CURRICULUM VITAE

Ilias Mylonis, Ph.D.: Associate Professor of Biochemistry

Languages: Greek (native), English (very good), French (very good)
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EDUCATION

1997:	Degree in Chemistry, Department of Chemistry, Aristotle University of Thessaloniki
2003:	Ph.D. in Biochemistry, Department of Chemistry, Aristotle University of Thessaloniki

RESEARCH INTERESTS:

- Investigation of regulation of the human Hypoxia Inducible Factor 1 (HIF-1).
- Investigation of non-genomic HIF-1α functions and their role in cell adaptation to hypoxia.
- Investigation of regulation of lipid metabolism under hypoxia.
- Regulation of Nuclear Structure under hypoxia.

RESEARCH EXPERIENCE:

- As a Ph.D. student (1998-2003), I have studied the kinase (SRPK1) that phosphorylates the arginine/serine motifs of the inner nuclear membrane protein Lamin B Receptor and the role of this phosphorylation on protein interactions that influence chromatin condensation. In parallel, I also studied the regulation of SRPK1 activity by CK2-dependent phosphorylation.
- Researcher at the laboratory of Dr. Sassone-Corsi (2002-2003), where I have studied the protein interactions between chromatin and nuclear envelope components during spermiogenesis.
- Post-doctorally, in the group of Dr. Simos (2005 – 2010), I have been mainly investigating the role of HIF-1α phosphorylation and its effect on HIF-1α activity and nucleocytoplasmic transport. Additionally, I have been involved in several studies that concerned HIF-1α expression in tumor samples.
- As a staff member in the Laboratory of Biochemistry at the Faculty of Medicine, Univ. of Thessaly (2010 - up to now), apart from HIF-1α regulation, I have also been involved in the investigation of lipid metabolism under hypoxia in collaboration with prof. G. Simos (Faculty of Medicine, Univ. of Thessaly) and Dr. S. Sinniossoglou (CIMR, Cambridge, England). Currently, I am investigating novel non-genomic functions of the transcription factor HIF-1α, its inhibition in cancer cells by cell-permeable HIF-1α-derived peptides (1 Ph.D. student – Thesis completed 21/12/2018), the investigation of novel HIF-1α interaction proteins that regulate HIF-1α and its activity (1 post-doctoral student) and the effect of hypoxia on nuclear structure (1 Ph.D. student).
- Visiting scientist (March 2023-July 2023) on the role of hypoxia and HIF-1α transcription factor on chromatin accessibility and selection of hypoxia target genes during as a scientific visitor in the laboratory of Dr. Ioannis Sanidas (Investigational Cancer Therapeutics Lab, Massachusetts General Hospital Cancer Center, Harvard Medical School, Boston, MA, USA).
- Publication record of **32** original research papers and **7** review articles (**39** in total) in peer-reviewed journals with a total impact factor of **174.3**, **2459** citations, and *h-index:* **22** (January 2024, Google Scholar).

TEACHING EXPERIENCE

- Part-time laboratory teaching for Biochemistry and Enzymology for students of Chemistry, Biology and Pharmacy departments (Aristotle University of Thessaloniki, 1998-2001).
- Part-time teaching and research assistant (2005-2008) for Enzymology at the dept. of Biochemistry and Biotechnology, Univ. of Thessaly.
- Teaching and research assistant (2006-2010) for Medical Chemistry and Biochemistry at the Faculty of Medicine, Univ. of Thessaly.
- Teaching as Lecturer (2010-2014) for Medical Chemistry and Biochemistry at the Faculty of Medicine, Univ. of Thessaly.
- Teaching as Assistant Professor (2014-2022) for Medical Chemistry and Biochemistry at the Faculty of Medicine, Univ. of Thessaly.
- Course coordinator for Medical Chemistry (2021- up to now) at the Faculty of Medicine, Univ. of Thessaly.
- Teaching as Lecturer or Assistant Professor (2010-2015) for Cellular Signaling and Regulation of Gene Expression of the postgraduate program Clinical Applications of Molecular Medicine, Faculty of Medicine, Univ. of Thessaly.
- Participation as a member in 5 Ph.D. Thesis Advisory Committees and 6 Ph.D. Thesis Examination Committees
- Currently directly supervising one post-doctoral researcher, one Ph.D. student.
- Directly supervised two Ph.D. thesis that were concluded.

