

Supervisor Project Idea

Supervisor

Insert a brief CV and/or external link, the total number of publications, the ORCID link, 5 of the most significant/recent publications, and a list of funded projects and awards. Please indicate if you are a MSCA fellow yourself and if you have already been a MSCA Supervisor before. max 300 words

Prof. Arianna Vignini is a distinguished associated professor in the School of Medicine at Università Politecnica delle Marche, Ancona, Italy. She received her degree from the Faculty of Science at Università di Ancona in 1997. She then pursued postgraduate training in the Department of Chemistry and Biochemistry at Windsor University, Canada, and in 2001, she earned her Master's degree in Chemistry and Biochemistry. After returning to Università di Ancona, she obtained her specialization in Nutrition in 2002, her first PhD in 2007, and her second PhD in 2013. Her ongoing research interests include the study of biological membrane changes induced by metabolic diseases (such as diabetes and obesity), atherosclerosis, hypertension, eating disorders (including anorexia and bulimia), neurodegenerative diseases (such as Alzheimer's, Parkinson's and Multiple Sclerosis), autism, and the role of antioxidants and pro-oxidant molecules like nitric oxide and its derivatives (S-nitroso thiols) and peroxynitrite. She also investigates male infertility related to idiopathic asthenozoospermia, the follicular fluid of patients undergoing in vitro fertilization, and the relationship between oocyte quality and the production of reactive nitrogen and oxygen species, as well as the depletion of antioxidant systems. Additionally, she explores taste sensitivity in both health and disease. Prof. Vignini is a member of the editorial boards and serves as a reviewer of several scientific journals. She has authored more than 125 peer-reviewed article, and holds 2855 citations and a Scopus h-index of 32.

<https://orcid.org/0000-0002-2496-7932>

Scopus Author Identifier: 6603133912

- Alia S, Di Paolo A, Membrino V, Di Crescenzo T, Vignini A. Beneficial Effects on Oxidative Stress and Human Health by Dietary Polyphenols. *Antioxidants (Basel)*. 2024 Oct 29;13(11):1314. doi: 10.3390/antiox13111314.
- Di Paolo A, Membrino V, Alia S, Nanetti L, Svarca LE, Perrone ML, Aquilanti L, Mazzanti L, Vignini A, Salvolini E, Severini M. Pro-inflammatory cytokine alterations in recent onset anorexia nervosa adolescent female patients before and after 6 months of integrated therapy: A case-control study. *J Investig Med*. 2024 Aug;72(6):522-531. doi: 10.1177/10815589241251702.
- Pecci F, Cantini L, Cognigni V, Perrone F, Mazzaschi G, Agostinelli V, Mentrasti G, Favari E, Maffezzoli M, Cortellini A, Rossi F, Chiariotti R, Venanzi FM, Lo Russo G, Galli G, Proto C, Ganzinelli M, Tronconi F, Morgese F, Campolucci C, Moretti M, Vignini A, Tiseo M, Minari R, Rocchi MLB, Buti S, Berardi R. Prognostic Impact of Blood Lipid Profile in Patients With Advanced Solid Tumors Treated With Immune Checkpoint Inhibitors: A Multicenter Cohort Study. *Oncologist*. 2024 Mar 4;29(3):e372-e381. doi: 10.1093/oncolo/oyad273.
- Cecati M, Vignini A, Borroni F, Pugnali S, Alia S, Sabbatinelli J, Nicolai G, Taus M, Santarelli A, Fabri M, Mazzanti L, Emanuelli M. TAS1R3 and TAS2R38 Polymorphisms Affect Sweet Taste Perception: An Observational Study on Healthy and Obese Subjects. *Nutrients*. 2022 Apr 20;14(9):1711. doi: 10.3390/nu14091711
- Papiri G, Vignini A, Capriotti L, Verdenelli P, Alia S, Di Paolo A, Fiori C, Baldinelli S, Silvestrini M, Luzzi S. Cerebrospinal Fluid α -Calcitonin Gene-Related Peptide: A Comparison between Alzheimer's Disease and Multiple Sclerosis. *Biomolecules*. 2022 Jan 24;12(2):199. doi: 10.3390/biom12020199.

