ALESSIA ANGELIN

ASSISTANT PROFESSOR, PH.D.
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SUMMARY STATEMENT

Dr. Alessia Angelin obtained her Master's Degree in Biological Sciences from the University of Padua, Italy, with a thesis on the biochemical characterization of mitochondrial function under the supervision of Prof. Paolo Bernardi. At the University of Padua, she also obtained her PhD in Molecular and Cellular Biology and Pathology, working on the role of mitochondria in human muscular dystrophies, again under the supervision of Prof. Bernardi.
Dr. Angelin has 15 years of international research experience in biochemistry and biomedical sciences, and her research primarily focuses on the physiology of mitochondria in human diseases. During these years, she worked as a postdoctoral scholar at the University of Padova, the University of California-Irvine (USA), and the Children's Hospital of Philadelphia (USA) under the supervision of Prof. Douglas C. Wallace. Dr. Angelin consolidated her position as a Senior Research Scientist at the Center for Mitochondrial and Epigenomic Medicine, directed by Prof. Wallace, at the Children's Hospital of Philadelphia. She investigated the mitochondrial contribution to the pathophysiology of human cardiomyopathy and muscular dystrophy and recently developed an AAV-based gene therapy for treating human mitochondrial cardiac disorder. Over the years, her scientific interests have expanded to include the role of mitochondria in immune deficiencies and infection, metabolic diseases, and cancer. In 2024, she returned to Italy as an Assistant Professor in Biochemistry at the University of Rome Tor Vergata, School of Medicine. In Prof. Eleonora Candi's laboratory, she studies the metabolic changes that occur in the transformation of neoplastic cells and tumor proliferation using cellular and murine models with biochemical techniques and omics characterization, with particular attention to the role of mitochondria. Currently, Dr. Angelin is mainly involved in two projects: (i) characterizing the role of p63 in regulating muscular differentiation and (ii) investigating the contribution of the polyol pathway in tumor development. Dr. Angelin has published 32 peer-reviewed articles and attended about 40 scientific conferences, several as an invited speaker. Dr. Angelin teaches Biochemistry in the Pharmacy Degree Course.

EDUCATION – (**2002-2003**) Master's Degree in Biology (Molecular Biology) (110/110 with honors), University of Padua, Italy, with a biochemical thesis on mitochondrial function under the supervision of Prof. Paolo Bernardi (**2003**); Internship at the Dept. of Experimental Biomedical Sciences and AIRC and Pfizer scholarships (**2002-2003**)
PhD – (**2004-2007**) PhD in Molecular and Cellular Biology and Pathology with a thesis on mitochondrial function in human muscular dystrophies (thesis title: "Mitochondrial pathogenesis in Ullrich congenital muscular dystrophy: new therapeutic perspectives") under the supervision of Prof. Paolo Bernardi, University of Padua, Italy (**2007**); Doctoral student at the Dept. Experimental Biomedical Sciences and trainee at Pfizer Company (UK) as part of the Ph.D. program (**2004-2007**)
POST-DOCTORAL – (**2007-2023**) 3 years in Italy and 14 years in the USA: **2007-2010** Dept. Biomedical Sciences, University of Padua, Italy (DebioPharm fellowship; MIUR Research Grant); **2010** (03-07) Center for Molecular and Mitochondrial Medicine and Genetics, Univ. California Irvine (CA-USA); **2010-2014** Center for Mitochondrial and Epigenomic Medicine (CMEM), Children's Hospital Philadelphia (CHOP) (PA-USA); **2015-2024** Research Associate, Research Scientist, Senior Scientist at CMEM, Children's Hospital Philadelphia (USA); **2024-present** Assistant Professor in Biochemistry, University of Rome Tor Vergata, School of Medicine.
RESEARCH PROJECTS – Participated as a researcher in 19 international research projects (funded by NIH, DOD, UMDF, Frontier/CHOP, Gates Foundation, MIUR, Telethon, AIRC); she supervised and guided four scientific projects, and she was involved in two clinical studies (trials) and several collaborations with international institutes and companies. Scientific interests are focused on biochemical aspects of mitochondrial function and the

pathophysiology of mitochondrial genetic diseases, such as cardiomyopathy or muscular dystrophy. She has developed an AAV-based gene therapy to correct mitochondrial cardiomyopathy. Recently, she expanded her interest in the mitochondrial role in immune deficiencies, senescence, cancer, or during SARS-CoV-2 infection. Currently, at the Department of Experimental Medicine of the University of Rome Tor Vergata, she is mainly involved in two research projects: (i) characterization of the role of p63 in the regulation of muscle differentiation and (ii) study of the contribution of the polyol pathway in the tumor development.