FELLOWSHIPS - FUNDING

- As a researcher in the Laboratory of Dr. Paolo Sassone-Corsi at the Institute of Genetics and Molecular and Cellular Biology (IGBMC) Illkirch, France, I have been supported by a fellowship from Égide (March 2002 - February 2003).
- EMBO short-term fellowship to visit the Laboratory of Dr. Symeon Siniossoglou at Cambridge Institute for Medical Research (CIMR) Cambridge, United Kingdom (June 2010 - September 2010).
- Funding for research on “Spatio-temporal regulation of hypoxia inducible factor-alpha” in the context of «Euro-BioImaging Proof-of-Concept-Studies» in collaboration with prof. Zoi Lygerou of the university of Patras (Stakeholder, 2012).
- Funding for research on “Novel protein interactions of Hypoxia Inducible Factor 1α (HIF-1α): Investigation of their significance in HIF regulation and cancer cell adaptation to hypoxia” from the research committee of the University of Thessaly (Principal Investigator (2016) 4000€).
- Funding for research on “Non-conventional mitochondrial functions of Hypoxia Inducible Factor 1α (HIF-1α): their role in cellular adaptation to hypoxia and carcinogenesis” from Fondation Santé - Research Grant in Biomedical Sciences (Principal Investigator (2017-2018) 40000€).
- Funding for research on “Novel HIF-1α protein interactions and their role in cancer cell adaptation to low oxygen - HFRI-FM17-2132” from the Hellenic Foundation for Research & Innovation “HFRI” (Principal Investigator - (2020-2023) - 177600€).

AWARDS:

- Best poster presentation at the 57th meeting of the Hellenic Society of biochemistry & molecular biology for the report: I. Mylonis, G. Chachami, M. Samiotaki, G. Panayotou, E. Paraskeva, E. Georgatsou, S. Bonanou, G. Simos (2005) Characterization of the human Hypoxia Inducible Factor HIF-1α phosphorylation. *Hellenic Society of biochemistry & molecular biology, Book of Abstracts of the 57th meeting*, **52**, 142.
- Honors for oral presentation at the 59th meeting of the Hellenic Society of biochemistry & molecular biology for the report: I. Mylonis, G. Chachami, E. Paraskeva, and G. Simos (2007) Activity and intracellular transport of human Hypoxia Inducible Factor HIF-1α depend on the presence and phosphorylation status of a novel unconventional Nuclear Export Signal. *Hellenic Society of biochemistry & molecular biology, Proceedings of the 59th meeting*, *Newsletter,* **54**, 208.

OTHER DETAILS:

- Member of Scientific Societies:
  Association of Greek Chemists, Hellenic Society for Biochemistry and Molecular Biology
- Reviewer for Scientific Journals: Aging, Biochemical and Biophysical Research Communications, Biochimica et Biophysica Acta, Biomolecules, BMC Cancer, BMC Genomics, BMC Immunology, Cells, Cellular and Molecular Biology Letters, Cellular Signalling, Expert opinion on Drug Discovery, Frontiers Endocrinology, Frontiers Immunology, Frontiers Neuroscience, Frontiers Physiology, International Journal of Molecular Sciences, Journal of Cellular and Molecular Medicine, Journal of Cell Science, PLOS, Scientific Reports.
- Guest Editor in Special Issues of the Scientific Journals Cells and Cancers.

