Curriculum Vitae

Alessandra Zulian, Ph.D

Education

- **Ph.D in Molecular and Cellular Pharmacology,** Department of Pharmacology and Anaesthesiology, University of Padova, Italy, 2008
- **Certificated Pharmacist**, University of Padova, Italy, 2005.
- **Master Degree in Pharmaceutical Chemistry and Technology**, Faculty of Pharmacy, University of Padova, Italy, 2004
- **High School Diploma** "Liceo Classico Statale XXV Aprile" Portogruaro, Italy, 1996

Experiences

- **2019-present: Business Development and Technology Licencing Manager**, Technology Transfer Unit, UniSMART, Fondazione Università degli Studi di Padova, Padova, Italy
- **2018-2019: IP and Project Manager**
  UniSMART, Università degli Studi di Padova, Padova, Italy

- Evaluated technologies that are disclosed and developed a licencing strategy to promote the transfer of University of Padova's technology for Society's use and benefit
- Managed Negotiation and Licencing process
- Managed the development of partnership and buisness between University of Padova and industrial companies, industrial associacion, investors, foreign international institution and organization to promote the cultural exchange and the innovation
- Identified the best-matching set of technologies, multidisciplinary skills and competences in the University of Padova that can be used to solve the Company's challenges
- Managed complex research projects, ensuring on-time and on-quality delivery to the end customer, while guaranteed full protection and the best valorization of intellectual property rights.

- **2018-2019: Pharmacist**, 'Farmacia Fides', Zugliano, Vicenza, Italy
- **2009-2017: Postdoctoral Research Fellow**, University of Padova, Padova, Italy
  Supervisor: Prof. Paolo Bernardi, Department of Biomedical Sciences/CNR Institute of Neurosciences

- Studied the pathogenesis of Collagen VI (ColVI) and Duchenne Muscular Dystrophies with specific emphasis **on the role of mitochondrial dysfunction** which plays a key role in the myopathies. Assessed the efficacy of the permeability transition pore (PTP)-active cyclosporin A derivatives in mouse, zebrafish models and in patient cells in order to define an effective therapy in the treatment of human ColVI and Duchenne muscle dystrophies.

- Studied mitochondrial function in melanocyte cells from ColVI and Duchenne Muscular Dystrophies, and demonstrated that they can be used as cellular biomarkers for monitoring dystrophinopathies also in response to pharmacological treatments.
- Studied the calcium deregulation in causing/amplifying mitochondrial dysfunction in Collagen VI (ColVI) and DMD Muscular Dystrophies.
- *Program funded by* Program "*Mit Care-2*", Telethon Grant GGP14187; *Program "Toward a mitochondrial therapy of collagen VI muscular dystrophies", Telethon Grant GGP08107, GGP11082 and GGP14037*
- Studied the potential mitochondrial toxicity of cyclophilin inhibitors, used as a strategy to cure diseases in which the PTP is involved.
  Program funded by Pharmaceutical Companies

- **2008-2009: Postdoctoral Research Fellow**, University of Maryland, School of Medicine, Baltimore, MD
  Supervisor: Prof. Vera Golovina, Department of Physiology

- Studied the dysregulation of **calcium homeostasis in animal models of Human Essential Hypertension.**
  Program funded by NIH Program Project Grant

- **2006-2007: Visiting Research Fellow,** University of Maryland, School of Medicine, Baltimore, MD
  Supervisor: Prof. Vera Golovina, Department of Physiology

- Investigated the effect of Norbormide, a rat selective toxicant and its derivatives in vascular smooth muscle cells.

- **2005-2007: PhD Student in Molecular and Cellular Pharmacology,** University of Padova Department of Pharmacology and Anaesthesiology, Padova, Italy
  Supervisors: Prof. Sergio Bova, Department of Pharmacology and Anaesthesiology; Prof. Fernanda Ricchelli, C.N.R. Institute of Neurosciences at the Department of Biomedical Sciences

- Investigation of the molecular basis for the rat-selective induction of the mitochondrial permeability transition by Norbormide.

