

POSITION APPLIED FOR

Independent contract assignment entitles “Circulating biomarkers for precision medicine”, awarded by the Department of Experimental Medicine, Sapienza University of Rome (ICE 11//2025).

CURRENT POSITION

November 2024 – October 2025

Research fellowship PRIN (Prot. P2022EN2YP) - MEDS-02/A - “Multi-omics analysis for the characterization of patients with glycemic alterations due to glucocorticoid and mineralocorticoid excess” - San Raffaele Telematic University of Rome (registered office in Via di Val Cannuta n. 247).

LAST POSITION

November 2023 – October 2024

Research fellowship (AR-B2) - MED/04 - “Defining the biological role of endocrine disruptors (ED) in breast cancer development and progression” - La Sapienza, University of Rome - Dept. of Experimental Medicine.

EDUCATION

October 2020 – May 2024

PhD in Human Biology and Medical Genetics (XXXV cycle) – Epigenetics Lab, Via Scarpa, 16 - La Sapienza, University of Rome - P.zza Aldo Moro, 5 – Rome

23 July 2020

Master’s degree in medical biotechnology & Bioengineering (LM-9) – La Sapienza, University of Rome

29 November 2017

Bachelor’s degree in biomedical laboratory Technician (L/SNT3) – La Sapienza, University of Rome

June 2021

Qualification to the Biologist profession – Salento University.

TEACHING

Academic Year: 2022/2023

Second Level Master

“Stress, sport, nutrizione: nuovi approcci diagnostici e terapeutici per Wellness, fitness, prevenzione e riabilitazione cod. 16120

“La Sapienza” University, Via Fornaci di Quinto, 64, 00191 - Rome

Academic Year: 2020//2021

Teaching assistance to the laboratory medicine course of the master’s degree in medicine and surgery - E channel - La Sapienza University, Viale XXIV Maggio 7, 04100 – Latina

Activity: DIAGNOSTICS**2017-2018**

Internship at A.O. Sant'Andrea - Via Cassia, 721 – 00189 Rome Cytopathology, Histopathology and Molecular Biology Laboratory

During this internship, I actively participated in routine diagnostic and research activities across cytopathology, histopathology, and molecular biology units. I acquired hands-on experience in:

- Sample processing and preparation (e.g., tissue fixation, paraffin embedding, sectioning, and staining)
- Microscopic evaluation of cytological and histological specimens
- Molecular techniques including nucleic acid extraction (DNA/RNA), PCR setup, and electrophoresis.
- Adherence to laboratory safety and quality control protocols
- Drawing up technical documentation.

This experience strengthened my technical skills and deepened my understanding of translational pathology, diagnostic workflows, and the integration of molecular assays in clinical settings.

2016–2017

Internship at San Pietro Fatebenefratelli Hospital - Via Cassia, 600 – 00189 Rome Clinical Pathology laboratory

During this training period, I gained practical exposure to the analytical phases of clinical diagnostics. I was involved in:

- Handling and preanalytical processing of biological samples (e.g., blood, urine, and other body fluids)
- Operating and monitoring automated analyzers for haematological, biochemical, and immunoassay testing
- Performing manual techniques (e.g., slide preparation, microscopic analysis, and differential counts)
- Interpreting laboratory data in correlation with clinical information under supervision

This experience enhanced my ability to work in a high-throughput clinical setting, strengthened my familiarity with diagnostic instrumentation, and fostered a strong understanding of laboratory workflow efficiency and accuracy.

2014–2015

Internship at the San Filippo Neri Hospital - Via Giovanni Martinotti, 20 – 00135 Rome Microbiology laboratory

This internship allowed me to develop practical skills in clinical microbiology by assisting with the detection and identification of bacterial, fungal, and viral pathogens. My activities included:

- Culturing and isolating microorganisms from clinical specimens using selective media.
- Performing Gram staining and biochemical identification tests

- Participating in antimicrobial susceptibility testing (e.g., disk diffusion method).
- Supporting the interpretation of microbiological results in clinical context under supervision.

