

Curriculum Vitae

Personal information

Federica Biancucci

Professional experiences

Start: 1/12/2019 End: 31/10/2020

Fellowship winner at Department of Biomolecular Sciences in Urbino Via Aurelio Saffi 2- 61029 Urbino

Molecular biology laboratory activities such as: Real Time PCR, RNA extraction from blood samples, cloning of bacteria for recombinant protein expression, laboratory techniques for cell growth and proliferation in culture, qualitative and quantitative analysis techniques for proteins such as SDS-PAGE electrophoresis or protein assay.

Contact person: Mauro Magnani

Start: 03/11/2021 End: 15/12/2021

Employment contract for teaching support activities for the official teaching of PROTEOMICS AND METABOLOMICS (disciplinary scientific sector BIO/10 - Biochemistry), 10 hours, degree course in Medical Biotechnology for diagnostics and therapy at the University of Urbino.

28-30/04/2021, 05-07/05/2021, 12-14/05/2021

Laboratory assistance of "Biochemical Methodologies" Prof. Michele Menotta at University of Urbino, DISB

7-11/03/2022

Training internship on mass spectrometry applied to newborn screening at the Newborn Screening Center of the Umberto I Polyclinic Hospital, University of Rome

Start: 14/11/2022 End: 09/12/2022

Employment contract for teaching support activities for the official teaching of PROTEOMICS AND METABOLOMICS (disciplinary scientific sector BIO/10 - Biochemistry), 10 hours, degree course in Medical Biotechnology for diagnostics and therapy at the University of Urbino.

17/01/2023

Marke Bio Bank – Wet Webinar Uniurb

Took part as organizer in the Workshop on Metabolomics: "Metabolome of cells from ataxia telangiectasia patients using orbitrap technology" at University of Urbino

05/23

Marke Bio Bank – Wet Webinar Uniurb

Took part as organizer in the Workshop on Proteomics: "Bottom-up proteomics using orbitrap technology" at University of Urbino.

Start: 13/11/2023 End: 08/12/2023

Employment contract for teaching support activities for the official teaching of PROTEOMICS AND METABOLOMICS (disciplinary scientific sector BIO/10 - Biochemistry), 10 hours, degree course in Medical Biotechnology for diagnostics and therapy at the University of Urbino.

Education and training

06/2013

High school diploma from Istituto Magistrale Santa Rosa da Viterbo, Via San Pietro 27-01100 Viterbo

10/10/2019

Master's Degree in Pharmaceutical Chemistry and Technology from University of URBINO 'Carlo BO' - Department of Biomolecular Sciences. Single-cycle master's degree
Master's thesis title: Characterization of the recombinant enzyme Urb-PAL and its possible applications in PKU

Subjects studied: inorganic and organic chemistry, physical methods in organic chemistry, pharmaceuticals, pharmacology, drug design and development, pharmaceutical legislation.

Start: 1/11/2020 End: 31/10/2023

Winner of PhD fellowship in Biomolecular and Health Sciences at the Department of Biomolecular Sciences in Urbino Via Aurelio Saffi 2- 61029 Urbino with duration of three years.

Project: Proteome and Metabolome Characterization in Cells Affected by Rare Genetic Diseases and Pharmacological Modulation

Start: 5/03/2017 End: 5/09/2017

Training internship (provided by the school curriculum) at the Pharmacy Zonghi Francesco and Cerri Donatella -52, Piazza Europa - 01019 Vetralla (VT)

07/2020

Licensed to practice as a pharmacist by passing the State Examination at the University of Urbino-School of Pharmacy (DISB)

18/11/2020

Training on Orbitrap Exploris 240 mass spectrometer by Thermo Fisher Scientific Specialist Igor Fochi

Strat: 19/11/2020 End: 20/11/2020

Metabolomics training by Thermo Fisher Scientific Specialist Igor Fochi

24/11/2020

Workshop Thermo Fisher: "Orbitrap Technology: a step forward in untargeted analysis"

27/11/2020

Workshop Thermo Fisher: "The Orbitrap revolution: innovation, technology and potential"

