



UNIVERSITÀ  
DEGLI STUDI  
DELL'AQUILA



DISCAB  
Dipartimento di Scienze  
Cliniche Applicate  
e Biotecnologiche

## CURRICULUM VITAE

PERSONAL INFORMATION	Roberto Iorio Dipartimento di Scienze Cliniche Applicate e Biotecnologiche (DISCAB) Via Vetoio, Coppito 2 67100 L'Aquila, Italia E-mail istituzionale: roberto.iorio@univaq.it
CURRENT POSITION	Researcher, Assistant Professor
EDUCATION OTHER QUALIFICATIONS	<b>2002</b> – M.Sc. in Biological Sciences cum laude at the University of L'Aquila <b>2006</b> – PhD in Molecular and Cell Biology
ACADEMIC APPOINTMENTS	from <b>March 1990</b> - Technical Assistant, sixth level, technical area, scientific technician from <b>October 2007</b> – Assistant Professor
CLINIC APPOINTMENTS	/



TEACHING EXPERIENCE	<p><b>2007 – 2019</b>, Course of Biology, Chemistry and Biochemistry - E0472 <b>2019</b> – Molecular Mechanisms and Biomarkers in the Cellular Response to Stress - B0495 <b>2020</b> – Molecular and Cellular Adaptations (Course of Cellular, Morphological and Physiological Adaptations in High Performance - E0488)</p>
RESEARCH ACTIVITIES	<p>In recent years, research activity has been aimed at studying mitochondrial functionality and dynamics in relation to redox homeostasis and cellular bioenergetics. These processes have been investigated in the following biological fields:</p> <p>Study of the biological effects induced by extremely low frequency electromagnetic fields (EM-ELF) on different in vitro cellular models (human spermatozoa, muscle and endothelial cells). Evaluation of the molecular mechanisms underlying energetic and oxidative stress responses induced by currently used azole fungicides on Mouse Sertoli cells. Evaluation of cytoprotective and immunomodulatory activity of paraprobiotic <i>Lactobacillus sakei</i> on human conjunctival cells treated with inflammatory inducers like preservatives or drugs used for the treatment of glaucoma.</p> <p>Currently, the research activity is mainly aimed at studying the cytoprotective and mitoprotective activity of natural/synthetic compounds in human trabecular meshwork and conjunctival epithelial cells exposed to active compounds with pro-oxidant activity. Of recent interest is the study on the distinct mechanisms of response to stress and the intercellular mitochondrial transfer (extracellular vesicles and nanotunnels).</p>
RESPONSIBILITY IN ACADEMIC ACTIVITIES	<p><b>2016 – 2019</b> Member of the Discipline Board <b>2021</b> – PhD Academic Board Member</p>
EDITORIAL BOARD, EDITORIAL ACTIVITIES, SOCIETY MEMBERSHIP	<p><b>2011</b> - Member of the Italian Association of Biology and General and Molecular Genetics (AIBG) <b>2009</b> - Member of the Scientific Committee of the National Inter-University Research Center on the Interactions between Electromagnetic Fields and Biosystems (ICEmB).</p>
SCIENTIFIC ACHIEVEMENTS BIBLIOMETRIC INDICATORS	<p><b>Scopus Author ID:</b> 35948722500 <b><a href="http://orcid.org/0000-0003-1863-5752">http://orcid.org</a></b> 0000-0003-1863-5752</p>
SELECTED PUBLICATIONS	<ol style="list-style-type: none"><li><b>1. Iorio R.</b> and Petricca S. "Role of AMPK/ULK1 signaling in mitophagy". Elsevier book chapter. Part of the book titled "Lemasters - Mitophagy in Health and Disease: Mechanisms, Health Implications, and Therapeutic Opportunities". 2024 (in press).</li><li><b>2. Iorio R.,</b> Petricca S., Mattei V., and Delle Monache S. "Horizontal mitochondrial transfer as a novel bioenergetic tool for mesenchymal stromal/stem cells (MSCs): molecular mechanisms and therapeutic</li></ol>



potential in a variety of diseases". *Journal of Translational Medicine* 2024, (Accepted)

