

ILARIA GENOVESE Curriculum Vitae

Nationality: Italian; Date of birth: 21/09/1989; e-mail: ilaria.genovese@unicamillus.org
https://www.researchgate.net/profile/Ilaria_Genovese <https://www.linkedin.com/in/ilaria-genovese-97329784>

PostDoctoral Researcher, Biochemistry Ph. D

WORK RESEARCH EXPERIENCE

1st October 2024- ongoing

Fixed-term Researcher at Unicamillus University Biochemistry

16th June 2022- ongoing

Collaborator at the Centre for Life Nano- & Neuro- Science (CLN2S), Italian Institute of Technology (IIT) Rome, Italy

Subject: Modelling the role of protein aggregation, ER-mitochondrial metabolism and communication, altered cellular proteostasis and protein-protein interactions in neurodegeneration using neurons differentiated from patient's derived iPSC.

21st June 2021- 15th May 2022

Research Scientist at Display Technologies Unit, IRBM Science Park spa (Rome), Italy

Subject: In charge of Phage Display selection experiments on targets, cellular and biophysical validation of target-binding peptides for external clients (Alnylam, Takeda).

1st January 2019- 16th June 2021

AIRC (Italian Association for Cancer Research) Postdoctoral Researcher at Department Medical Sciences, University of Ferrara, Italy

Subject: Dissection of the interplay between Sorcin and MAMs (mitochondria-associated endoplasmic reticulum membranes) in the calcium-mediated survival mechanism in cancer cells.

1st March 2018- 31st December 2018

PostDoctoral fellow at Department of Radiology, Oncology and Human Pathology, Polyclinic Umberto I Sapienza University of Rome, Italy

Subject: Conformational stabilization strategies for point-mutated mitochondrial tRNAs involved in rare and severe genetic diseases as MELAS and MERRF.

1st November 2014- 20th December 2017

PhD in Biochemistry with honors, at Biochemistry department "A. Rossi Fanelli", Sapienza University of Rome, Italy

Subject: Molecular mechanism of Sorcin (Soluble Resistance-related Calcium binding proteIN) role in MultiDrug Resistance process in lung cancer cells and its network of interaction.

Supervisor: Gianni Colotti, Ph.D.

1st August 2015-30th June 2016

Visiting PhD student at Chemistry department of BMC Uppsala University- Uppsala, Sweden

Subject: Bioinformatics analysis of Proteomic-Peptide Phage Display (Pro-PPD) selected dataset of Sorcin binding peptides, from intrinsic disordered regions of human proteome, and *in vitro* biochemical interaction validation.

Supervisor: Prof. Ylva Ivarsson

1st March 2014- 30th June 2014

Research Fellow at Pasteur Institute Cenci Bolognetti Foundation (Rome), at Biochemistry department "A. Rossi Fanelli", Sapienza University of Rome

Subject: Analysis and characterization of *Leishmania infantum*'s redox metabolism proteins.

Supervisor: Dott. Gianni Colotti; Dott. Andrea Ilari

GRANTS & FELLOWSHIPS

1st January 2019- 31st December 2021

AIRC (Italian Association for Cancer Research) Fellowship for Italy, three years-fellowship, Department of Medical Sciences University of Ferrara

1st March 2016-30th June 2016

Unipharma 11 fellowship for a research period at Chemistry department of BMC (BioMedicine Centre) Uppsala University- Uppsala (Sweden)

30th September 2015- 31st October 2015

Lerici Foundation Fellowship for a research period at Chemistry department of BMC (BioMedicine Centre) Uppsala University- Uppsala (Sweden)

1st August 2015- 30th September 2015

Erasmus + traineeship Fellowship for a research period at Chemistry department of BMC (BioMedicine Centre) Uppsala

EDUCATION

September 2011-December 2013

Master's degree in Genetics and Molecular Biology at Sapienza University of Rome with **110 /110 cum laude**

September 2008-December 2011

Bachelor's degree in Biological Sciences at Sapienza University of Rome with **110 /110 cum laude**

