



## ● KEYWORDS

Alzheimer's disease ; Polyphenols ; LC-MS systems ; Lipidomics ; Metabolomics

## ● WORK EXPERIENCE

01/03/2024 – CURRENT Rome, Italy

**POSTDOCTORAL RESEARCHER** SAPIENZA UNIVERSITY OF ROME

Involved in PRIN-funded research project: "Extra virgin olive oil polyphenols for healthy aging: from bench to bedside"

01/10/2024 – 31/01/2026 Rieti, Italy

**SHORT-TERM LECTURER IN CHEMISTRY AND PROPAEDEUTICS BIOCHEMISTRY** SAPIENZA UNIVERSITY OF ROME

01/11/2020 – 12/12/2023 Rome, Italy

**PHD IN BIOCHEMISTRY** SAPIENZA UNIVERSITY OF ROME

My PhD project focused on the effects of olive oil polyphenols on cellular and animal models of neurodegeneration, highlighting how they are interesting modulators of oxidative stress and inflammation. Furthermore, in my laboratory, we have developed methods for the extraction of polyphenols through the use of Deep Eutectic Solvents, belonging to the world of green chemistry, and analytical methods for the study of metabolites in biological matrices. During the PhD, I acquired skills in metabolomics, microbiomics and lipidomics, as well as good skills in bioinformatics.

17/10/2022 – 16/12/2022 Lyon, France

**VISITING PHD STUDENT** INSTITUT DES SCIENCES ANALYTIQUES (ISA)

During my PhD I had the chance to conduct wide-spectrum lipidomic experiments at Institut des Sciences Analytiques (ISA), in Lyon (France). Obtained data were helpful in the study of the effect of the olive oil polyphenols in a Down syndrome mouse model.

31/08/2019 – 23/10/2020 Rome, Italy

**INTERNSHIP IN BIOCHEMICAL LABORATORY** SAPIENZA UNIVERSITY OF ROME

During the work for the preparation of my thesis I studied the biochemical and biological features of ERp57, a protein disulfide isomerase possibly involved in counteracting Alzheimer's Disease.

29/02/2016 – 31/10/2018 Rome, Italy

**INTERNSHIP IN BIOMEDICAL LABORATORIES** UMBERTO I ST HOSPITAL AND SAPIENZA UNIVERSITY OF ROME

During my bachelor's degree I had the opportunity to attend different laboratories of the "Umberto I" hospital of Rome, achieving competence and knowledge in microbiology and parasitology, histology, cytology, molecular biology, specialistic hematology, tumor and biochemical markers. The last 18 months of this period I attended an endocrinology laboratory, acquiring competences on ELISA and radio-immuno assays (RIA).

## ● EDUCATION AND TRAINING

01/11/2020 – 12/12/2023 Rome, Italy

**PHD IN BIOCHEMISTRY** La Sapienza university of Rome

**Address** piazzale Aldo Moro, 5, 00185, Rome, Italy | **Website** [https://phd.uniroma1.it/web/BIOCHIMICA\\_nD3487\\_IT.aspx](https://phd.uniroma1.it/web/BIOCHIMICA_nD3487_IT.aspx)

31/10/2018 – 23/10/2020 Rome, Italy

**MASTER DEGREE IN MEDICAL BIOTECHNOLOGY** La Sapienza university of Rome

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**Address** piazzale Aldo Moro, 5, 00185, Rome, Italy | **Website** <https://corsidilaurea.uniroma1.it/it/corso/2018/29897/home> |

**Final grade** 110/110 cum laude

09/09/2015 – 13/11/2018 Rome, Italy

**BACHELOR DEGREE IN BIOMEDICAL LABORATORY TECHNICIAN** La Sapienza university of Rome

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**Address** piazzale Aldo Moro, 5, 00185, Rome, Italy | **Website** <https://corsidilaurea.uniroma1.it/it/corso/2016/15989/home> |

**Final grade** 110/110 cum laude

31/08/2008 – 04/07/2013 Rome, Italy

**SCIENTIFIC HIGH SCHOOL DIPLOMA** High school PLINIO SENIORE

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**Address** via montebello 122, 00100, Rome, Italy |

**Website** [http://www.liceoplinio.edu.it/index.php?option=com\\_content&view=article&id=23&Itemid=136](http://www.liceoplinio.edu.it/index.php?option=com_content&view=article&id=23&Itemid=136)

## ● PUBLICATIONS

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2025

[\*\*Green synthesis and two-step chromatographic separation of thiocanthal and thiocanthol: Two novel biologically active sulfur derivatives of oleocanthal and oleacein from extra virgin olive oil\*\*](#)

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**Di Risola D**, Mattioli R, Federico R, Pascarella G, Fontana M, Dainese E, Dufrusine B, Ciogli A, Gasparrini F, Morea V, Villani C, Mosca L, Francioso A.

2025

[\*\*Hyaluronan-Cholesterol nanogels embedding betamethasone for the treatment of skin inflammatory conditions\*\*](#)

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Wang J, **Di Risola D**, Mattioli R, Zoratto N, Mosca L, Meo CD, Matricardi P.