Start: 22/02/2021 End: 23/02/2021

Training di Proteomica by a Thermo Fisher Scientific Specialis

Start: 15/06/2021 End: 16/06/2021

Metabolomics training by Thermo Fisher Scientific Specialist Igor Fochi

Start: 27/10/2021 End: 1/10/2021
25° Mass spectrometry course at the University of Siena

14/02/2023 e 22/02/23
Proteomics training by Thermo Fisher Scientific Specialist Riccardo Stucchi

14/05/2023
Webinar on "Understanding Metabolic Pathways Using Mass Isotopologue Analysis with HILIC Zenon MRM High-Resolution".

Novara 2-3/10/2023
International Proteomics and Metabolomics Conference

10/10/2023
Virtual Event "Live from the Lab" on Metabolomic and Proteomic by Thermo Fisher Scientific

Publications

SCIENTIFIC PUBLICATIONS

Scientific article

Anastasia Ricci, Sara Orazi, Federica Biancucci, Mauro Magnani and Michele Menotta. The nucleoplasmic interactions among Lamin A/C-pRB-LAP2 α -E2F1 are modulated by dexamethasone. *Scientific Reports*. 2021 May 11:10099; <https://doi.org/10.1038/s41598-021-89608-3>.

Scientific article

Anastasia Ricci, Federica Biancucci, Mauro Magnani and Michele Menotta. Transcriptomic profile of ataxia telangiectasia cells treated for 30 days with a low dose of dexamethasone. *All Life*. 2021; 14:1, 277-286, DOI: 10.1080/26895293.2021.1911863

Scientific article

Ricci A, Biancucci F, Morganti G, Magnani M, Menotta M. New human ATM variants are able to regain ATM functions in ataxia telangiectasia disease. *Cell Mol Life Sci*. 2022 Nov 23;79(12):601. doi: 10.1007/s00018-022-04625-3. PMID: 36422718 Free PMC article.

Scientific article

Alessandra Fraternali, Marta De Angelis, Riccardo De Santis, Donatella Amatore, Sofia Masini, Francesca Monittola, Michele Menotta, Federica Biancucci, Francesca Bartoccini, Michele Retini, Valentina Fiori, Raoul Fioravanti, Fabio Magurano, Laura Chiarantini, Florigio Lista, Giovanni Piersanti, Anna T Palamara, Lucia Nencioni, Mauro Magnani, Rita Crinelli. Targeting SARS-CoV-2 by synthetic dual-acting thiol compounds that inhibit Spike/ACE2 interaction and viral protein production. *The FASEB Journal*, 30 december 2022, <https://doi.org/10.1096/fj.202201157RR>

Scientific article

Alessandro Bregalda¹, Claudia Carducci², Maria Teresa Viscomi³, Francesca Pierigè⁴, Sara Biagiotti⁴, Michele Menotta⁴, Federica Biancucci⁴, Tiziana Pascucci⁵, Vincenzo Leuzzi⁶, Mauro Magnani⁷, Luigia Rossi⁷ Myelin basic protein recovery during PKU mice lifespan and the potential role of microRNAs on its regulation. *Neurobiology of Disease* Volume 180, May 2023, 106093, DOI: [10.1016/j.nbd.2023.106093](https://doi.org/10.1016/j.nbd.2023.106093)

Scientific article

Ricci A, Biancucci F, Morganti G, Magnani M, Menotta M. Dexamethasone induces p21^{cip1/waf1} expression via FoxO3a independently of the Lamin A/C-HDAC2 interaction in Ataxia Telangiectasia. *FEBS Open Bio*. 2023 Aug;13(8):1459-1468. doi: 10.1002/2211-5463.13663. Epub 2023 Jul 3. PMID: 37345209 Free PMC article.

