016: Fellowship of excellence for Postdoctoral Research provided by Siemens (31.800€)

Greek Rheumatology Association

2014: “Kepetzis” Prize for High Impact Research in Rheumatology (as 1st author) (2.000€)

Manassaki Foundation

Oct. 2010 – Oct. 2011: Fellowship of excellence for Postgraduate students (6000€)

General Secretariat for Research and Technology

Jan.-Dec. 2008: Grant from the GSRT under the UNISTEP-PLUS (University Student Entrepreneurship) call for junior Researchers (6.500€ for a 2-person team of M.Sc students)

Medical School & Abramson Cancer Centre, University of Pennsylvania, U.S.A.

Mar. – Aug. 2005: Undergraduate fellowship for excellent undergraduate students for a 6-month research practice at the Laboratory of Gynecological Oncology of Dr. Coukos G. (7.200\$)

5. PRESENTATIONS

a) CONFERENCE PRESENTATIONS

2018 – 38th European Workshop for Rheumatology Research (EWRR): Geneva, Switzerland “Characterizing the role of NET-derived IL-33 in SLE pathogenesis” S. Georgakis, G. Papadaki, I. Gergianaki, C. Adamichou, S. Polia, P. Sidiropoulos, P. Verginis, K. Gkirtzimanaki* & G. Bertias*

* equal contribution

2017 - 37th European Workshop for Rheumatology Research (EWRR): Athens, Greece “Unravelling the role of IL33/ST2L axis on sustained IFN α production in Systemic Lupus Erythematosus” S. Georgakis., G. Papadaki, I. Gergianaki, P. Sidiropoulos, P. Verginis, K. Gkirtzimanaki* & G. Bertias*

* equal contribution

2016 – 25th Greek Conference on Rheumatology:

Athens, Greece “IL-33 synergizes with extracellular DNA to enhance IFN α production in SLE” S. Georgakis., G. Papadaki, I. Gergianaki, P. Sidiropoulos, P. Verginis, K. Gkirtzimanaki* & G. Bertsias*

* equal contribution

2016 - 36th European Workshop for Rheumatology Research (EWRR):

York, UK. “IFN α Mediated Deregulation of Mitochondrial DNA Clearance as an Inciting Event for the Development of SLE Autoimmunity” Gkirtzimanaki K., Kabrani E., Mplanas A., Bertsias G., Sidiropoulos P., Boumpas D. and Verginis P.

2015 - Keystone Symposia - Mechanisms of Pro-Inflammatory diseases:

Olympic Valley, California, USA. “Ifn α –mediated autophagy deregulation affects mitochondrial DNA clearance in Systemic lupus erythematosus (SLE) monocytes” Gkirtzimanaki K., Kabrani E., Mplanas A., Bertsias G., Sidiropoulos P., Boumpas D.* and Verginis P.*

* equal contribution

2015 - 35th European Workshop for Rheumatology Research (EWRR):

Budapest, Hungary. “Deregulated, IFN α driven autophagy shapes the phenotype of autoreactive SLE monocytes” Gkirtzimanaki K., Kabrani E., Sidiropoulos P., Bertsias G., Boumpas D.* and Verginis P.*

* equal contribution

2014 - FEBS-EMBO Conference: Paris, France. “TPL2 kinase is a

suppressor of lung carcinogenesis.” Gkirtzimanaki K., Gkouskou K., Liloglou T., Eliopoulos A.G.

2012 – INFLACARE-TACIT Summer school: Mallia, Greece. “*Tpl2 is a suppressor of lung carcinogenesis.*” Gkirtzimanaki K., Gkouskou K., Liloglou T., Eliopoulos A.G.

2010 – INFLACARE Summer school: Fodele, Greece. “*The role of Tpl2 in lung cancer – a tumor suppressive mitogen activated protein kinase.*”

Gkirtzimanaki K., Liloglou T., Gorgoulis V., Kotsinas A., Eliopoulos A.G.

2009 - ESGCT: 17th Annual ESGCT Congress, Hannover, Germany.

“*AdCD40L gene therapy enhances the efficacy of chemotherapy in experimental bladder cancer.*” Liljenfeldt L.* , Gkirtzimanaki K.*, Loskog A. and Eliopoulos A.G. *equal contribution

2009 – INFLACARE Meeting: Vienna, Austria. “*Tpl2 deficiency promotes lung carcinogenesis*” and “*Construction of latent cytokine antagonists*”
Gkirtzimanaki K., Liloglou T., Gorgoulis V., Kotsinas A., Eliopoulos A.G.