LIST OF PUBLICATIONS

1. Arseni C, Samiotaki M, Panayotou G, Simos G., Mylonis I. (2024) Combinatorial regulation by ERK1/2 and CK1δ protein kinases leads to HIF-1α association with microtubules and facilitates its symmetrical distribution during mitosis. ***Cell Mol Life Sci***, **81**, 72. *DOI: 10.1007/s00018-024-05120-7.*
2. Yfantis A, Mylonis I, Simos G. (2023) Direct interaction between mortalin and HIF-1α at the mitochondria inhibits apoptosis by blocking recruitment of Bax. **FEBS J. 290**, 3764-3780.
3. Koukiali A., Daniilidou M., Mylonis I., Giannakouros T., Nikolakaki E. (2023) SR Protein Kinase 1 Inhibition by TAF15. **Cells 12,** 126.
4. Taze C., Drakouli S., Samiotaki M., Panayotou G., Simos G., Georgatsou E., Mylonis I. (2022) Short-term hypoxia triggers ROS and SAFB mediated nuclear matrix and mRNA splicing remodeling. **Redox Biology 58**, 102545.
5. Koukoulas K., Giakountis A., Karagiota A., Samiotaki M., Panayotou G., Simos G, Mylonis I. (2021) ERK signaling controls productive HIF-1 binding to chromatin and cancer cell adaptation to hypoxia through HIF-1α interaction with NPM1. **Molecular Oncology 15**, 3468-3489.
6. Gkotinakou IM, Kechagia E, Pazaitou-Panayiotou K, Mylonis I*, Liakos P, Tsakalof A. (2020) Calcitriol Suppresses HIF-1 and HIF-2 Transcriptional Activity by Reducing HIF-1/2α Protein Levels via a VDR-Independent Mechanism. **Cells 9**, 2440. *Co-Corresponding author.
7. Triantafyllou EA, Mylonis I, Simos G, Paraskeva E. (2019) Hypoxia Induces Pro-Fibrotic and Fibrosis Marker Genes in Hepatocellular Carcinoma Cells Independently of Inflammatory Stimulation and the NF-κB Pathway. **Hypoxia (Auckl). 7**, 87-91.
8. Karagiota A, Mylonis I, Simos G and Chachami G. (2019) Protein phosphatase PPP3CA (calcineurin A) down-regulates hypoxia-inducible factor transcriptional activity. **Arch Biochem Biophys 664**, 174-182.
9. Karagiota A, Kourti M, Simos G and Mylonis I. (2019) HIF-1α-derived cell-penetrating peptides inhibit ERK-dependent activation of HIF-1 and trigger apoptosis of cancer cells under hypoxia. ***Cell Mol Life Sci*** **76**, 809-825.
10. Triantafyllou EA, Georgatsou E, Mylonis I, Simos G, Paraskeva E. (2018) Expression of AGPAT2, an enzyme involved in the glycerophospholipid/ triacylglycerol biosynthesis pathway, is directly regulated by HIF-1 and promotes survival and etoposide resistance of cancer cells under hypoxia. ***Biochim Biophys Acta Mol Cell Biol Lipids*** **1863**,1142-1152.
11. Drakouli S, Lyberopoulou A, Papathanasiou M, Mylonis I & Georgatsou E (2017) A novel nuclear matrix interaction between Scaffold Attachment Factor B and Enhancer of Rudimentary Homologue affects SR protein phosphorylation. ***FEBS J*** **284**, 2482-2500.
12. Mylonis I, Kourti M, Samiotaki M, Panayotou G & Simos G (2017) Mortalin-mediated and ERK-controlled targeting of HIF-1α to mitochondria confers resistance to apoptosis under hypoxia. ***J Cell Sci*** **130**, 466-479.
13. Pangou E, Befani C, Mylonis I, Samiotaki M, Panayotou G, Simos G & Liakos P (2016) HIF-2α phosphorylation by CK1δ promotes erythropoietin secretion in liver cancer cells under hypoxia. ***J Cell Sci*** **129**, 4213-4226.
14. Kourti M, Ikonomou G, Giakoumakis N-N, Rapsomaniki M-A, Landegren U, Siniossoglou S, Lygerou Z, Simos G & Mylonis I (2015) CK1δ restrains lipin-1 induction, lipid droplet formation and cell proliferation under hypoxia by reducing HIF-1α/ARNT complex formation. ***Cell Signal*** **27**, 1129-1140.
15. Stamatiou R, Paraskeva E, Vasilaki A, Mylonis I, Molyvdas PA, Gourgoulianis K & Hatziefthimiou A (2014) Long-term exposure to muscarinic agonists decreases expression of contractile proteins and responsiveness of rabbit tracheal smooth muscle cells. ***BMC Pulm Med*** **14**, 39.
16. Befani C, Mylonis I, Gkotinakou IM, Georgoulias P, Hu CJ, Simos G & Liakos P (2013) Cobalt stimulates HIF-1-dependent but inhibits HIF-2-dependent gene expression in liver cancer cells. ***Int J Biochem Cell Biol*** 45, 2359-68.
17. Lyberopoulou A, Mylonis I, Papachristos G, Sagris D, Kalousi A, Befani C, Liakos P, Simos G & Georgatsou E (2013) MgcRacGAP, a cytoskeleton regulator, inhibits HIF-1 transcriptional activity by blocking its dimerization. ***Biochim Biophys Acta - Mol Cell Res*** **1833**, 1378-1387.
18. Tsapournioti S*, Mylonis I*, Hatziefhimiou A, Ioannou MG, Stamatiou R, Koukoulis GK, Simos G, Molyvdas PA, Paraskeva E (2013) TNFα induces expression of HIF-1α mRNA and protein but inhibits hypoxic stimulation of HIF-1 transcriptional activity in airway smooth muscle cells. ***J Cell Physiol*** **228**, 1745-1753. *Equal contribution
19. Mylonis I, Sembongi H, Befani C, Liakos P, Siniossoglou S & Simos G (2012) Hypoxia causes triglyceride accumulation via HIF-1-mediated stimulation of lipin 1 expression. ***J Cell Sci*** **125**, 3485-3493
20. Lakka A, Mylonis I, Bonanou S, Simos G & Tsakalof A (2011) Isolation of hypoxia-inducible factor 1 (HIF-1) inhibitors from frankincense using a molecularly imprinted polymer. ***Invest New Drugs*** **29**, 1081-1089