Activity: RESEARCH

- *Cancer Research*: Study of the role on the macrophage's polarization in prostate and thyroid cancer. Isolation of extracellular vesicles and their content analyses to characterize putative mediators of poor prognosis of the tumor.
- *Epigenetic and Neurodegeneration Research*: Studying the role of the complex interplay between microRNAs and one carbon metabolism in Alzheimer's Disease and investigating the counteractive effects of microRNAs and the DNA methylation.
- *Cancer Research*: Study of a splicing variant (*AR-V7*) of a gene involved in the prostate cancer.
- *Epigenetic and Molecular Mechanisms on the Brain Blood Barrier (BBB)*.
- OVOSPACE Project (in collaboration with ASI, ALI and NASA). *Granulosa and Teca cells under the microgravity effects: the epigenetic role on the steroidogenesis*.

The OVOSPACE Project, a collaborative effort with ASI, ALI, and NASA, represents a groundbreaking endeavor poised to unravel the mysteries of granulosa and theca cells under the influence of microgravity. Delving into the intricate interplay between gravitational forces and cellular processes, our research focuses on the epigenetic mechanisms governing steroidogenesis. By elucidating these pivotal mechanisms, our project not only promises to advance our understanding of reproductive biology but also holds profound implications for biomedical research, space exploration, and beyond. Join us on this pioneering journey as we embark on a quest to unlock the secrets of cellular behavior in space.

LANGUAGES

Main Italian

Otherlanguages

	TEXTUNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Interaction	Speaking	
English	C1	C1	C1	C1	C1
French	A1	A1	A1	A1	A1

Levels:A1/2; Base level - B1/2 Medium level - C1/2 Advanced level
Common European Languages reference.

Communication Skills: • I possess strong communication skills developed through my experience working in laboratory teams.

Organizational and Management Skills • Proficient in the planning and execution of research projects and in organization of laboratory work in clinical practice

Professional Skills: • Good knowledge of good laboratory practices and research project workflow.

- Experience in Immunohistochemistry; Microtome; Proficient with cell lines, primary cell cultures, co-cultures; DNA, RNA, and protein extraction; DNA methylation analysis - Bisulfite treatment - Bacterial cloning with competent cells - Transient transfection - Sanger Sequencing; Next Generation Sequencing; Endpoint PCR; Agarose Electrophoresis; Real-time PCR; Digital PCR; Western Blotting; Immunofluorescence; FACS; miR-Array PCR; Nanostring; Extracellular vesicles isolation - Ultracentrifugation.

Computer Skills: • Computer Skills: Microsoft Office tools; Basic knowledge of Python and R studio.

Driving License: • Category B.

OTHER INFORMATION

Publications
Presentations
Projects
Conferences
Grants and Awards

PUBLICATIONS

Fuso, A.; Raia, T.; Orticello, M.; Lucarelli, M. (2020).
The complex interplay between DNA methylation and miRNAs in gene expression regulation.
Biochimie, 173, 12-16. DOI: [10.1016/j.biochi.2020.02.006](https://doi.org/10.1016/j.biochi.2020.02.006)

Raia T. and Fuso A. (2020)
The relevance of epigenetics in the SARS-CoV-2 infection and COVID-19 disease.
Organisms, 4(1): 11-14; DOI: [10.13133/2532-5876/16956](https://doi.org/10.13133/2532-5876/16956)

Miglione, A., Raucci, R., Amato, J. Marzano, S., Pagano, B., Raia T., Lucarelli, M., Fuso, F.,
Cinti, S. (2022)
Printed electrochemical strip for the detection of miRNA-29a: a possible biomarker related to
Alzheimer's disease.
Analytical Chemistry, 94(45): 15558–15563; DOI: [10.1021/acs.analchem.2c03542](https://doi.org/10.1021/acs.analchem.2c03542)

