

Curriculum Vitae

Research interest.

My research focuses on mono-ADP-ribosylation signaling pathways in breast cancer and viral infections. In breast cancer, we study PARP12's role in promoting cell survival and drug resistance, aiming to identify PARP12 inhibitors for estrogen receptor positive tumors. In viral infections, we investigate the interplay between mono-ADP-ribosylation and innate immunity in SARS-CoV-2 and West Nile infections, seeking to identify molecular targets to limit infection and disease severity.

Education.

Feb 2012: Open University PhD. Project: Identification and roles of intracellular substrates of mono-ADP-ribosylation.

July 2006: Master Degree in Medical Biotechnology, University of Florence (Italy). Thesis: Role of the tyrosine kinase FAK in the repulsive response mediated by ephrinA1 (110/110, with honours).

Sept 2004: Bachelor Degree in Biotechnology, University of Florence (Italy). Thesis: Interaction between the Eph receptor and the low molecular weight tyrosine phosphatase LMW-PTP. Effects on the repulsive response (110/110, with honours).

Research experience.

Dec 2018-present: permanent position as researcher at Institute of Endocrinology and Experimental Oncology- National Research Council (IEOS-CNR, Naples).

Jun 2014-Nov 2018: fixed-term researcher position at the Institute of Protein Biochemistry- National Research Council (IBP-CNR).

Jan 2012-May 2014: post-doc position at the IBP-CNR;

Jan 2009-Dec 2011: fellowship from the Italian Federation for Cancer Research at IBP-CNR;

Oct 2007- Dec 2008: doctoral Fellowship, Department of Cell Biology and Oncology, Consorzio Mario Negri Sud (DCBO-CMNS);

Apr 2007- Sept 2007: pre-Doctoral Fellowship, DCBO, CMNS;

Sept 2006- Mar 2007: short-term contract at the Department of clinical Physiology, University of Florence.

Technical background

Cell culture, transfection, immunostaining, lentivirus production, genome editing (CRISPR/Cas9 techniques), immunoprecipitation (IP, RIP, ChIP), *in vitro* assay with purified proteins; quantification of intracellular ROS. Techniques for nucleic acid manipulation, including cloning and PCR amplification (PCR, RT-PCT, qRT-PCR). Purification of proteins expressed in bacteria and insect cells. Electrophoresis, including mono-dimensional, bi-dimensional, native and gradient PAGE, and Western blotting. Routine and confocal microscopy, including super-resolution microscopy and live imaging. Use of the Incusyte system.

Active Grants

1. "Overcoming breast cancer resistance to hormone-based therapy by targeting the PARP12 enzyme", Funded by the Italian Association for Cancer Research (AIRC). SIS IG_28688, 5-year grant (Jul 2023-Jun 2028).
2. "One Health Basic and Translational Research Actions addressing Unmet Needs on Emerging Infectious Diseases", Funded by the European Community. This is a 3-year multicentered project (Nov 2022-Oct 2025).
3. "PARP12-dependent mono-ADP-ribosylation controls specific membrane transport routes: a functional and morphological analysis" (Internal grant).
4. "Mechanisms of the enhanced inflammatory responses in ageing individuals: INFLAMMAGEING" (Internal grant).

Awards

1. Fellowship from the Italian Federation for Cancer Research (Jan 2009-Dec 2012).

2. Young Travel Grants for the following meetings:

- o 23/06- 1/07/ 2010: "10th Young Scientist Forum" and "35th FEBS Congress on Molecules of Life", Gothenburg;

- 7-17/09/2009: Summer School 2009 on “Proteins and their Networks – from specific to global analysis”, Spetsai;
- 4-9/07/2009: 34th FEBS Congress on “Life’s Molecular Interaction”, Prague (Czech Republic).