- **2003-2004: Master Student, Program in Pharmaceutical Chemistry and Technology**, University of Padova, Department of Pharmacology and Anaesthesiology, Padova, Italy
  Supervisor: Prof. Gabriella Cargnelli, Department of Pharmacology and Anaesthesiology

- Investigation of the mechanism by which the phosphodiesterase inhibitor Pentoxifylline induces vasodilation in endothelial and smooth muscle cells and its potential effect in chronic heart failure.

Organizational skills and competences

- Experiece in linking up research and innovation strategies with the Company
- Manage Tecnlology and Business Valuetion, negotiation and licencing
- Experience in setting up and managing Contracts and Agreements
  Non disclosure Agreement; Collaboration Agrreements; Licence Agreement; Term Sheet; Shareholder Agreements
- Initiate and manage complex research projects, ensuring on-time and on-quality delivery to the end Customers, while guaranteed full protection and the best valorization of Intellectual Property
- Organize and manage multi-disciplinary research groups to resolve experimental arising problems
- Design and carry out scientific projects in collaboration with scientific groups
  Results published in 20 peer-reviewed articles
- Coordinate multi-disciplinary research team and manage the timetable of the budget in the projects
- Analysis and interpretation of project data, writing project updates and final report forms
- Preparations of applications to authorize the use of animals in research projects in accordance with D.Lgs 26/2014 and OPBA (Organismo Preposto al Benessere degli Animali) regulations
- Teaching and lecturing
- Mentoring and supervising students, proactive team leader
- Effective communication skills, invited as a speaker in confereneces at national and international level
- Interact with vendors and purchase order management

Research Skills

- **Molecular Biology/Biochemistry:** Protein purification from cultured cells and tissues, gene silencing using siRNA, Western blotting, PCR, RT-PCR, extraction of DNA and RNA from cells and tissue, genotyping.
- **Animal (Rodent and Zebrafish) and Cellular Biology**: Management of mouse and rat colonies; experience with a variety of stable cell lines (HQB17, HeLa) and primary cultures including myoblasts from patients and cultured from neonatal mouse, arterial myocytes, endothelial cells and cortical astrocytes; preparation of freshly dissociated smooth muscle cells and fibres from skeletal muscle for immediate use (calcium imaging, immunocytochemistry, etc.); isolation of mitochondria from mouse, rat and zebrafish tissues.
- **Physiology assays**: Measurement of mitochondrial membrane potential by epifluorescence using tetramethylrhodamine methylester (TMRM). Measurement of calcium transients in primary cells using calcium dyes and Metafluor software; analysis of protein colocalisation in immunostained primary cells; use of the genetically encoded calcium-sensitive photoprotein aequorin targeted to different intracellular compartments. *In vitro* studies in isolated mitochondria, including measurement of oxygen consumption, mitochondrial membrane potential and calcium retention capacity. Mitochondrial respiration *in situ* in cell-monolayers and zebrafish using Extracellular Flux System 24, Seahorse Bioscience. Measurement of vascular tone in vitro in isolated arteries; measurement of arterial pressure by tail-cuff plethysmography; functional motility assays in zebrafish.

Teaching and lecturing

- 2008/2009: Mentoring and supervising students in Prof. Golovina laboratory, University of Maryland, School of Medicine, Department of Physiology, Baltimore, MD, USA
- 2010/2011: lecturer on 'Ouabain and Hypertension' in the Prof. Bernardi's course 'General Physiopathology' at the Medical School, University of Padova, Italy
- 2013/2014-2014/2015: co-teaching in the course of Prof. Bernardi 'Molecular diagnostics 2' at the Postgraduate School of Clinical Pathology, University of Padova, Italy

Job- related training

- ASTP Technology Licencing, Training course, 3-10 November 2020
- *ASTP Financial Tools in KTO/TTO,* Training course
  22-24 January 2020, Sitges, Spain
- *Clinical Research Training Course* "Missione CRA" (CRAsecrets.com, Yghea CRO)
  Clinical research training course (as per the Ministerial Decree 15Nov2011), January 2018
- Guidelines for preparation of applications to authorize the use of animals in scientific projects, in accordance with D.Lgs. 26/2014.22 June 2017, Padova
- *Introduction to Lab Safety and guidelines for animal users*, University of Padova, 2017, Padova
- *Applied statistical methods in Biology and Biomedicine: basic principles of statistics in Biology*, Neuroscienze Institute, CNR, 8 June 2017, Padova
- Professional work experience at 'Al Duomo' Pharmacy, 2005, Padova