21. Mylonis I, Lakka A, Tsakalof A & Simos G (2010) The dietary flavonoid kaempferol effectively inhibits HIF-1 activity and hepatoma cancer cell viability under hypoxic conditions. *Biochem Biophys Res Commun* **398**, 74-78.
22. Kalousi A*, Mylonis I*, Politou AS, Chachami G, Paraskeva E & Simos G (2010) Casein kinase 1 regulates human hypoxia-inducible factor HIF-1. ***J Cell Sci*** **123**, 2976-2986. *Equal contribution
23. Ioannou M, Mylonis I, Kouvaras E, Papamichali R, Daponte A, Paraskeva E, Simos G & Koukoulis GK (2010) Validated analysis of HIF-1alpha expression in cancer cells using a controlled and comparative immunoassay. ***Oncol Rep*** **24**, 161-169.
24. Ioannou M, Sourli F, Mylonis I, Barbanis S, Papamichali R, Kouvaras E, Zafiriou E, Siomou P, Klimi E, Simos G, Roussaki-Schulze AV & Koukoulis G (2009) Increased HIF-1 alpha immunostaining in psoriasis compared to psoriasiform dermatitides. ***J Cutan Pathol*** **36**, 1255-1261.
25. Ioannou M, Papamichali R, Kouvaras E, Mylonis I, Vageli D, Kerenidou T, Barbanis S, Daponte A, Simos G, Gourgoulianis K & Koukoulis GK (2009) Hypoxia inducible factor-1 alpha and vascular endothelial growth factor in biopsies of small cell lung carcinoma. ***Lung*** **187**, 321-329.
26. Triantafyllou A*, Mylonis I*, Simos G, Bonanou S & Tsakalof A (2008) Flavonoids induce HIF-1alpha but impair its nuclear accumulation and activity. ***Free Radic Biol Med*** **44**, 657-670. *Equal contribution
27. Mylonis I, Chachami G, Paraskeva E & Simos G (2008) Atypical CRM1-dependent nuclear export signal mediates regulation of hypoxia-inducible factor-1alpha by MAPK. ***J Biol Chem*** **283**, 27620-27627.
28. Daponte A, Ioannou M, Mylonis I, Simos G, Minas M, Messinis IE & Koukoulis G (2008) Prognostic significance of Hypoxia-Inducible Factor 1 alpha(HIF-1 alpha) expression in serous ovarian cancer: an immunohistochemical study. ***BMC Cancer*** **8**, 335.
29. Lyberopoulou A, Venieris E, Mylonis I, Chachami G, Pappas I, Simos G, Bonanou S & Georgatsou E (2007) MgcRacGAP interacts with HIF-1alpha and regulates its transcriptional activity. ***Cell Physiol Biochem*** **20**, 995-1006.
30. Mylonis I, Chachami G, Samiotaki M, Panayotou G, Paraskeva E, Kalousi A, Georgatsou E, Bonanou S & Simos G (2006) Identification of MAPK phosphorylation sites and their role in the localization and activity of hypoxia-inducible factor-1alpha. ***J Biol Chem*** **281**, 33095-33106.
31. Mylonis I, Drosou V, Brancorsini S, Nikolakaki E, Sassone-Corsi P & Giannakouros T (2004) Temporal association of protamine 1 with the inner nuclear membrane protein lamin B receptor during spermiogenesis. ***J Biol Chem*** **279**, 11626-11631.
32. Mylonis I & Giannakouros T (2003) Protein kinase CK2 phosphorylates and activates the SR protein-specific kinase 1. ***Biochem Biophys Res Commun*** **301**, 650-656.