2024

[\*\*Biochemistry and Future Perspectives of Antibiotic Resistance: An Eye on Active Natural Products\*\*](#)

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Caioni G, Reyes CP, Laurenti D, Chiaradia C, Dainese E, Mattioli R, **Di Risola D**, Santavicca E, Francioso A.

2024

[\*\*Olea europaea L-derived secoiridoids: Beneficial health effects and potential therapeutic approaches\*\*](#)

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Simone Filardo, Mattioli Roberto, **Daniel Di Risola**, Luciana Mosca, Marisa Di Pietro, Rosa Sessa

2023

[\*\*Polyacrylate-Cholesterol Amphiphilic Derivative: Formulation Development and Scale-up for Health Care Applications\*\*](#)

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Viola, M., Migliorini, C., Ziarelli, F., Viel, S., Cencetti, C., **Di Risola, D.**, Mosca, L., Masuelli, L., Matricardi, P., & Di Meo, C

2023

[\*\*Natural deep eutectic solvents protect RNA from thermal-induced degradation\*\*](#)

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Mattioli, R., Maggiore, A., **Di Risola, D.**, Federico, R., D'Erme, M., Francioso, A., & Mosca, L.

2022

[\*\*Synthesis and Chromatographic Determination of S-Nitrosopantetheine: Exploring Reactivity and Stability in Different Aqueous Solutions\*\*](#)

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**Daniel Di Risola**, Roberto Mattioli, Giulia Mazzocanti, Simone Manetto, Maurizio Trovato, Mario Fontana, Luciana Mosca, Antonio Francioso

2022

[\*\*ERp57 Chaperon Protein Protects Neuronal Cells from A \$\beta\$ -induced toxicity\*\*](#)

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**Daniel Di Risola**, Daniela Ricci, Ilaria Marrocco, Flavia Giamogante, Maddalena Grieco, Antonio Francioso, Aldrin Vasco-Vidal, Patrizia Mancini, Gianni Colotti, Luciana Mosca, Fabio Altieri

2022

### **Optimization of Potent and Specific Trypanothione Reductase Inhibitors: A Structure-Based Drug Discovery Approach**

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Theo Battista, Stefano Federico, Simone Brogi, Luca Pozzetti, Tuhina Khan, Stefania Butini, Anna Ramunno, Eleonora Fiorentino, Stefania Orsini, Trentina Di Muccio, Annarita Fiorillo, Cécile Exertier, **Daniel Di Risola**, Gianni Colotti, Sandra Gemma, Andrea Ilari, Giuseppe Campiani

2022

### **Effect of Natural Deep Eutectic Solvents on trans-Resveratrol Photo-Chemical Induced Isomerization and 2,4,6-Trihydroxyphenanthrene Electro-Cyclic Formation**

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Roberto Mattioli, **Daniel Di Risola**, Rodolfo Federico, Alessia Ciogli, Francesco Gasparini, Claudio Villani, Mario Fontana, Anna Maggiore, Maria d'Erme, Luciana Mosca, Antonio Francioso

## ● **CONFERENCES & SEMINARS**

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26/08/2024 – 28/08/2024 Institute of Analytical Sciences - Lyon (France)

### **Effect of olive oil polyphenols in a Down syndrome mouse model**

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Oral presentation at IEA2024 - LipiBrain Summer School

06/06/2024 – 08/06/2024 Poster session at 5th T21RS international conference - ROME

### **Effect of olive oil polyphenols in a Down syndrome mouse model**

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03/06/2024 – 04/06/2024 Oral presentation at INFN - laboratori nazionali di Frascati

### **Hyaluronic acid hydrogels for the delivery of betamethasone in 2D and 3D skin models**

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28/09/2022 – 30/09/2022 Oral presentation at 15th World Congress on Polyphenols Applications - ADEIT, Valencia (Spain)

### **Olive oil polyphenols protect the brain from chronic low-grade inflammation**

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**Daniel Di Risola**, Daniele Antinori, Matthew G. Pontifex, Gwenaëlle Le Gall, Andrea Fuso, Anna Maggiore, Roberto Mattioli, Michael Caloisi, Maria d'Erme, Antonio Francioso, Michael Müller, Luciana Mosca and David Vauzour

06/06/2022 – 09/06/2022 Oral presentation at 33rd National Meeting "A. Castellani" - Brallo di Pregola (PV)

### **ERp57 Chaperon Protein Protects Neuronal Cells from A $\beta$ -induced toxicity**

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**Daniel Di Risola**, Daniela Ricci, Ilaria Marrocco, Flavia Giamogante, Maddalena Grieco, Antonio Francioso, Aldrin Vasco-Vidal, Patrizia Mancini, Gianni Colotti, Luciana Mosca, Fabio Altieri

08/12/2021 – 09/12/2021 Oral presentation at 2nd International Conference on Neuroprotection 2021 - Camerino (MC)