EXPERTISE

- **Cell Biology:** healthy and patient's-derived induced Pluripotent Stem Cell (iPSC) differentiation for neurodegeneration and neurodevelopment modelling, tissue-derived and cancer cell lines cultures and treatments, mitochondria biology and bioenergetics, bioluminescent and fluorescent probes for Ca²⁺ measurements *in vitro* and *in vivo*, cell viability assays, cells drug accumulation assay, siRNA/plasmid transfection, CRISPR-CAS9 genome editing, cell clones' generation, Fluorescent reporters, bacteria transformation, fluorescence and confocal microscopy, FACS, cell fractioning.
- **Biochemistry:** recombinant proteins and antibodies purification in *E. coli*, FPLC AKTA chromatography, Size Exclusion Chromatography, agarose gel electrophoresis and SDS PAGE, western blotting, ELISA.
- **In vitro assays:** SPR (Biacore), Micro Scale Thermophoresis (MST), Spectrophotometry, Spectrofluorimetry, Circular Dicroism, Phage Display, protein co-IP and GST pulldown, Differential Scanning Fluorimetry, enzymatic assays, FRET.
- **Molecular biology:** Gene cloning, RNA extraction, PCR and Real-time PCR, plasmid mutagenesis, oligo design.
- **Software:** Microsoft Office, Origin8, PRISM, ImageJ, Cytoscape, Chimera.
- **Third mission, writing and scientific disclosure:** Drafting of ethical committee and animal testing protocols. Papers, reviews, projects and grants application writing and proofreading. Review editor at Frontiers in Oncology, section of Molecular and Cellular Oncology. Scientific divulgation talks for A-ROSE association (Ferrara)
- **Training and teaching:** Supervisor of master students and PhD students at Department of Biochemistry of Sapienza University (Rome) and CLN2S_IIT (Rome).

SOFT SKILLS

Languages

MOTHER TONGUE: **Italian**

OTHER LANGUAGES: **English (Fluent), Spanish (C1)**

"In compliance with the Italian legislative Decree no.196 dated 30/6/2003, I hereby authorize to use and process my personal details contained in this document."



ILARIA GENOVESE List of publications and conferences

PUBLICATIONS (source: SCOPUS, h-index: 14 citations: 917)

