

## **CURRICULUM VITAE**

**DATE:** September 5, 2023

**NAME:** Patricio Esteban Mujica Urzúa

**PRESENT TITLE:** Assistant Professor  
Department of Pharmacology, Physiology and Neuroscience  
Rutgers New Jersey Medical School

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Newark, NJ 07103

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**CITIZENSHIP:** Chile

### **EDUCATION:**

- A. Undergraduate Graduate and Professional  
Pontificia Universidad Católica de Chile, Facultad de Ciencias Biológicas  
Santiago, Chile  
Licenciado en Ciencias Biológicas                      January 26, 2009
  
- B. Graduate and Professional  
Rutgers Graduate School of Biomedical Sciences  
Newark, New Jersey, United States  
Ph.D. in Pharmacology and Physiology                      January 19, 2015

### **POSTGRADUATE TRAINING:**

- A. Postdoctoral Appointments  
Albert Einstein College of Medicine, Dept. of Developmental and Molecular Biology  
Epithelial Cell Biology (Advisor – Anne Müsch, Ph.D.)  
November 10, 2014 – June 30, 2016

### **ACADEMIC APPOINTMENTS:**

Department of Pharmacology, Physiology and Neuroscience  
Rutgers New Jersey Medical School  
Assistant Professor, Teaching Track  
09/2023 – Present

Department of Natural Sciences  
School of Health and Natural Sciences  
Mercy College  
Assistant Professor of Biology, tenure track  
09/2020 – 08/2023

Department of Natural Sciences  
School of Health and Natural Sciences  
Mercy College  
Assistant Professor of Biology  
09/2019 – 08/2020

Division of Natural Sciences and Mathematics  
School of Arts and Sciences  
The College of New Rochelle  
Assistant Professor of Biology  
09/2018 – 08/2019

Department of Pharmacology, Physiology and Neuroscience  
Rutgers New Jersey Medical School  
Adjunct Assistant Professor  
05/2018 – Present

Department of Biological Sciences  
Lehman College, The City University of New York  
Adjunct Assistant Professor  
08/2016 – Present

**OTHER EMPLOYMENT OR MAJOR VISITING APPOINTMENTS:**

Department of Pharmacology, Physiology and Neuroscience,  
Rutgers New Jersey Medical School  
Guest Investigator, Durán Lab  
06/2017 – Present

**MEMBERSHIPS, OFFICES AND COMMITTEE ASSIGNMENTS IN PROFESSIONAL SOCIETIES:**

American Physiological Society, Teaching Experiences for Bioscience Educators (TEBioED)  
*Faculty Mentor*  
2021

American Physiological Society, *Member*  
2010 – Present

American Association for the Advancement of Science, *Member*  
2014 – Present

The Microcirculatory Society, *Student Member*  
2010 – 2014

**HONORS AND AWARDS:**

Beca Bicentenario  
Ministerio de Educación de Chile  
2004-2008

The Benjamin W. Zweifach Graduate Student Travel Award  
The Microcirculatory Society  
2012

The Caroline tum Suden/Francis A. Hellebrandt Professional Opportunity Award  
The American Physiological Society  
2013

Physiology Education Community of Practice (PECOP) Fellowship  
The American Physiological Society, Teaching Section  
2018

Inclusive Excellence Teaching Fellow, Cohort III  
Howard Hughes Medical Institute Inclusive Excellence Program at Mercy College  
2021-2023

**SERVICE ON MAJOR COMMITTEES:**

- A. Mercy College
  - a. Faculty Senate General Education Committee – Member of the Technological Competencies Learning Outcomes Working Group, 2022.
  - b. Faculty Senate General Education Committee – Diverse Perspectives Learning Outcomes Working Group, 2022 – 2023.
  - c. School of Health and Natural Sciences, Faculty Search Committees
    - i. Core Multi-Year Contract Biology position, 2021
    - ii. Visiting Health Sciences position, 2021
    - iii. Core Nursing Faculty positions, 2022
- B. The College of New Rochelle
  - a. Faculty Affairs Committee, Vice-Chair, March 2019 – August 2019.
- C. CUNY-Lehman College
  - a. Department of Biological Sciences Curriculum Committee, 2017 – 2019
  - b. Department of Chemistry, STEM Lab Innovation Initiative, June 2017
- D. *Ad-hoc* Reviewer
  - a. Life Science Teaching Resource Community, 2019 – Present
  - b. *Journal of Basic Clinical Physiology and Pharmacology*, 2020 – Present