3. Petricca S, Carnicelli V, Luzi C, Cinque B, Celenza G, **Iorio R**. "Oxidative Stress, Cytotoxic and Inflammatory Effects of Azoles Combinatorial Mixtures in Sertoli TM4 Cells". *Antioxidant* 2023, 12(6):1142. doi.org/10.3390/antiox12061142.
4. Petricca S, Celenza G, Costagliola C, Tranfa F, **Iorio R**. "Cytotoxicity, Mitochondrial Functionality, and Redox Status of Human Conjunctival Cells after Short and Chronic Exposure to Preservative-Free Bimatoprost 0.03% and 0.01%: An In Vitro Comparative Study". *Int J Mol Sci*. 2022, Nov 15;23(22):14113. doi: 10.3390/ijms232214113.
5. **Iorio, R.**; Celenza, G.; Petricca, S. "Multi-Target Effects of  $\beta$ -Caryophyllene and Carnosic Acid at the Crossroads of Mitochondrial Dysfunction and Neurodegeneration: From Oxidative Stress to Microglia-Mediated Neuroinflammation". *Antioxidants* 2022, Jun 18;11(6), 1199. [https://doi.org/ 10.3390/antiox11061199](https://doi.org/10.3390/antiox11061199)
6. L. Fagnani, L. Nazzicone, P. Bellio, N. Franceschini, D. Tondi, A. Verri, S. Petricca, **R. Iorio**, G. Amicosante, M. Perilli and G. Celenza "Protocetraric and Salazinic Acids as Potential Inhibitors of SARS-CoV-2 3CL Protease: Biochemical, Cytotoxic, and Computational Characterization of Depsidones as Slow-Binding Inactivators" *Pharmaceuticals* 2022, Jun 4;15(6), 714. <https://doi.org/10.3390/ph15060714>
7. S. Petricca, G. Celenza, C. Luzi, B. Cinque, A.R. Lizzi, N. Franceschini, C. and **R. Iorio** "Synergistic Activity of Ketoconazole and Miconazole with Prochloraz in Inducing Oxidative Stress, GSH Depletion, Mitochondrial Dysfunction, and Apoptosis in Mouse Sertoli TM4 Cells" *Int J Mol Sci* 2022, 13 May 23 (10), 5429. doi.org/10.3390/ijms23105429
8. L. D'andrea, M. Montemagni, G. Celenza, **R. Iorio**, C. Costagliola "Is it time for a moratorium on the use of benzalkonium chloride in eyedrops?" *British J Clinical Pharmacol* 2022 8 May, 1-3
9. Di Gregorio J, Petricca S, **Iorio R**, Toniato E, Flati V. "Mitochondrial and metabolic alterations in cancer cells". *Eur J Cell Biol*. 2022 Apr 13;101(3):151225. doi: 10.1016/j.ejcb.2022.151225. Online ahead of print. PMID: 35453093.
10. A. Colapietro, P. Yang, A. Rosetti, A. Mancini, F. Vitale, S. Chakraborty, S. Martellucci, F. Marampon, V. Mattei, G. L. Gravina, **R. Iorio**, R.A. Newman, C. Festuccia "The Botanical Drug PBI-05204, a Supercritical CO<sub>2</sub> Extract of Nerium oleander, is Synergistic with Radiotherapy in Models of Human Glioblastoma" *Front Pharmacol* 2022 Mar 23;13:852941. doi: 10.3389/fphar.2022.852941. PMID: 35401175;



PMCID: PMC8984197.

