

MARZIA CAMPANILE

ORCID: 0000-0002-6621-754X

WORK EXPERIENCE

PhD student

• Sep 2023 - ongoing

at University of Milan in collaboration with IRCCS MultiMedica

PhD project: *Study of the molecular mechanisms controlling cardiovascular regenerative cell function in age-associated diseases.*

UniMi tutor: Prof. Alessandro Fantin

MultiMedica tutor: Dr. Gaia Spinetti

Laboratory technician at IRCCS MultiMedica

• Mar 2022 - Sep 2023

Cardiovascular Research Unit; Dr. Gaia Spinetti

- I worked, in collaboration with Dr. Camilla Cerutti (European Institute of Oncology), on the development of a primary cells-based Bone Marrow-On-a-Chip *in vitro* model. My focus in the project concerns the isolation and characterization of bone marrow-derived pericytes and endothelial cells.
Tasks: bone marrow primary cell isolation, immunomagnetic cell separation, primary cell culture, flow cytometry, immunofluorescence.
I supported a Master's student during the writing of his thesis. *Set up of a microfluidic human bone marrow vasculature-on-a-chip model to study the early steps of breast cancer bone metastasis*
- In collaboration with Dr. Stela Vujosevic ophthalmological clinic, I am working on RETINAL project to identify biomarkers of SARS-COV-2-induced diabetic retinopathy.
Tasks: patient recruitment, blood processing, analysis of biomolecule expression (genes and non-coding RNAs).
I am supporting a Master's student during the writing of her thesis on RETINAL project
- I am involved in a project that aims to identify circulating long-covid biomarkers.
Tasks: evaluation of non-coding RNA expression (qPCR and ELISA)

Research fellow at Politecnico of Milan

• July 2021 - Feb 2022

In collaboration with Institute for Pharmacological Research, Mario Negri.

5-years ERC-project MINERVA: *MIcrobiota-Gut-Brain EngineeRed platform to eVALuate intestinal microflora impact on brain functionality.*

Prof. Carmen Giordano & Dr. Diego Albani

I was in charge of the static characterization of the gut and immune compartments and contributed to the development and characterization of the dynamic microbiota and gut microfluidic devices.

Tasks: bioinspired hydrogel-based model of mucus, bacterial culture, bacterial dynamic culture in bioreactor, cell culture, enzyme-linked immunosorbent assay (ELISA), real-time PCR (qPCR), immunofluorescence and confocal microscopy.

Internship at Politecnico of Milan

• Nov 2020 - June 2021

In collaboration with Institute for Pharmacological Research, Mario Negri.

5-years ERC-project MINERVA: *MIcrobiota-Gut-Brain EngineeRed platform to eVALuate intestinal microflora impact on brain functionality.*

Prof. Carmen Giordano & Dr. Diego Albani.

EDUCATION AND TRAINING

Using Python for Research course

• Apr 2020

HarvardX.

MSc in Neuroscience

• Jan 2017 – July 2019

University of Trieste. Final mark: 109/110.

Thesis: *Effects of lactational and gestational exposure to a polychlorinated biphenyl mixture (Aroclor1254) in the dentate gyrus of POMC-EGFP transgenic mice.*

Prof. Anne-Simone Parent, Neuroendocrinology unit, GIGA Neurosciences (ULg), Liège, Belgium.

Tasks: dentate gyrus dissection of P21 mice, immunohistochemistry of free-floating slices, real-time PCR.

BSc in Industrial and Environmental Biotechnology

• Sep 2012 – July 2016

University of Milan. Final mark: 99/110.

Thesis: *Regulation of eNOS by Cav1F92A peptide.*

Prof. Marco Muzi Falconi laboratory, University of Milan.

Scientific collaborator / Training

• Feb 2016 – Aug 2016

Institute for Pharmacological Research Mario Negri & IRCCS MultiMedica.

Project: *Effect of longevity associated variant (Lav-BPIFB4) on life-span in C.elegans.*

Prof. Luisa Diomede & Prof. Alessandro Annibale Puca.

Task: C.Elegans culture, microinjection and western blot (WB).