Collaborations

- prof. Lari Lethio (University of Oulu, Finland);
- prof. Michael Hottiger (University of Zurich; Switzerland);
- dr. Manuela Porru (“Regina Elena Institute”, Rome, Italy);
- prof. Oriana Tabarrini (University of Perugia, Italy);
- dr. Ilaria Vicenti (University of Siena, Italy);
- prof. Alessandro Weisz (University of Salerno, Italy).

Supervision of PhD students

Anupama Pavithran, PhD in Biomolecular Lifesciences, XXXV cycle (2020-2023)

Laura Schembri (co-tutor), PhD in Biomolecular Lifesciences, XXVIX ciclo (2013-2016).

Meeting organization

1. FEBS Advanced Course on “Cellular Stress and ADP-ribosylation”, held in Castellammare di Stabia (Naples, Italy), from 6-11/11/2023.
2. FEBS Advanced Course on “Cellular Stress and ADP-ribosylation”, held in Castellammare di Stabia (Naples, Italy), from 8-13/11/2021.
3. 11th Young Scientist Forum, held in Turin (Italy), from 23-25/06/2011.

Scientific membership

Member of the Italian Society of Biochemistry (SIB).

Other Information

I have been a **member in the evaluation panel** of different fellowships and fixed-contract competitions. I am currently serving as **reviewer** for several Journals (PNAS, Cellular and Molecular Life Sciences, Cells, Cancers, Journal of Proteomic, Toxins, Pathogens, Molecules) and I have been the Editor for a Special Issue entitled “Protein Mono-ADP-Ribosylation in the Control of Cell Functions”, published on “Cells” Journal, in collaboration with prof. Herwig Schuler from the Karolinska Institute.

Scientific outbreak, I have held recent seminars for students attending secondary schools as well as for general audience.

Publications

1. Pavithran A, Morone B, Filograna A, Matarese M, Lo Monte M, Dathan NA, Corda D, Grimaldi G*. PARP12-mediated ADP-ribosylation contributes to breast cancer cell fate by regulating Akt activation and DNA-damage response. *Cell Mol Life Sci*, *Under revision*.
Morone B, Grimaldi G. PARP enzymes and mono-ADP-ribosylation: advancing the connection from interferon-signalling to cancer biology. *Expert Review in Molecular Medicine*, 2024, *In Press*.
2. Di Paola S, Matarese M, Barretta ML, Dathan N, Colanzi A, Corda D, Grimaldi G*. PARP10 Mediates Mono-ADP-Ribosylation of Aurora-A Regulating G2/M Transition of the Cell Cycle. *Cancers (Basel)*, 2022, 14(21):5210. doi: 10.3390/cancers14215210
3. Corteggio A, Lo Monte M, Schembri L, Dathan N, Di Paola S, Grimaldi G, Corda D. The endocytic recycling pathway is controlled by the ADP-ribosylated GTPase Rab14. *bioRxiv* 2022.11.26.517555; doi: <https://doi.org/10.1101/2022.11.26.517555>. *Co-corresponding author*
4. Grimaldi G, Filograna A, Schembri L, Lo Monte M, Di Martino R, Pirozzi M, Spano D, Beccari AR, Parashuraman S, Luini A, Valente C, Corda D. PKD-dependent PARP12-catalyzed mono-ADP ribosylation of Golgin-97 is required for E-cadherin transport from Golgi to plasma membrane. *Proc Natl Acad Sci U S A*. 2022 Jan 4;119(1): e2026494119. doi: 10.1073/pnas.2026494119. *Fist and co-corresponding author*