11. **R. Iorio**, G. Celenza and S. Petricca “Mitophagy: Molecular Mechanisms, New Concepts on Parkin Activation and the Emerging Role of AMPK/ULK1 Axis” *Cells* 2022; Jan 1; 11(1): 30.
12. L. Fagnani, L. Nazzicone, F. Brisdelli, L. Giansanti, S. Battista, **R. Iorio**, S. Petricca, G. Amicosante, M. Perilli, G. Celenza, P. Bellio. “Cyclic and Acyclic Amine Oxide Alkyl Derivatives as Potential Adjuvants in Antimicrobial Chemotherapy against Methicillin-Resistant Staphylococcus aureus with an MDR Profile”. *Antibiotics (Basel)*. 2021 Aug 6;10(8):952.
13. **R. Iorio**, S. Petricca, C. Luzi, P. Bellio, L. Cristiano, C. Festuccia, G. Amicosante, and G. Celenza “Lactobacillus sakei pro-Bio65 reduces TNF- $\alpha$  expression and up-regulates GSH content and antioxidant enzymatic activities in Human Conjunctival cells” *Trans Vis Sci Tech*. 2021; May 3; 10(6):8.
14. G. Rossi, B. Dfrusine, AR Lizzi, C. Luzi, A. Piccoli, F. Fezza, **R. Iorio**, G. D’Andrea, E. Dainese, S. Cecconi, M. Maccarrone “Bisphenol A deranges the endocannabinoid system of primary Sertoli cells with impact on inhibin B production” *Int J Mol Sci* 2020 Nov 26; 21 (23): 8986.
15. G. Celenza, **R. Iorio**, S. Cracchiolo, S. Petricca, C. Costagliola, B. Cinque, B. Segatore, G. Amicosante, and P. Bellio “Antimycotic Activity of Ozonized Oil in Liposome Eye Drops against Candida spp. *Trans Vis Sci Tech*. 2020; 9 (8): 4.
16. C. Festuccia, A. Mancini, G.L. Gravina, A. Colapietro, A. Vetuschi, S. Pompili, L. Ventura, S. Delle Monache, **Iorio R**, A. Del Fattore, W. Fogler, J. Magnani “Dual CXCR4 and E-Selectin Inhibitor, GMI-1359, Shows Anti-Bone Metastatic Effects and Synergizes with Docetaxel in Prostate Cancer Cell Intraosseous Growth” *Cells*. 2020 Jan; 9 (1): 32.
17. V. Di Nisio, G. Rossi, G. Di Luigi, P. Palumbo, A. D’Alfonso, **R. Iorio**, S. Cecconi. “Increased levels of proapoptotic markers in normal ovarian cortex surrounding small endometriotic cysts” *Reprod Biol* 2019 Sep; 19 (3): 225-229.
18. S. Petricca, V. Flati, G. Celenza, J. Di Gregorio, A.R. Lizzi, C. Luzi, L. Cristiano, B. Cinque, G. Rossi, C. Festuccia and **R. Iorio** “Tebuconazole and Econazole act synergistically in mediating mitochondrial stress, energy imbalance and sequential activation of autophagy and apoptosis in mouse Sertoli TM4 cells: possible role of AMPK/ULK1 axis” *Toxicological Sciences* 2019 May 1; 169 (1): 209-223.
19. V. Di Nisio, G. Rossi, **R. Iorio**, C. Pellegrini, G. Macchiarelli, G.M. Tiboni, S. Petricca, S. Cecconi “VEGFR2 Expression Is Differently



Modulated by Parity and Nulliparity in Mouse Ovary” *Biomed Res Int.* 2018 Sep 16; 2018: 6319414.