Secondary school degree at the Scuola Europa, Liceo scientifico

• June 2012

Student exchange program in Thailand

• July 2010 – Dec 2010

LABORATORY SKILLS

- Real-time PCR
- Flow cytometry
- Western blot
- ELISA
- IF, IHC and confocal microscopy
- Cell culture
- Primary cells isolation, characterization and culture
- Bacteria cultures
- Bacterial culture in bioreactors
- Bioinspired hydrogel-based model of mucus
- Animal handling
- Dentate gyrus dissection
- Rat vaginal smears
- C. Elegans methods (injection, synch, cleaning and freezing)

LANGUAGE SKILLS

- Italian: first language
- English: fluent B2 level 6.5 IELTS (2019)

COMPUTER SKILLS

- Bioinformatic tools
- Statistical tools: Prism
- FIJI (ImageJ)
- Programming:basic Python
- Microsoft Office Suite
- Basic LaTeX
- Basic COMSOL Multi-physics

SCHOLARSHIPS

- Erasmus+ scholarship for an academic year stay at Prof. Parent laboratory (Liège, Belgium)

PUBLICATIONS

- *Shared molecular, cellular, and environmental hallmarks in cardiovascular disease and cancer: any place for drug repurposing?* E. Avolio, B. Bassani, **M. Campanile**, K. AK Mohammed, P. Muti, G. Spinetti, A. Bruno, P. Madeddu. Submitted to Pharmacological reviews(under invitation).
- *Preliminary results of the RETINAL study: Effect of SARS-CoV-2 infection on rETinal structure in patients with diAbetes meLlitus.* **M. Campanile**, G. Piccoli, D. Toska, E. Tagliabue, C. Banfi, S. Vujosevic, G. Spinetti. (POSTER presented at the 34th EAsDEC meeting, 2024, 30 May- 1 June, Milan, Italy).
- *Bone marrow vasculature advanced in vitro models for cancer and cardiovascular research* **M. Campanile**, L. Bettinelli, C. Cerutti, G. Spinetti. *Frontiers in cardiovascular medicine* vol. 10 1261849. 17 Oct. 2023, doi:10.3389/fcvm.2023.1261849.
- *Development of a human in vitro model of bone marrow vascular niche on a chip to study CD34+ hematopoietic stem/progenitor cells function in diabete* **M. Campanile**, G. Persico, F. Casciaro, G. Noto, L. Sambado, L. Bettinelli, PM. Stefani, M. Sambataro, M. Giorgio, C. Cerutti, G. Spinetti. *European Heart Journal*, Volume 44, Issue Supplement 2, November 2023, ehad655.3229, <https://doi.org/10.1093/eurheartj/ehad655.3229> (Presented POSTER at ESC congress 2023, 25-28 Aug, Amsterdam, Netherlands).
- *A novel on-a-chip system with a 3D-bioinspired gut mucus suitable to investigate bacterial endotoxins dynamics* L. Sardelli, **M. Campanile**, L. Boeri, F. Donnalaja, F. Fanizza, S. Perot-toni, P. Petrini, D. Albani, C. Giordano. *Materials today. Bio* vol. 24 100898. 10 Dec. 2023, doi:10.1016/j.mtbio.2023.100898
- *Human gut epithelium features recapitulated in MINERVA 2.0 millifluidic organ-on-a-chip device.* Donnalaja F., Izzo L., **Campanile M**, Perot-toni S., Boeri L., Fanizza F., Sardelli L., Jacchetti E., Raimondi MT., Rito LD., Craparotta I., Bolis M., Giordano C., Albani D. *APL Bioeng.* 2023 Sep 19;7(3):036117. doi: 10.1063/5.0144862.
- *Induced pluripotent stem cell-based organ-on-a-chip as personalized drug screening tools: A focus on neurodegenerative disorders* Fanizza F., **Campanile M**,Forloni G., Giordano C., Albani D. *J Tissue Eng.* 2022 May 9 13:20417314221095339. doi: 10.1177/20417314221095339.
- *Using integrated meta-omics to appreciate the role of the gut microbiota in epilepsy* Boeri L., Donnalaja F., **Campanile M**, Sardelli L., Tunesi M., Fusco F., Giordano C., Albani D. *Neurobiol Dis.* 2022 Jan 10;164:105614. doi: 10.1016/j.nbd.2022.105614.
- *Multi- and transgenerational disruption of maternal behavior and female puberty by Endocrine Disrupting Chemical (EDC) mixture exposure* López-Rodríguez D., Aylwin CF., Delli V., Sevrin

E., **Campanile M.**, Martin M., Franssen D., Gérard A., Blacher S., Tirelli E., Noël A., Lomniczi A., Parent A.S. *Environ Health Perspect.* 2021 Aug;129(8):87003. doi: 10.1289/EHP8795.