REVIEW ARTICLES

1. Yfantis A, Mylonis I, Chachami G, Nikolaidis M, Amoutzias GD, Paraskeva E, Simos G. (2023) Transcriptional Response to Hypoxia: The Role of HIF-1- Associated Co-Regulators. ***Cells 2023 12***, 798.
2. Gkotinakou I-M, Mylonis I, Tsakalof A. (2022) Vitamin D and Hypoxia: Points of Interplay in Cancer. ***Cancers*** **14**, 1791.
3. Mylonis I, Chachami G, Simos G. (2021) Specific Inhibition of HIF Activity: Can Peptides Lead the Way? ***Cancers*** **13**, 410.
4. Mylonis I, Simos G, Paraskeva E (2019) Hypoxia-Inducible Factors and the Regulation of Lipid Metabolism. ***Cells*** **8**, pii: E214. doi: 10.3390/cells8030214.
5. Nikolakaki E, Mylonis I, Giannakouros T (2017) Lamin B Receptor: Interplay between Structure, Function and Localization. ***Cells*** **6** pii: E28. doi:10.3390/cells6030028.
6. Mylonis I & Simos G (2012) The Involvement of the ERK-Hypoxia- Angiogenesis Signaling Axis and HIF-1 in Hepatocellular Carcinoma. ***HEPATOCELLULAR CARCINOMA – BASIC RESEARCH*** (Editor: Wan-Yee Lau), 253-274.
7. Giannakouros T, Nikolakaki E, Mylonis I & Georgatsou E (2011) Serine-arginine protein kinases: a small protein kinase family with a large cellular presence. ***FEBS J*** **278**, 570-586.