2006 - Keystone Symposia: Molecular Targets for Cancer Prevention, Tahoe City, U.S.A. “*Tumor-associated mature dendritic cells express MMP9 and VEGF and contribute to tumor angiogenesis.*” Benencia F., Girtzimanaki K., ...Carroll R.G. & Coukos G. (Oral Presentation)

b) INVITED LECTURES ON MY RESEARCH

Mar. 2017: ‘Autophagy in the regulation of the autoimmune diseases’. Workshop in immune regulation and immunotherapy, 37th EWRR Conference, Athens, Greece.

June 2013: ‘The TPL-2 kinase is a suppressor of lung carcinogenesis’. National Institute for Medical Research, London, UK. Host: Dr Steve Ley.

Feb. 2013: ‘The TPL-2 kinase is a suppressor of lung carcinogenesis’. Gray Institute for Radiation Oncology & Biology 2013 Seminar Series, Oxford University, UK. Host: Dr Madalena Tarsunas.

Feb. 2013: ‘The TPL-2 kinase is a suppressor of lung carcinogenesis’. Institute for Biomedical Research, The University of Birmingham, UK. Host: Dr Jorge Caamano.

Feb. 2012: ‘The pro-inflammatory Tpl2 kinase functions as a lung tumor suppressor’. Institute Gustav-Roussy, Paris, France. Host: Prof. L. Zitvogel.

July 2011: ‘A novel role for the Tpl2 kinase in lung cancer’. The University of Liverpool, Institute for Cancer Studies, Liverpool, UK. Host: Dr. T. Liloglou.

6. PARTICIPATION IN RESEARCH PROGRAMS

Mar. 2016 – now: NGS in Peripheral Blood and Hematopoietic Stem Cells in SLE: Mechanisms of Disease, Novel Therapeutic Targets and Biomarkers for Disease Activity and Response to Therapy (FOREUM)
Duties: Experimental Design, Wet Lab Experiments, Data Analysis

Jan. 2013 – Aug. 2014: *AutoImmuneSearch* – Investigation of the pathogenesis of autoimmune diseases – using SLE as the prototype autoimmune disease - to reveal new targets for drug development (ARISTEIA I - ESPA)

Duties: Experimental Design, Wet Lab Experiments, Data Analysis, Administration

Jan. 2009 – Dec. 2012: *INFLA-CARE* - Understanding inflammation associated tumorigenesis for the rational design of novel anti-cancer therapeutic strategies (FP7- European Council).

Duties: Experimental Design, Wet Lab Experiments, Data Analysis

Jun. 2008 – Dec. 2008: *Apothecy* - CD40 ligand-based modalities for the treatment of solid tumors (FP6- European Council).

Duties: Wet Lab Experiments, Data Analysis

Oct. 2006 – Jun. 2008: Development of new technologies for bladder cancer diagnosis (GSRT).

Duties: Experimental Design, Wet Lab Experiments, Data Analysis

7. HOSTING RESEARCH GROUPS

2018-now (Post-Doc)

Laboratory of Genome (In)stability and Mammalian Physiology, IMBB-FORTH, Heraklion, Greece. (Prof. G. Garinis)

2013-2017 (Post-Doc)

Laboratory of Autoimmunity and Inflammation, Section of Pathology, Dpt. Of Medicine, University of Crete, Heraklion, Greece. (Prof. D.Boumpas and Ass. Prof. P.Sidiropoulos)

2011-2012 (PhD)

Laboratory of Inflammation and Cancer biology, Institute of Molecular Biology and Biotechnology, Foundation for Research and Technology-Hellas, Heraklion, Greece. (Ass. Prof. A.G. Eliopoulos)

2010 (4 months - Visiting researcher during Ph.D.)

Laboratory of Lung Cancer & Biomarkers, Department of Molecular and Clinical Cancer Medicine, Roy Castle Lung Cancer Research Centre, University of Liverpool, Liverpool, United Kingdom. (Ass. Prof. T. Liloglou)

2007-2010 (M.Sc. and PhD)

Laboratory of Molecular and Cellular Biology, Division of Basic Sciences, Dpt. of Medicine, University of Crete, Heraklion, Greece. (Ass. Prof. A.G. Eliopoulos).

2006 (M.Sc.)

3month rotations at the following Laboratories:

Laboratory of Molecular and Cellular Biology, Division of Basic Sciences, Dpt. Of Medicine, University of Crete, Heraklion, Greece. (Ass. Prof. A.G. Eliopoulos)

Laboratory of Mitochondrial Biology, Division of Protein Structure and Function, IMBB, FORTH. (Ass. Prof. K. Tokatlidis)

Laboratory of Plant Molecular Virology, Division of Biochemistry, Molecular Biology, Cellular and Developmental Biology, Dpt. of Biology, University of Crete, Heraklion, Greece. (Ass. Prof. M. Tsagris)

2004 (Undergraduate Thesis)

Laboratory of Gynecological Oncology, Medical School & Abramson Cancer Centre, University of Pennsylvania, PA, U.S.A. (Ass. Prof. G. Coukos)

8. FIELDS OF SCIENTIFIC EXPERTISE

Molecular and Cell Biology, Genetics, Immunology and Autoimmunity, Cancer Immunology, Cancer Biology, Cell Signaling, Biochemistry, Mitochondrial Biology, DNA damage.