Languages

- Mother tongue: Italian
- Other language: English, good understanding, speaking and writing

Computer and Software skills

- Statistical/imaging software: GraphPad Prism, Origin, Image J
- General software: Adobe Photoshop, Acrobat, Microsoft Office (Word, Excel, PowerPoint, Access, Outlook)
- Instrument Software : Agilent Seahorse analysis and programming, Cell R and Leica (fluorescence microscopy)
- Patent Database and business intelligence software: Clarivate Derwent Innovation; Questel Orbit Intelligence. Global Data

Additional Informations

- *Association of European Sciences and Technology Transfer Professinals* (ASTP), Member
- *Italian group of Biomembranes and Bioenergetic* (GIBB), Member
- II Level Master *'GMP compliance quality expert for pharmaceutical operations'*, a/a 2020/2021 , University of Padova, Board Member

List of publications

- **Peer-reviewed articles**

1. Rennison D, Bova S, Cavalli M, Ricchelli F, Zulian A, Hopkins B, Brimble MA (2007) Synthesis and activity studies of analogues of the rat selective toxicant norbormide. *Bioorg Med Chem* 15:2963-2974.

2. Zulian A, Petronilli V, Bova S, Dabbene-Sala F, Cargnelli G, Cavalli M, Rennison D, Stab J, Laita O, Lee DG, Brimble MA, Hopkins B, Bernardi P, Ricchelli F (2007) Assessing the molecular basis for rat-selective induction of the mitochondrial permeability transition by norbormide. *Biochim Biophys Acta* 1767:980-988.

3. Petronilli V, Sileikyte J, Zulian A, Dabbeni-Sala F, Jori G, Gobbo S, Tognon G, Nikolov P, Bernardi P, Ricchelli F (2009) Switch from inhibition to activation of the mitochondrial permeability transition during hematoporphyrin-mediated photooxidative stress. Unmasking pore-regulating external thiols. *Biochim Biophys Acta* 1787:987-904.

4. Zhang J, Hamlyn JM, Karashima E, Raina H, Mauban JR, Izuka M, Berra-Romani R, Zulian A, Wier WG, Blaustein MP (2009) Low-dose ouabain constricts small arteries from ouabain-hypertensive rats: implications for sustained elevation of vascular resistance. *Am J Physiol Heart Circ Physiol* 297:H1140-1150.

5. Baryshnikov SG, Pulina MV, Zulian A, Linde CI, Golovina VA (2009) Orai1, a critical component of store-operated Ca^{2+} entry, is functionally associated with Na^{+}/Ca^{2+} exchanger and plasma membrane Ca^{2+} pump in proliferating human arterial myocytes. *Am J Physiol Cell Physiol* 297:C1103-1112.

6. Pulina MV, Zulian A, Berra-Romani R, Beskina O, Mazzocco-Spezzia A, Baryshnikov SG, Papparella I, Hamlyn JM, Blaustein MP, Golovina VA (2010). Up-regulation of Na^{+} and Ca^{2+} transporters in arterial smooth muscle from ouabain hypertensive rats. *Am J Physiol Heart Circ Physiol* 298:H263-274.

7. Zulian A, Baryshnikov SG, Linde CI, Hamlyn JM, Ferrari P, Golovina VA (2010) Up-regulation of Na^{+} and Ca^{2+} exchanger and TRPC6 contributes to abnormal Ca^{2+} homeostasis in arterial smooth muscle cells from Milan hypertensive rats. *Am J Physiol Heart Circ Physiol* 299:624-633. Covered in an Editorial Focus by Giachini FR. Tostes RC, *Am J Physiol Heart Circ Physiol (2010)* 299:H602-604.

8. Sileikyte J, Petronilli V, Zulian A, Dabbeni-Sala F, Tognon G, Nikolov P, Bernardi P, Ricchelli F (2011) Regulation of the inner membrane mitochondrial permeability transition by the outer membrane translocator protein (peripheral benzodiazepine receptor). *J Biol Chem* 286:1046-1053.