TEACHING – (**2005-2006**) Integrative Teaching and Laboratory Trainer, Biochemistry Laboratory Course, Degree in Biology, University of Padua, Italy; (**2013-2014**) Guest Lecturer in the Molecular Biology Course (MolBiol305) and the Cellular Bioenergetics Course (Bio 599), Rutgers University, Candem (NJ – USA); (**2010-2024**) Speaker and organizer of the annual CMEM seminar series, at the Children's Hospital of Philadelphia (CHOP) (PA-USA), open to faculty, researchers, physicians and students of CHOP and the University of Pennsylvania (as of 2020 this includes the public international with the virtual option); (**2017-current**) Committee member of PhD thesis evaluation commission; (**2004-current**) Supervisor of undergraduate and graduate students; (**2024-2025**) Assistant Professor in Biochemistry, Biochemistry I Course, Degree Course in Pharmacy, University of Rome Tor Vergata.

CONFERENCES – Participation in over 40 international conferences as invited speaker (9), selected speaker (5), and poster presenter (19) in the following research areas: mitochondrial medicine; biochemistry and bioenergetics; human degenerative and genetic diseases; therapeutic targets; cellular metabolism and epigenomics; cell signaling and therapeutic strategy; translational research in aging and complex human diseases.

AWARDS and CERTIFICATES – (**2021**) Knight of Merit of the Italian Republic; (**2018**) National Scientific Qualification MIUR (Abilitazione Nazionale) Sector 05/E1 General Biochemistry (BIO10) Associate Professor; (**2009 and 2012**) Qualified for Faculty Member position by National Research Council CNR in Medical Sciences; (**2003**) National License (Esame di Stato) as Biologist; (**2005, 2009, 2013**) Awarded for best poster and research by international institutions and conferences; (**2011-2023**) Founder, President (for eight years), Board Member of the Association of Italian Professionals in Philadelphia (PIPhilly); (**2018**) Member AWIS Association for Women in Science; (**2014-2024**) ISSNAF Member Italian Scientist and Scholar of the North American Foundation.

MANAGEMENT ACTIVITY – (**2016-2024**) Staff member of the Administrative Director of CMEM (CHOP) with responsibility for coordination of multidisciplinary projects, department resources, and multi-million dollar budget for the laboratory and the department; (**2015-2024**) Laboratory and department manager at CMEM (CHOP) with responsibility for supervising supply orders, purchases/contracts of large equipment, biohazardous laboratory material (BSL2 and 3 levels) and safety regulations, as well as instrumentation of microscopy, sequencing and biochemistry suits.

EDITORIAL ACTIVITY – Reviewer for peer-reviewed journals "Cell Death Discovery" (nature.com/IF=6.1), “Biomolecules” (mdpi.com/IF=5.5), “Aging Clinical and Experimental Research” (springer.com/ IF=4.5), e “Human Molecular Genetics” (academic.oup.com/IF=5.1); Topic Editor Member for “Frontiers in Cellular Neuroscience - Cellular Neuropathology” (frontiersin.org/IF=5.3); Receiving Editor for peer-reviewed journal "Cell Death Disease" (nature.com/IF=8.1),

BIBLIOMETRICS – 32 Publications (Medline); 3368 Citations (Scopus ID); 23 H-index (Scopus ID)

FULL LIST OF PUBLICATIONS

Author of 32 papers published in leading peer-reviewed scientific journals
https://pubmed.ncbi.nlm.nih.gov/?term=angelin+alessia&sort=date
32 Publications (Medline); 3,368 Citations (Scopus ID); 23 H-index (Scopus ID)
https://www.scopus.com/authid/detail.uri?authorId=6507126049
https://orcid.org/0000-0002-7115-5451