Raia T.; Armeli F.; Cavallaro A. R.; Ferraguti G.; Businaro R.; Lucarelli M. and Fuso A. (2023)
Perinatal S-adenosylmethionine supplementation represses *PSEN1* expression via CpG and non- CpG
methylation in adult TgCRD8 AD mice.
International Journal of Molecular Sciences, 24(14), Article 11675; DOI: [10.3390/ijms241411675](https://doi.org/10.3390/ijms241411675)

Orticello, M., Cavallaro, R. A., Antinori, D., Raia, T., Lucarelli, M., Fuso. (2024)
Amyloidogenesis and Neuroinflammation are modulated by reduced menaquinone 7 (MK7R) via
DNA methylation in SK-N-BE neuroblastoma cell line.
Cells, 13(1), Article 58; DOI: [10.3390/cells13010058](https://doi.org/10.3390/cells13010058)

Bimonte, V.M., Catanzaro, G., Spinello, Z., Raia, T., Po, A., Citarella, A., Ventura, I., Mardente, S.,
Crescioli, C., Ferretti E., Migliaccio S.
Bisphenol A impairs endothelial cells homeostasis through the G-protein coupled receptor 30 pathway
activation.
Resubmitted after revision – *Archives of Toxicology* – 2025

Raia, T.; Cavallaro, R.A.; Diniz Ferreira Borges, L.; Cinti, S., Bizzarri, M., Ferrer, I., Lucarelli, M.,
Fuso, A.
One-carbon metabolism modulates miR-29a - DNA methylation crosstalk in Alzheimer's Disease.
ACCEPTED - *Alzheimer's & Dementia* – 2025

Catanzaro G.; Pediconi N.; Brunetti M.; Spinello Z.; Raia T.; Nicoletta F.P.; Avena P.; Casaburi I.;
Besharat Z.M.; Po A.; Cirillo G.; Iemma F.; Ferretti E.
Delivery of miR-139-5p from responsive human serum albumin nanoparticles boosts doxorubicin
biological effects on triple negative breast cancer cells.
Submitted - *International Journal of Biological Macromolecules* - 2025

Bibliometric indicators:

- H-index (Scopus): 3
- Total citations (Scopus): 79
- Scopus Author ID: 57215050603

CONFERENCES

ORAL PRESENTATION:

XV Convegno ISS, Viale Regina Elena, 299 17th-18th November 2022
IL CONTRIBUTO DEI CENTRI PER I DISTURBI COGNITIVI E LE DEMENZE
NELLA GESTIONE INTEGRATA DEI PAZIENTI
Invited speaker: “La metilazione del gene *PSEN1* nella malattia di Alzheimer:
implicazioni nello sviluppo di biomarcatori circolanti e strategie terapeutiche.”

POSTER PRESENTATION:

- 4th European Summer School on Nutrigenomics (UNICAM) - Virtual edition, 21st-25th June 2021
Poster presentation: *"miR-29a affects the progression of Alzheimer's Disease through one carbon - metabolism."*

Best Poster Award

- 4th BraYn Conference - Pisa, Italy, 20th-22nd October 2021

Poster presentation: *"miR-29a is modulated by one carbon metabolism and involved in neurodegeneration"*.

- 2nd International Conference on Neuroprotection by Drugs, Nutraceuticals, and Physical Activity, 9th-10th December 2021

Poster presentation: *"S-adenosylmethionine supplementation exerts neuroprotection through miR-29a modulation and DNA methylation"*.

SIB Award

- FENS Forum 2022, Parigi Expo Porte de Versailles, Pavillon 7, 9th-13th July

Poster presentation: *"PSEN1 expression is repressed in adult TgCRND8 AD mice via perinatal S-adenosylmethionine supplementation affecting on CpG and non-CpG methylation."*

- SEISC: Franco-Belgian-British Multinational Meeting on Blood-Brain

Interface March 22-24, 2023 - ARRAS, France

Poster presentation: *"S-adenosylmethionine effects on the human in vitro BBB model: protective role in Alzheimer's disease"*.