9. EXPERIMENTAL EXPERTISE

Human histology.

Research in rodents (mouse handling and breeding, colony establishment, induction of human disease models, microsurgery and histological analysis).

Flow Cytometry and Cell Sorting.

Confocal Microscopy and Live Imaging.

Cell culture techniques (peripheral blood cell isolation and cell line establishment from primary cells, transient and stable transfection, infection, silencing)

Molecular Biology techniques (Western and Southern Blotting, ChIP, IP, EMSA, ELISA, Reporter Assays, PCR, Q-PCR, Mutagenesis, Sequencing).

DNA Methylation Analysis (Pyrosequencing), Allelic Imbalance analysis, Mutational analysis

Construct design, propagation and purification of recombinant viruses.

Protein expression, isolation and purification.

10. OTHER RELATED ACTIVITIES

a) SCIENTIFIC SUPERVISION OF PhD/ M.Sc. / UNDERGRAD. THESES

2017: M.Sc. Thesis of Nikoleri D. *Cellular and Genetic Etiology, Diagnosis and Treatment of Human Disease Graduate Program*, Dpt. of Medicine, School of Life Sciences, University of Crete

2016: PhD Thesis of Georgakis S. *Molecular Biology and Biomedicine Graduate Program*, Dpts of Biology & Medicine, University of Crete and IMMB-FORTH

2016: Undergraduate Thesis of Morali K., Dpt. of Biology, School of Science and Engineering, University of Crete

2015: M.Sc. Thesis of Blanas A. *Cellular and Genetic Etiology, Diagnosis and Treatment of Human Disease Graduate Program*, Dpt. of Medicine, School of Life Sciences, University of Crete

2014: M.Sc. Thesis of Kabrani E. *Molecular Biology and Biomedicine Graduate Program*, Dpts of Biology & Medicine, University of Crete and IMMB-FORTH

b) TEACHING

2018, 2017, 2016: Teaching of Methods of Molecular Biology in M.Sc. Program “Cellular and Genetic Etiology, Diagnosis and Treatment of Human Disease” Medical School, University of Crete.

2008: Guest Lecturer of Practical Exercises for the needs of Genetics Course (Professor: Delidakis Christos.), Dpt. of Biology, University of Crete.

2007: Laboratory Demonstrator of Microbiology (Professor: Economou Anastasios), Dpt. of Biology, University of Crete.

2007: Guest Lecturer for the needs of Human Genetics Course (Ass. Professor: Eliopoulos A.G.), Medical School, University of Crete.

c) TEXTBOOKS

Participation in the Greek translation and editing of the scientific book “LEWIN’S GENES X” (ISBN:978-0-7637-6632-0)

Cited by:

- “Pathology of Lung Disease: Morphology – Pathogenesis – Etiology”, Helmut Popper,

Springer Nature 2017

- “Tetraspanins”, Fedor Berdichevsky and Eric Rubinstein, *Springer Science and Business Media 2013*
- “Basement Membranes”, Jeffrey H. Miner, *Academic Press – Elsevier 2015*

d) RESEARCH MOBILITY PROGRAMS

Mar. – Aug. 2010 ERASMUS placement (during PhD) at the University of Liverpool Cancer Research Centre, Biomarkers Group.

Project title: Investigation of genetic and epigenetic abnormalities of TPL-2 in lung cancer.

Techniques: mRNA and miRNA expression measurement by qPCR, genomic copy number variance (CNV) analysis by qPCR, promoter methylation by pyrosequencing, in vitro inhibition of DNMTs/HDACs and antagomir transfection in primary cells and cancer cell lines (tissue culture). Supervisor: Dr. T. Liloglou.

e) THESES

PhD Thesis

“Study of the role and regulation of Tpl2 /COT (MAP3K8) in lung carcinogenesis: a proto-oncogene with a tumor suppressive function”.

Master Thesis

“Study of the regulation and function of MAP3 Kinase COT/Tpl2 in breast cancer and investigation of its interaction with ErbB2”.

Undergraduate Thesis

“Detection of immobilized, mature dendritic cells located in the peritumoral area of ovarian tumors, which produce angiogenic factors and can contribute in tumor growth”.

11. FOREIGN LANGUAGES

2001: Certificate of Proficiency in English from the University of Michigan

2001: Diplome d'etudes en langue Francaise D.E.L.F. (A1,A2,A3,A4)

12. PERSONAL DETAILS

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Affiliation: Lab. of Inflammation and Autoimmunity, 5D14, Dpt. of Medicine, University Campus, Vassilika Vouton, Heraklion, Crete, GR-70013.

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