Funded projects and awards

- 2001 Cariverona Project "Platelets and Alzheimer's Disease: Biochemical Studies of Possible Early Markers", Supervisor
- 2002 Young Researcher Project – "Migraine and Inhibition of Nitric Oxide Synthase: A New Possible Therapeutic Principle"
- 2004 Eli Lilly Award for Best Poster, VI National Congress of Italian Society of Medical Andrology, Session "Spermatogenesis, Fertilization"
- 2007 PRIN - Study of the Expression of NOS Genes and Oxidative Stress Markers in Infertile and/or Subfertile Subjects
- 2009 PRIN - Immunohistochemical and Expression Analysis of NOS Isoforms in Infertile and/or Subfertile Subjects
- 2018: eCapital award for the business idea C.H.E.F. (Customize Health Enjoying Food)
- 2018: grant promoted by FEBS for the organization of an event on the "Microbiome" which took place in Ancona on May 31st, 2019
- 2021 FASTER Valorization Program (FAcilitate the Technological Development of Research Outcomes), PoC Project: Bioactive Compound for the Treatment of Chronic Wounds – COBA
- 2022 PRIN - PAtient Lipidome As biomarker of Cancer immunothErapy (PALACE study)

- 2022 Fondazione Salesi - The role of nutrition, folate metabolism, and epigenetics in the pathogenesis and clinical manifestation of endometriosis
- 2023 MIT - MEDICALBOOK: a digital platform for innovative, personalized services for individual well-being
- 2024: Regione Marche - AMPLIAMENTO GAMMA NUOVI PRODOTTI FUNZIONALI (ZERO +)

Research Group Description

Provide the name the reference department and a brief description of the research group, including external links, and available instrumentations and infrastructures. **max 300 words**

Laboratory of Medical Biochemistry and Nutrition


The research group consists of 1 Associate Professor and 2 PhD students. The laboratory focuses on biochemical processes related to health and disease. The research investigates various metabolic pathways and their role in nutrition, with the aim to contribute to the understanding of nutrition's impact on human health and its potential in disease prevention and treatment.

Available Instrumentation: Refrigerated Centrifuge, UV-VIS Spectrophotometer, Bench Centrifuge, Thermostatic Bath, Plate Reader, Equipment for Electrophoresis and Western Blot, Equipment for Cell Cultures, Spectrofluorimeters with Polarizers and Thermostated Cells

<https://disco.univpm.it/laboratorio-di-biochimica-medica-e-della-nutrizione-responsabile/>

Research thematic area

Indicate the MSCA panel and keywords that better describe your field of competence and research thematic area of your interest for a MSCA PF supervision – you may add extra keywords and text if necessary.

<u>MSCA Panel</u> Chemistry (CHE) - Economic sciences (ECO) - Information Sciences and Engineering (ENG) - Environmental and Geosciences (ENV) - Life Sciences (LS) - Mathematics (MAT) - Physics (PHY) - Social Sciences and Humanities (SOC)	<u>MSCA Keywords</u>  MSCA Panels & Keywords.pdf Link documento	<u>Free keywords</u>	<u>Free text</u>
Life Sciences (LS)	Ageing		Numerous studies suggest that successful aging is strongly associated with a particular lifestyle. Healthy habits, such as a healthy diet (rich in antioxidants, healthy fats, and vitamins), regular physical exercise, stress management, and adequate sleep, all contribute to longevity. Additionally, environmental factors, such as clean air, access to potable water, and reduced pollution, significantly impact health and aging processes.
	Cardiovascular diseases		Cardiovascular diseases remain one of the leading causes of morbidity and mortality worldwide. The research in this area focuses on understanding their pathophysiology, risk factors, prevention, diagnosis, and treatment strategies. Research is increasingly focusing on the development of

			biomarker panels to improve the accuracy of cardiovascular risk prediction. Combining multiple biomarkers can offer more comprehensive insights into an individual's risk profile, particularly for those who may not exhibit traditional risk factors.
	Endocrinology Metabolism, biological basis of metabolism related disorders		Metabolic disorders involve abnormalities in the biochemical processes of metabolism. These disorders can arise from genetic mutations, hormonal imbalances, or environmental factors (e.g., diet, lifestyle).
	Neurological disorders Sensory systems		There are several key points that can be explored: understanding the pathophysiology of sensory disorders (taste), identifying novel biomarkers, developing therapeutic strategies, or improving diagnostic tools.
	Personalized medicine		Personalized medicine in cardiovascular disease is gaining traction, with studies looking at how genetic and plasma biomarkers can guide tailored treatment plans. For instance, measuring plasma levels of certain biomarkers may help identify patients who would benefit from more aggressive interventions or alternative therapies.

Contact details (*including email address of the supervisor*)

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OPTIONAL:

Title and goals

Provide the title of the topic and a short summary if you already have a project idea.

Projects ideas can also be defined and discussed with potential candidates later.

max 200 words