9. Zulian A, Šileikytė J, Petronilli V, Bova S, Dabbeni-Sala F, Cargnelli G, Rennison D, Brimble MA, Hopkins B, Bernardi P, Ricchelli F (2011) The translocator protein (peripheral benzodiazepine receptor) mediates rat selective activation of the mitochondrial permeability transition by norbormide. *Biochim Biophys Acta* 1807:1600-1605.

10. Linde CI, Karashima E, Raina H, Zulian A, Wier WG, Hamlyn JM, Ferrari P, Blaustein MP, Golovina VA (2012) Increased arterial smooth muscle Ca^{2+} signaling, vasoconstriction, and myogenic reactivity in Milan hypertensive rats. *Am J Physiol Heart Circ Physiol* 302:H611-620.

11. Pellegrini C, Zulian A, Gualandi F, Manzati E, Merlini L, Michelini ME, Benassi L, Marmiroli S, Ferlini A, Sabatelli P, Bernardi P, Maraldi NM (2013) Melanocytes - A novel tool to study mitochondrial dysfunction in Duchenne Muscular Dystrophy. *J Cell Physiol* 228:1323-1331.

12. Zulian A, Linde CI, Pulina MV, Baryshnikov SG, Papparella I, Hamlyn JM, Golovina VA (2013) Activation of c-SRC underlies the differential effects of ouabain and digoxin on Ca^{2+} signaling in arterial smooth muscle cells. *Am J Physiol Cell Physiol* 304:C324-333.

13. Pulina MV, Zulian A, Baryshnikov SG, Linde CI, Karashima E, Hamlyn JM, Ferrari P, Blaustein MP, Golovina VA (2013) Cross talk between plasma membrane Na^{+}/Ca^{2+} exchanger-1 and TRPC/Orai-containing channels: key players in arterial hypertension. *Adv Exp Med Biol* 961:365-374.

14. Zulian A, Rizzo E, Schiavone M, Palma E, Tagliavini F, Blaauw B, Merlini L, Maraldi NM, Sabatelli P, Braghetta P, Bonaldo P, Argenton F, Bernardi P (2014) NIM811, a cyclophilin inhibitor without immunosuppressive activity, is beneficial in collagen VI congenital muscular dystrophy models. *Hum Mol Genet* 23:5353-5363.

15. Sorato E, Menazza S, Zulian A, Sabatelli P, Gualandi F, Merlini L, Bonaldo P, Canton M, Bernardi P, Di Lisa F (2014) Monoamine oxidase inhibition prevents mitochondrial dysfunction and apoptosis in myoblasts from patients with collagen VI myopathies. *Free Radic Biol Med* 75:40-47.

16. Zulian A, Tagliavini F, Rizzo E, Pellegrini C, Sardone F, Zini N, Maraldi NM, Santi S, Faldini C, Merlini L, Petronilli V, Bernardi P, Sabatelli P (2014). Melanocytes from patients affected by Ullrich congenital muscular dystrophy and Bethlem myopathy have dysfunctional mitochondria that can be rescued with the cyclophilin inhibitors. *Front Aging Neurosci* 6:324.

17. Zulian A, Schiavone M, Giorgio V, Bernardi P (2016). Forty years later: Mitochondria as therapeutic targets in muscle diseases. *Pharmacol Res* 113:563-573.

18. Chemello F, Grespi F, Zulian A, Cancellara P, Hebert-Chatelain E, Martini P, Bean C, Alessio E, Buson L, Bazzega M, Armani A, Sandri M, Ferrazza R, Laveder P, Guella G, Reggiani C, Romualdi C, Bernardi P, Scorrano L, Cagnin S, Lanfranchi G (2019). Transcriptomic Analysis of Single Isolated Myofibers Identifies miR-27a-3p and miR-142-3p as Regulators of Metabolism in Skeletal Muscle. *Cell Reports* 6(13):3784-3797

19. De Mario A, Peggion C, Massimino ML, Norante RP, Zulian A, Bertoli a, Sorgato MC (2019). The Link of the Prion Protein with Ca $^{2+}$ Metabolism and ROS Production, and the Possible Implication in Aβ Toxicity. Int J Mol Sci 20 (18): 4640

Autorizzo il trattamento dei miei dati personali ai sensi del Dlgs 196 del 30 giugno 2003 n. 196 "Codice in materia di protezione dei dati personali" e dell'art 13 del GDPR (Regolamento UE 2016/679)