1. **"Sorcin promotes migration in cancer and regulates the EGF-dependent EGFR signaling pathways"** Tito C, Genovese I, Giamogante F, Benedetti A, Miglietta S, Barazzuol L, Cristiano L, Iaiza A, Carolini S, De Angelis L, Masciarelli S (...) Colotti G, Fazi F (2023). *CELLULAR AND MOLECULAR LIFE SCIENCES*, ISSN: 1420682X; DOI: 10.1007/s00018-023-04850-4.
2. **"Mitochondria inter-organelle relationships in cancer protein aggregation."** Genovese I, Fornetti E, Ruocco G (2022). *FRONTIERS IN CELL AND DEVELOPMENTAL BIOLOGY*, ISSN: 2296-634X, doi: 10.3389/fcell.2022.1062993 (*corresponding author)
3. **"Mitochondria: Insights into crucial features to overcome cancer chemoresistance."** Genovese I, Carinci M, Modesti L, Aguiari G, Pinton P, Giorgi C (2021). *INTERNATIONAL JOURNAL OF MOLECULAR SCIENCES*, ISSN: 1422-0067, doi: 10.3390/ijms22094770
4. **"Mitochondria as the decision makers for cancer cell fate: from signaling pathways to therapeutic strategies."** Genovese I, Vezzani B, Danese A, Modesti L, Vitto VAM, Corazzi V, Pelucchi S, Pinton P, Giorgi C. (2020) *Cell Calcium*. 16;92:102308.
5. **"Sorcin is an early marker of neurodegeneration, Ca²⁺ dysregulation and endoplasmic reticulum stress associated to neurodegenerative diseases."** Genovese I, Giamogante F, Barazzuol L, Battista T, Fiorillo A, Vicario M, D'Alessandro G, Cipriani R, Limatola C, Rossi D, Sorrentino V, Poser E, Mosca L, Squitieri F, Perluigi M, Arena A, van Petegem F, Tito C, Fazi F, Giorgi C, Calì T, Ilari A, Colotti G. (2020) *Cell Death Disease* 15;11(10):861.
6. **"Cancer metabolism and mitochondria: Finding novel mechanisms to fight tumours"** Missiroli S, Perrone M, Genovese I, Pinton P, Giorgi C (2020) *EBiomedicine* 17;59:102943
7. **"Profiling calcium-dependent interaction between Sorcin and intrinsically disordered regions of human proteome"** Genovese I*, Carotti A, Ilari A, Fiorillo A, Battista T, Colotti G, Ivarsson Y (2020) *BBA general subjects* 1864(8):129618 (*corresponding author)
8. **"Exogenous peptides are able to penetrate human cell and mitochondrial membranes, stabilize mitochondrial tRNA structure, and rescue severe mitochondrial defects"** Perli E, Pisano A, Pignataro MG, Campese AF, Pelullo M, Genovese I ...d'Amati G (2020) *FASEB J* 34(6):7675-7686
9. **"Roles of Sorcin in drug resistance in cancer: one protein, many mechanisms, for a novel potential anticancer drug target"** Battista T, Fiorillo A, Chiarini V, Genovese I, Ilari A, Colotti G (2020) *Cancers* 12(4):887.
10. **"The role of Mitochondria in inflammation: from cancer to neurodegenerative disorders"** Missiroli S, Genovese I, Perrone M, Vezzani B, Vitto VAM, Giorgi C. *J Clin Medicine* (2020) 9(3):740
11. **"The role of mitochondria-associated membranes in cellular homeostasis and diseases"** Perrone M, Carocchia N, Genovese I, Missiroli S, Modesti L, Pedriali G, Vezzani B ... Pinton P. *International Review of Cell and Molecular Biology* (2020) 350:119-196
12. **"SORCIN RESCUES CA (II) DYSREGULATION AND ENDOPLASMIC RETICULUM STRESS IN HUNTINGTON'S DISEASE."** Colotti G, Genovese I, Bidollari E, Rosati J, Perluigi M, Calì T, Arena A, Squitieri F, Ilari A (2018). *JOURNAL OF NEUROLOGY NEUROSURGERY AND PSYCHIATRY*, Plenary Meeting of the European-Huntington's-Disease-Network (EHDN). Vienna, 2018, doi: 10.1136/jnnp-2018-EHDN.21
13. **"Identification and binding mode of a novel Leishmania Trypanothione reductase inhibitor from high throughput screening"** Turcano L, Torrente E, Missineo A, Andreni M, Gramiccia M, Di Muccio T, Genovese I, Fiorillo A, Harper S, Bresciani A, Colotti G, Ilari A. *PLOS Negl Trop Disease* (2018) 12(11):e0006969
14. **"Molecular bases of Sorcin-dependent resistance to chemotherapeutic agents"** Ilaria Genovese, A. Ilari, T. Battista, V. Chiarini, F. Fazi, A. Fiorillo, G. Colotti. *Cancer Drug Resistance* (2018) DOI: 10.20517/cdr.2018.10
15. **"Towards a drug against all kinetoplastids: from LeishBox to specific and potent trypanothione reductase inhibitors"** Ilari A, Genovese I, Fiorillo F, Battista T, De Ionna I, Fiorillo A, Colotti G. *Mol Pharm* (2018) doi: 10.1021/acs.molpharmaceut.8b00185