Scientific article

Bruschi M, Biancucci F, Masini S, Piacente F, Ligi D, Bartoccini F, Antonelli A, Mannello F, Bruzzone S, Menotta M, Fraternali A, Magnani M. The influence of redox modulation on hypoxic endothelial cell metabolic and proteomic profiles through a small thiol-based compound tuning glutathione and

thioredoxin systems. *Biofactors*. 2023 Jul 6. doi: 10.1002/biof.1988. Online ahead of print. PMID: 37409789

Scientific article

Machine Learning-Enabled Prediction of Metabolite Response in Genetic Disorders Christel Sirocchi^{1,†}, **Federica Biancucci**[†], Matteo Donati¹, Nunzio D'Amore¹, Riccardo Benedetti², Alessandro Bogliolo¹, Stefano Ferretti¹, Mauro Magnani, Michele Menotta², Muhammad Suffian¹ and Sara Montagna. HC AIXIA Article - articolo da conferenza accettato a *2nd AIXIA Workshop on Artificial Intelligence For Healthcare* (<https://sites.google.com/unical.it/hcaixia2023/>) e pubblicato come CEUR workshop proceedings (<https://ceur-ws.org/Vol-3578/>).

Scientific article (submitted)

A novel methodology for untargeted metabolomics leveraging molecular fingerprinting: a case study on Ataxia Telangiectasia Christel Sirocchi, Federica Biancucci[†], Matteo Donati, Alessandro Bogliolo, Mauro Magnani, Michele Menotta, Sara Montagna. **CMPB Article** - Journal article currently under review at *Computer Methods and Programs in Biomedicine* (<https://www.sciencedirect.com/journal/computer-methods-and-programs-in-biomedicine>)

Others

ATTENDANCE AT CONFERENCES

Multimomics approaches for therapeutic developments in ataxia telangiectasia. **Federica Biancucci**, Anastasia Ricci, Gianluca Morganti, Mauro magnani, Michele Menotta. 1st PhD DAY, Biomolecular and Health Sciences PhD Course, University of Urbino. Urbino, 15 July 2022. Participations with Poster and Flash Oral Presentation.

Multi Omics approaches in therapeutic developments. **Federica Biancucci**, Anastasia Ricci, Gianluca Morganti, Michele Menotta and Mauro Magnani. Trends in Biotechnology: the SIB group perspectives. Naples, June 23-24 2022. Participations with Oral Presentation.

Biotech approaches for the development of new therapeutic agents in the treatment of Ataxia Telangiectasia. Anastasia Ricci, **Federica Biancucci**, Gianluca Morganti, Mauro Magnani and Michele Menotta. Trends in Biotechnology: the SIB group perspectives. Naples, June 23-24 2022.

New human ATM variants are able to regain ATM functions in ataxia telangiectasia disease. Anastasia Ricci, **F. Biancucci**, G. Morganti, M. Magnani, M. Menotta. 14 – 16 September 2022 Reggia di Portici, Naples.

Multi-omics approaches for ataxia telangiectasia therapy development. A. Ricci, **F. Biancucci**, G. Morganti, M. Magnani, Michele Menotta. 14 – 16 September 2022 Reggia di Portici, Naples.

Orbitrap Day: a step forward in untargeted analysis. Anastasia Ricci, **Federica Biancucci**, Gianluca Morganti, Mauro Magnani and Michele Menotta. Metabolomic profiling of Ataxia Telangiectasia cells transduced with ATM variants: a step toward the disease therapy. Orbitrap Day a step forward in untargeted analysis, Rome 13 October 2022.

Multi-omics approaches for Ataxia Telangiectasia therapy development. **F. Biancucci**, A. Ricci, G. Morganti, M. Magnani, Michele Menotta. TUM 2022 ricercatori biochimici TUM di nuovo insieme: confronto e condivisione delle tematiche SIB fra Toscana, Umbria e Marche. Perugia 1° dicembre 2022. Participations with Poster.

New human ATM variants are able to regain ATM functions in ataxia telangiectasia disease. M. Menotta*, A. Ricci, **F. Biancucci**, G. Morganti, M. Magnani. TUM 2022 ricercatori biochimici TUM di nuovo insieme: confronto e condivisione delle tematiche SIB fra Toscana, Umbria e Marche. Perugia 1° dicembre 2022.