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2. Penzo D., Petronilli V., **Angelin A**., Cusan C., Colonna R., Scorrano L., Pagano F., Prato M., Di Lisa F. and Bernardi P. (**2004**)
   Arachidonic acid released by phospholipase A2 activation triggers Ca2+-dependent apoptosis through the mitochondrial pathway
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3. **Angelin A.**, Tiepolo T., Sabatelli P., Grumati P., Bergamin N., Golfieri C., Mattioli E., Gualandi F., Ferlini A., Merlini L., Maraldi NM., Bonaldo P. and Bernardi P. (**2007**)
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4. **Angelin A**., Bonaldo P., Bernardi P. (**2008**)
   Altered threshold of the mitochondrial permeability transition pore in Ullrich congenital muscular dystrophy
   Biochim. Biophys. Acta 1777:893-6 PMID: 18435905

5. Merlini L., **Angelin A**., Tiepolo T., Braghetta P., Sabatelli P., Zamparelli A., Ferlini A., Maraldi NM., Bonaldo P. and Bernardi P. (**2008**)
   Cyclosporin A corrects mitochondrial dysfunction and muscle apoptosis in patients with collagen VI myopathies
   Proc. Natl. Acad. Sci. USA 105(13):5225-9 PMID: 18362356

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   The cyclophilin inhibitor Debio 025 normalizes mitochondrial function, muscle apoptosis and ultrastructural defects in Col6a1-/- myopathic mice
   Br. J. Pharmacol. 157(6):1042-52 PMID: 19519726

7. Porcelli AM.*, **Angelin A.***, Ghelli A., Mariani E., Martinuzzi A., Carelli V., Petronilli V., Bernardi P. and Rugolo M. (**2009**) ***Co-first Authorship**
   Respiratory complex I dysfunction due to mitochondrial DNA mutations shifts the voltage threshold for opening of the permeability transition pore toward resting levels
   J. Biol. Chem. 284(4):2045-52 PMID: 19047048

8. Palma E., Tiepolo T., **Angelin A**., Sabatelli P., Maraldi NM., Basso E., Forte MA., Bernardi P. and Bonaldo P. (**2009**)
   Genetic ablation of cyclophilin D rescues mitochondrial defects and prevents muscle apoptosis in collagen VI myopathic mice
   Hum. Mol. Genet. 18(11):2024-31 PMID: 19293339

9. Frka K., Facchinello N., Del Vecchio C., Carpi A., Curtarello M., Venerando R., **Angelin A**., Parolin C., Bernardi P., Bonaldo P., Volpin D., Braghetta P., Bressan GM. (**2009**)
Lentiviral-mediated RNAi in vivo silencing of Col6a1, a gene with complex tissue specific expression pattern
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11. Sabatelli P., Palma E., **Angelin A.**, Squarzoni S., Urciuolo A., Pellegrini C., Tiepolo T., Bonaldo P., Gualandi F., Merlini L., Bernardi P., Maraldi NM. (**2011**)
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Mitochondrial DNA variant associated with Leber hereditary optic neuropathy and high-altitude Tibetans
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14. Chae YC., **Angelin A**., Lisanti S., Kossenkov AV., Speicher KD., Wang H., Powers JF., Tischler AS., Pacak K., Fliedner S., Michalek RD., Karoly ED., Wallace DC., Languino LR., Speicher DW., Altieri DC. (**2013**)
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15. Lin R., **Angelin A.**, Da Settimo F., Martini C., Taliani S., Zhu S. and Wallace DC. (**2014**)
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Biochim. Biophys. Acta 1857(8):1203-12 PMID: 27048932

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Mitochondrial respiration is sensitive to cytoarchitectural breakdown
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Front. Immuno.l PMID: 36891303, doi: 10.3389/fimmu.2023.1064293

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***Angelin Alessia** *Author as part of the HuBMAP Consortium*
Advances and prospects for the Human BioMolecular Atlas Program (HuBMAP)
Nat Cell Biol. Aug;25(8):1089-1100 PMID: 37468756 Author Correction PMID: 38429479
*(**Review**)*

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Mitochondrial antioxidants abate SARS-COV-2 pathology in mice.
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