20. P. Morciano, **R. Iorio**, D. Iovino, F. Cipressa, G. Esposito, A. Porrazzo, L. Satta, E. Alesse, M.A. Tabocchini and G. Cenci “Effects of reduced natural background radiation on *Drosophila melanogaster* growth and development as revealed by the FLYINGLOW program” *Journal of Cellular Physiology* 2018 Jan; 233 (1): 23-29.
21. G.L. Gravina, A. Mancini, A. Colapietro, F. Marampon, R. Sferra, S. Pompili, L.A. Biordi, **R. Iorio**, V. Flati, C. Argueta, Y. Landesman, M. Kauffman, S. Shacham and C. Festuccia “Pharmacological treatment with inhibitors of nuclear export enhances the antitumor activity of docetaxel in human prostate cancer” *Oncotarget* 2017; Nov 30; 8 (67): 111225-111245.
22. C. Luzi, F. Brisdelli, **R. Iorio**, A. Bozzi, V. Carnicelli, A. Di Giulio, A. R.Lizzi “Apoptotic effects of bovine apo-lactoferrin on HeLa tumor cells” *Cell Biochemistry and Function* 2017; 35 (1): 33-41.
23. **R. Iorio**, A. Castellucci, G. Rossi, B. Cinque, M. Cifone, G. Macchiarelli and S. Cecconi “Mancozeb affects mitochondrial activity, redox status and energy metabolism in mouse granulosa cells” *Toxicology in vitro* 2015; 30 (1): 438-445.
24. F. Brisdelli, F. Bennato, A. Bozzi, B. Cinque, F. Mancini and **R. Iorio** “ELF-MF attenuates quercetin-induced apoptosis in K562 cells through modulating the expression of Bcl-2 family proteins” *Molecular and Cellular Biochemistry* 2014; 397(1): 33-43.
25. **R. Iorio**, A. Castellucci, G. Ventriglia, F. Teoli, V. Cellini, G. Macchiarelli and S. Cecconi “Ovarian toxicity: from environmental exposure to chemotherapy”. *Current Pharmaceutical Design* 2014; 20 (34): 5388-97
26. S. Delle Monache, A. Angelucci, P. Sanità, **R. Iorio**, F. Bennato, F. Mancini, G. Gualtieri and R. Colonna “Inhibition of Angiogenesis Mediated by Extremely Low-Frequency Magnetic Fields (ELF-MFs)”. *PLoS One* 2013 Nov; 14: 8-11.
27. **R. Iorio**, F. Bennato, F. Mancini and R. Colonna “ELF-EMF transiently increases skeletal myoblast migration: possible role of calpain system”. *International Journal of Radiation Biology* 2013 July; 89(7): 548-561.
28. B. Segatore, D. Setacci, F. Bennato, R. Cardigno, G. Amicosante and **R. Iorio** “Evaluations of the effects of Extremely low frequency electromagnetic fields on growth and antibiotic susceptibility of *Escherichia coli* and *Pseudomonas aeruginosa*”. *International Journal of Microbiology* volume 2012.
29. **R. Iorio**, S. Delle Monache, F. Bennato, C. Di Bartolomeo, R.





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**30.** S. Delle Monache, R Alessandro, **R Iorio**, G Gualtieri and R Cardigno Colonna, "Extremely low frequency electromagnetic fields (ELF-EMFs) induce in vitro angiogenesis process in human endothelial cells". *Bioelectromagnetics* 2008 Dec; 29(8):640-648.

**31.** **R. Iorio**, R. Scrimaglio, E. Rantucci, S. Delle Monache, A. Di Gaetano, N. Finetti, F. Francavilla, R. Santucci, E. Tettamanti, R. Colonna, "A preliminary study of oscillating electromagnetic field effects on human spermatozoon motility". *Bioelectromagnetics* 2007 Jan; 28: 72-75

**32.** C. Tatone, S. Delle Monache, **R. Iorio**, D. Caserta, M. Di Cola, R. Colonna, "Possibile role for Ca<sup>2+</sup> calmodulin-dependent protein kinase II as an effector of the fertilization Ca<sup>2+</sup> signal in mouse oocyte activation". *Mol. Human. Reprod.* 2002 Aug; 8(8): 750-7

**33.** C. Tatone, **R. Iorio**, A. Francione, L. Gioia, R. Colonna, "Biochemical and biological effects of KN-93, an inhibitor of calmodulin-dependent protein kinase II, on the initial events of mouse egg activation induced by ethanol". *J. Reprod. Fertil.* 1999 Jan; 115 (1):151-7.

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