### **Olive oil polyphenols protect the brain from chronic low-grade inflammation**

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**Daniel Di Risola**, Daniele Antinori, Matthew G. Pontifex, Gwenaëlle Le Gall, Andrea Fuso, Anna Maggiore, Roberto Mattioli, Michael Caloisi, Maria d'Erme, Antonio Francioso, Michael Müller, Luciana Mosca and David Vauzour

27/10/2021 – 28/10/2021 Poster session at Virtual EMBO Workshop Microglia 2021

### **The effect of $\beta$ -hexachlorocyclohexane ( $\beta$ -hch) in bv2 microglia cells**

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Maggiore Anna, Grieco Maddalena, Francioso Antonio, Serena Ficchi, **Di Risola Daniel**, Maras Bruno, Mosca Luciana and d'Erme Maria

## ● **EDITORIAL ACTIVITY**

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08/10/2024 – CURRENT

### **Guest editor for "Frontiers in Nutrition"**

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"Unlocking the Secrets to Healthy Brain Aging: Diet, Nutritional Bioactive Compounds, and Lifestyle"

**Link** <https://www.frontiersin.org/research-topics/65592/unlocking-the-secrets-to-healthy-brain-aging-diet-nutritional-bioactive-compounds-and-lifestyle>

## ● GRANTS AND AWARDS

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### Bando contributi soggiorno estero SIB 2022

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Società Italiana Biochimica

### Avvio alla ricerca 2022

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for the project "Over the Blood Brain Barrier: how to generate a reproducible in vitro BBB for the study of neurodegenerative diseases"  
Sapienza University of Rome

### Avvio alla ricerca 2023

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for the project "Up and Down: can olive oil polyphenols modulate neuroinflammation and metabolism in a Down syndrome mouse model?"  
Sapienza University of Rome

### Avvio alla ricerca 2024

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for the project "Combating Microglia-Driven Neuroinflammation: Unveiling the Anti-Inflammatory Power of Oleacein and Oleocanthal in a multi-layer study of microglia activation"  
Sapienza University of Rome

## ● TECHNICAL SKILLS AND COMPETENCES

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### Cellular biology

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Handling of cell culture

- SHSY-5Y human neuroblastoma,
- N2A murine neuroblastoma,
- BV2 murine microglia,
- C8D1A murine astrocytes,
- HUVEC human umbilical vein endothelial cells,
- HepG2 murine hepatocytes,
- CaCo-2 human colorectal adenocarcinoma,
- HaCaT human keratinocytes
- RAW-264.7 murine macrophages
- PL-PC human pericyte

Cell lines co-culture

Blood Brain Barrier in vitro

Cell viability assays: LDH assay, MTT assay, Crystal violet assay, Trypan blue

SDS-page, Western blot and slot blot analysis

RT-PCR

Protein pull down

Immunofluorescence microscopy

ELISA assay

### Chromatography and mass spectrometry

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HPLC / UPLC systems (AGILENT / WATERS)

ESI - Q / QQQ quadrupole MS systems (EMPOWER / SCIEX OS)

### Data analysis

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Manipulation of large data sets

Data analysis using major servers such as METABOANALYST and MICROBIOMEANALYST

### Enzymatic activity

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Cyclooxygenase activity assay

### Radio-labeled assays

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Hormonal dosage by radioimmunoassay (IRMA) and radioimmunoassay (RIA)

Flow cytometry

Preparation of the histological and cytological samples  
Use of the major dyes and slide-reading ability

Histology and cytology

Use of the major dyes (gram, ziehl-nielsen, pas) and slide-reading ability  
Seeding and colony identification by colorimetric, enzymatic and molecular assays

Microbiology and parassitology

DPPH, NBT, TBARS

Antioxidant assays

DIGITAL SKILLS

Statistics

Graph Pad Prism 5 | R (R-studio) | Microsoft Excel

Presentation and organization

Microsoft Office | Inkscape

Structural biology and in silico experiments

Pymol | UCSF-Chimera | HPEPDOCK

Western blot analysis

Image Lab | Image J (Laboratory Image Analysis)

LC-MS data management and analysis software

Empower 3 | Analyst (AB Sciex) | Sciex OS | Skyline MS software

Omics data analysis

Metaboanalyst | MicrobiomeAnalyst

LANGUAGE SKILLS

Mother tongue(s): ITALIAN

Other language(s):

|         | UNDERSTANDING |         | SPEAKING          |                    | WRITING |
|---------|---------------|---------|-------------------|--------------------|---------|
|         | Listening     | Reading | Spoken production | Spoken interaction |         |
| ENGLISH | B2            | B2      | B2                | B2                 | B2      |

Levels: A1 and A2: Basic user - B1 and B2: Independent user - C1 and C2: Proficient user

DRIVING LICENCE

Driving Licence: B

SIGNATURE

Signature and privacy

Autorizzo il trattamento dei dati personali nel rispetto della vigente normativa sulla protezione dei dati personali ed, in particolare, il Regolamento Europeo per la protezione dei dati personali 2016/679, il d.lgs. 30/06/2003 n. 196 e successive modifiche e integrazioni.

Roma, 18/02/2025