Multimomics approaches for therapeutic developments in ataxia telangiectasia. **Federica Biancucci**, Anastasia Ricci, Gianluca Morganti, Mauro magnani, Michele Menotta. National Meeting of PhD

Candidates in Biochemical Disciplines SIB. Brallo di Pregola (Pavia), June 5 - 9 2023. Participation with Oral Presentation.

Multimomics approaches for therapeutic developments in ataxia telangiectasia. **Federica Biancucci**, Anastasia Ricci, Gianluca Morganti, Mauro magnani, Michele Menotta. 2nd PhD DAY, Biomolecular and Health Sciences PhD Course, University of Urbino. Urbino, 30 June 2023. Participations with Poster and Flash Oral Presentation.

New human ATM variants are able to regain ATM functions in ataxia telangiectasia disease. Anastasia Ricci, **Federica Biancucci**, Gianluca Morganti, Mauro Magnani and Michele Menotta. SIB Congress 7-9 September 2023 Firenze.

Multimomics approaches for therapeutic developments in ataxia telangiectasia. **Federica Biancucci**, Anastasia Ricci, Gianluca Morganti, Mauro Magnani, Michele Menotta. SIB Congress 7-9 September 2023 Firenze. Participations with Poster

Molecular Fingerprints-based Machine Learning and Network Approaches for Metabolic Profiling Christel Sirocchi, **Federica Biancucci**, Muhammad Suffian, Riccardo Benedetti, Matteo Donati, Michele Menotta, Mauro Magnani, Alessandro Bogliolo, Sara Montagna. ECML PKDD MARBLE participation with poster at MARBLE: Machine Learning and Artificial Intelligence for Biologics Engineering (<https://sites.google.com/view/marble-2023/home>), workshop dell' European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases - ECML PKDD - (<https://2023.ecmlpkdd.org/>) presentato il 22/09/23

Molecular Fingerprints-based Machine Learning for Metabolic Profiling Christel Sirocchi, **Federica Biancucci**, Muhammad Suffian, Riccardo Benedetti, Matteo Donati, Stefano Ferretti, Michele Menotta, Mauro Magnani, Alessandro Bogliolo, Sara Montagna. ECML PKDD MARBLE Poster - poster (e presentazione) a MARBLE: Machine Learning and Artificial Intelligence for Biologics Engineering (<https://sites.google.com/view/marble-2023/home>), workshop dell' European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases - ECML PKDD - (<https://2023.ecmlpkdd.org/>) presentato il 22/09/23

Molecular Fingerprints-based Machine Learning for Metabolic Profiling. Christel Sirocchi, **Federica Biancucci**, Muhammad Suffian, Riccardo Benedetti, Matteo Donati, Stefano Ferretti, Alessandro Bogliolo, Mauro Magnani, Michele Menotta, Sara Montagna. European Conference on machine Learning and Principles and Practice of Knowledge Discovery in Databases. 18-22 September 2023, Torino. ECML PKDD MARBLE Article - conference paper accepted to MARBLE and soon to be included in PostWorkshop proceedings published by Springer Communications in Computer and Information Science.

PATENT

Michele Menotta, Anastasia Ricci, **Federica Biancucci**, Mauro Magnani. ATM protein variants for the treatment of diseases caused by at least one mutation of the ATM gene. 102022000002645.

Personal skills and expertise

Biochemistry and Molecular Biology Laboratory Techniques.

Spectrophotometric techniques.

Mass Spectrometry techniques with ORBITRAP technology.

Spectrometry techniques, proteomics, and metabolomics.

Software for the analysis of metabolomic and proteomic data (Compound Discoverer software and Proteome Discoverer software).

Use of Office and Statistical packages.

Additional information

Reference persons:

Prof. Mauro Magnani: mauro.magnani@uniurb.it (director of the DISB department at University of Urbino)

Associate Prof. Michele Menotta: michele.menotta@uniurb.it

Full Prof. Luigia Rossi: luigia.rossi@uniurb.it