16. **“Not only P-glycoprotein: amplification of ABCB1-containing chromosome region 7q21 confers multidrug resistance upon cancer cells by coordinated overexpression of an assortment of resistance-related proteins”** Ilaria Genovese, Andrea Ilari, Yehuda G Assaraf, Francesco Fazi, Gianni Colotti. *Drug Resistance Updates* (2017) **32**:23-46
17. **“Binding of doxorubicin to Sorcin impairs cell death and increases drug resistance in cancer cells”** Ilaria Genovese; Andrea Ilari; Annarita Fiorillo; Silvia Masciarelli; Francesco Fazi; Gianni Colotti. *Cell death and Disease* (2017) **8(7)**:e2950
18. **“Polyamine-trypanothione pathway: an update.”** Ilari Andrea, Fiorillo Annarita, Genovese Ilaria, Colotti Gianni. *Future Med Chem.* (2017) **9(1)**:61-77.
19. **“Surface Plasmon Resonance: A Useful Strategy for the Identification of Small Molecule Argonaute 2 Protein Binders.”** Poser Elena, Genovese Ilaria, Masciarelli Silvia, Bellissimo Teresa, Fazi Fazi, Colotti Gianni. *Methods Mol Biol.* (2017) **1517**:223-237.
20. **“Small Molecules Targeting the miRNA-Binding Domain of Argonaute 2: From Computer-Aided Molecular Design to RNA Immunoprecipitation.”** Bellissimo Teresa, Masciarelli Silvia, Poser Elena, Genovese Ilaria, Del Rio Alberto, Colotti Gianni, Fazi Francesco. *Methods Mol Biol.* (2017) **1517**:211-221.
21. **“Use of Ferritin-Based Metal-Encapsulated Nanocarriers as Anticancer Agents”** Mosca L, Falvo E, Ceci P, Poser E, Genovese I, Guarguaglini G and Colotti G. *Applied Sciences* (2017) **7(1)**,101.
22. **“Short peptides from leucyl-tRNA synthetase rescue disease-causing mitochondrial tRNA point mutations.”** Perli E, Fiorillo A, Giordano C, Pisano A, Montanari A, Grazioli P, Campese AF, Di Micco P, Tuppen HA, Genovese I, Poser E, Preziuso C, Taylor RW, Morea V, Colotti G, d'Amati G. *Hum Mol Genet.* (2016) **25(5)**:903-15
23. **“Structural basis of Sorcin-mediated calcium-dependent signal transduction.”** Andrea Ilari, Annarita Fiorillo, Elena Poser, Vasiliki Lalioti, Gustav N Sundell, Ylva Ivarsson, Ilaria Genovese, Gianni Colotti. *Scientific Report* (2015) **18**, 5-16828.
24. **“Sorcin, a calcium binding protein involved in the Multidrug Resistance Mechanism in cancer cells”** Gianni Colotti, Elena Poser, Annarita Fiorillo, Ilaria Genovese, Valerio Chiarini, Andrea Ilari. *Molecules* (2014) **19**, 13976-13989.

POSTERS & CONFERENCES & COURSES

- **“Axonal Degeneration and Regeneration” EMBO_COB workshop.** A complex patient-derived cortical Huntington’s Disease model as a tool to study the recovery of axonal damage and degeneration through drug repurposing. Okinawa (JP) 6th-10th October 2024. Selected for participation, short talk contribution.
- **“Organoids: modelling organ development and disease in 3D culture” EMBO_EMBL symposium.** Walking down the road of neurodevelopment to obtain both 2D and 3D cortical cultures from hiPSCs using one single protocol. Heidelberg 18th-21st October 2023. Selected for Poster presentation.
- **“Protein-Protein Interaction: experimental methods and computational analysis”** SIB (Italian Society of Biochemistry) course. Lesson on **Phage Library-based High Throughput screening**. Bologna, Italy, 8th July 2019. Invited speaker.
- **“XV FISV congress”.** Novel insights on Sorcin-dependent drug-resistance in H1299 cancer cell line and its molecular binding partners. Rome 18th-21st September 2018. Poster presentation.
- **“Molecule in(ter)action: from in vitro to zebrafish”** Training school. Palermo 6th-9th February 2018. Awardee of COST ACTION participation grant
- **“8th PhD student BeMM symposium”** Molecular mechanism of Sorcin (Soluble Resistance-related Calcium binding proteIN)-dependent resistance to doxorubicin in H1299 cancer cell line. Rome 20th November 2017. Selected for Oral Presentation.
- **“Spetsai Summer School 2017: Protein and organized complexity EMBO/FEBS Lecture Course”** Profiling the Peptide binding of Sorcin using phage peptidome representing the intrinsically disordered regions of the human proteome. Spetses Greece, 24th September-1st October 2017. Poster and oral presentation.
- **“7th PhD students BeMM symposium”** Profiling of Sorcin binding motifs using Proteomic Peptide Phage Display (ProP-PD). Rome 18th November 2016. Poster presentation.

- **"XIV International Meeting of European Calcium Society"** Mechanism of sorcin (SolubleResistance-related Calcium binding proteIN)-dependent resistance to chemotherapeutic drugs in H1299 cancer cell line. Valladolid Spain September 25th-29th 2016. Poster presentation.