- 1st Epigenetics Society (ES) International Meeting: Epigenetics of Disease and

Development Conference Centre "Roma Eventi – Fontana di Trevi"; Piazza della Pilotta, 4 – Rome, Italy October 12-14, 2023

- XVI Convegno ISS, Viale Regina Elena, 299, 16th-17th November 2023

IL CONTRIBUTO DEI CENTRI PER I DISTURBI COGNITIVI E LE DEMENZE
NELL'GESTIONE INTEGRATA DEI PAZIENTI.

Poster presentation: *"The cross-talk between miR-29a and DNA methylation in Alzheimer's Disease"*.

AWARDS

- SIB participation grant at the 2nd International Conference on Neuroprotection by Drugs, Nutraceuticals and Physical Activity

- BEST POSTER AWARD at the 4th European Summer School on Nutrigenomics (UNICAM) virtual edition, 21st-25th June 2021

- BLSD certificate attests

- Mentoring Grant – La Sapienza University (2022/2023)

- Mentoring Grant – UTSR (2024/2025)

- Mentoring Grant – UTSR (2025/2026)

POSTGRADUATE COURSES:

May 2024

Certificate Program of Biodiversity - Manager della Biodiversità; by European Institute of Innovation for Sustainability (Eiis); Palazzo Taverna, Via di Monte Giordano, 36 - 00186, Roma.

January 2022- September 2022

Advanced course: *"Molecular features of nutrition: from nutrigenomics to functional nutrition"* - Camerino University (UNICAM) - Subject of Scientific Disclosure by *"Dolce Stil Novo TV"*.

October 2024- November 2024

2nd Edition – Preclinical Research and Animal Welfare Training Course, accredited by the Italian Ministry of Health (D.M. 5 Aug 2021; code 0023375-25/07/2024), Sapienza University of Rome (Oct–Nov 2024).

Provided the official credits for functions a–d and roles of Designated Veterinarian (VD) and Animal Welfare Body (RBA) in compliance with Legislative Decree 26/2014.

International Research Experience

Université d’Artois – Lens, France

Visiting Student | January–April 2023

- Project: *S-adenosylmethionine effects on a human in vitro blood–brain barrier model.*
- Activities: epigenetic and biomarker analysis related to neurodegeneration; experimental design and sample processing.

Eastern Virginia Medical School (EVMS) – Norfolk, VA, USA

Visiting Student | October–November 2022

- Project: *OVOSPACE* (ASI/ALI/NASA collaboration).
- Activities: study of microgravity effects on ovarian steroidogenesis and epigenetic regulation; investigation of potential biomarkers of cellular response.

REFEREEING ACTIVITIES

1. Reviewer for IJMS (ISSN 1422-0067)
“DNA methylation mediates EMT gene expression in human pancreatic ductal adenocarcinoma cell lines.”
2. Reviewer for IJMS (ISSN 1422-0067)
“Biometal dhyshomeostasis in olfactory mucosa of Alzheimer’s disease patients”
3. Reviewer for Biomedicines (ISSN 2227-9059)
“High expression of a tRNA^{Pro} derivative associates with poor survival and independently predicts colorectal cancer recurrence.”
4. Reviewer for Toxics (ISSN 2305-6304)
“Environmental epigenetics in soil ecosystems: earthworms as model organisms”
5. Reviewer for Neuroscience & Biobehavioral Reviews (NEUBIOREV-D-22-00551)
“Nanotechnology-Based Gene Therapy as a Credible Tool in the Treatment of Alzheimer’s Disease.
6. Reviewer for IJMS (ISSN 1422-0067)
“Virus-induced gene editing and its applications in plants”.

PERSONAL DATA

I authorize the processing of my personal data in accordance with Legislative Decree June 30, 2003, no.196 “Code regarding the protection data”.

I, the undersigned, declare to be aware that this curriculum vitae will be published on the Institutional website of the University, in the “Transparent Administration.” Manner and for the duration provided for by Legislative Decree no. 33/2013, article 15.

Roma, li 27/10/25

F.to TIZIANA RAIÀ