5. Lüscher B, Ahel I, Altmeyer M, Ashworth A, Bai P, Chang P, Cohen M, Corda D, Dantzer F, Daugherty MD, Dawson TM, Dawson VL, Deindl S, Fehr AR, Feijs KLH, Filippov DV, Gagné JP, Grimaldi G, et al. ADP-ribosyltransferases, an update on function and nomenclature. *FEBS J.* 2021 Jul 29.
6. Catara G, Corteggio A, Valente C, Grimaldi G, Palazzo L. Targeting ADP-ribosylation as an antimicrobial strategy. *Biochem Pharmacology.* 2019; 167:13-26.
7. Grimaldi G, Catara G, Palazzo L, Corteggio A, Valente C, Corda D. PARPs and PAR as novel pharmacological targets for the treatment of stress granule-associated disorders. *Biochem Pharmacology.* 2019; 167: 64-75.
8. Grimaldi G and Corda D. ADP-ribosylation and intracellular traffic: an emerging role for PARP enzymes. *Biochem Soc Trans.* 2019. *Biochem Soc Trans.* 2019 Feb 28;47(1):357-370.
9. Grimaldi G, Catara G, Valente C and Corda D. In vitro techniques for ADP-ribosylated substrate identification. *Methods in Mol Biol.* 2018; 1813:25-40.
10. Catara G*, Grimaldi G*, Schembri L, Spano D, Turacchio G, Lo Monte M, Beccari AR, Valente C, Corda D. PARP1-produced poly-ADP-ribose causes the PARP12 translocation to stress granules and impairment of Golgi complex functions. *Sci Rep.* 2017 Oct 25;7(1):14035. **Equal contribution*
11. Grimaldi G*, Corda D, Catara G. From toxins to mammalian enzymes: the diversity of mono-ADP-ribosylation. *Front Biosci (Landmark Ed).* 2015 Jan 1; 20:389-404. **First and co-corresponding author.*
12. Colanzi A*, Grimaldi G*, Catara G, Valente C, Cericola C, Liberali P, Ronci M, Lalioti VS, Bruno A, Beccari AR, Urbani A, De Flora A, Nardini M, Bolognesi M, Luini A, Corda D. Molecular mechanism and functional role of brefeldin A-mediated ADP-ribosylation of CtBP1/BARS. *Proc Natl Acad Sci U S A.* 2013 Jun 11;110(24):9794-9. doi: 10.1073/pnas.1222413110. **Co-first authors*
13. Giannoni E, Buricchi F, Grimaldi G, Parri M, Cialdai F, Raugei G, Ramponi G, Chiarugi P. Redox regulation of anoikis: reactive oxygen species as essential mediators of cell survival. *Cell Death Differ.* 2008, 15, 867-78.
14. Buricchi F, Giannoni E, Grimaldi G, Parri M, Raugei G, Ramponi G, Chiarugi P. Redox regulation of ephrin/integrin cross-talk. *Cell Adhes. Migrat.* 2007, 1, 33-42.
15. Parri M, Buricchi F, Giannoni E, Grimaldi G, Mello T, Raugei G, Ramponi G, Chiarugi P. EphrinA1 activates a Src/Fak-mediated motility response leading to disruption of cell-cell adhesion and to activation of actinomyosin contractility. *J. Biol. Chem.* 2007, 282, 19619-28.

International Meetings attendance as Speaker

- 10-13/12/2023: VitaCross Workshop on “Metabolic and signaling crosstalk of vitamin-derived cofactors - a training platform for systems medicine”. Tromsø (Norway). Invited Speaker.
- 6-11/11/2023: FEBS Advanced Course on “Cellular Stress and ADP-ribosylation”. Castellammare di Stabia (Italy).
- 4-8/06/2023. PARP2023 meeting. Hvar (Croatia).
- 8-13/11/2021: FEBS Advanced Course on “Cellular Stress and ADP-ribosylation”. Castellammare di Stabia (Italy)
- 18-21/05/2021: PARP2021 meeting. Barcelona (Spain). Invited speaker.
- 20-23/05/2019. PARP2019 meeting. Budapest (Hungary).
- 17-19/05/2017: PARP2017 meeting. Budapest (Hungary).
- 13-16/04/2016: The PARP family and ADP-ribosylation meeting. CSHL. New York (USA)
- 4-9/09/2011: FASEB meeting on "NAD Metabolism and Signalling", Lucca (Italy).
- 7-17/09/2009: FEBS Summer School 2009 on “Proteins and their Networks – from specific to global analysis”, Spetsai (Greece).