**TEACHING RESPONSIBILITIES:**

- A. Lectures or Course Directorships
  - a. Rutgers New Jersey Medical School, Newark
    - i. EDUC6100K Foundations of Body Systems, *Fall 2023 - Present*
      - 1. Unit 1: Cell Biology
        - a. Cell Membranes (1 hour)
      - 2. Unit 4: Introduction to Anatomy, Physiology, and Pharmacology
        - a. Membrane Permeability and Diffusion (1 hour)
        - b. Membrane Equilibria I: Osmosis, Tonicity (1 hour)
        - c. Membrane Equilibria II: Electrochemical Potential, Gibbs-Donnan Equilibrium (1 hour)
        - d. Carrier-mediated Transport (1 hour)
        - e. Ion Channels and Membrane Excitability (1 hour)
        - f. Membrane Potential (1 hour)
- b. Mercy College
  - i. BIOL110 Introduction to Human Biology, *45 hours/semester, Spring 2020 (Coordinator)*
  - ii. BIOL130A Human Anatomy & Physiology I Lab, *45 hours/semester, Fall 2021*
  - iii. BIOL131 Human Anatomy & Physiology II Lecture, *45 hours/semester, Fall 2019 – Present (Coordinator)*
  - iv. BIOL131A Human Anatomy & Physiology II Lab, *45 hours/semester, Fall 2019 – Present (Coordinator)*
  - v. BIOL160 General Biology I Lecture, *45 hours/semester, Spring 2023*
  - vi. BIOL295 Special Topics: Introduction to Biomedical Research, *90 hours/semester, Fall 2022*
  - vii. BIOL309 Human Physiology, *45 hours/semester, Spring 2020 – Present (Coordinator)*
  - viii. BIOL309A Human Physiology Lab, *45 hours/semester, Fall 2022 – Present (Coordinator)*

- ix. BIOL355 Molecular Biology of the Cell, 90 hours/semester, Spring 2020 – Fall 2021
  - x. BIOL360 Genetics, 90 hours/semester, Fall 2020
  - xi. BIOL370 Research in Biology I, 90 hours/semester, Spring 2021 - Present
  - xii. BIOL460 Research Capstone in Biology, 90 hours/semester, Spring 2021 – Present
- c. The College of New Rochelle
- i. BIO110 Concepts in Biology, 45 hours/semester, Fall 2018 – Spring 2019
  - ii. BIO125 Anatomy & Physiology I, 45 hours/semester, Spring 2019
  - iii. BIO125L Anatomy & Physiology I Lab, 45 hours/semester, Spring 2019
  - iv. BIO126 Anatomy & Physiology II, 45 hours/semester, Fall 2018
  - v. BIO126L Anatomy & Physiology II Lab, 45 hours/semester, Fall 2018
  - vi. BIO485 Independent Study, 30 hours/semester, Spring 2019
  - vii. BIO495 Internship in Biological Sciences, 30 hours/semester, Spring 2019
- d. CUNY-Lehman College
- i. BIO181 Anatomy & Physiology I Lecture, 45 hours/semester, Fall 2016 – Present
  - ii. BIO181 Anatomy & Physiology I Lab, 30 hours/semester, Fall 2016 – Present
  - iii. BIO182 Anatomy & Physiology II Lecture, 45 hours/semester, Spring 2016 – Present
  - iv. BIO182 Anatomy & Physiology II Lab, 30 hours/semester, Fall 2016 – Present
  - v. BIO166, Principles of Biology I: Cells and Genes Lecture, 45 hours/semester, Summer 2017 – Summer 2019
  - vi. BIO166, Principles of Biology I: Cells and Genes Lab, 30 hours/semester, Summer 2017 – Summer 2019
- e. Rutgers School of Graduate Studies, Newark
- i. PHPY5005Q Fundamentals of Human Physiology, Spring 2019 - Present
    1. Physiology of the Cell Membrane and Membrane Transport (3 hours)
    2. Electrical Properties of the Cell and Cell Signaling (3 hours)

B. Research Training

**Pre-Doctoral Students**

Rutgers-GSBS

Prerna Nepali, MS, 09/2014 – 11/2014 (*PhD lab rotation*)

**Master's Program Students**

Rutgers-GSBS

Vidhi Rana, 05/2013 – 07/2013 (*MBS summer rotation*)

**Undergraduate Students**

Mercy College

a. *BIOL460 Research Capstone in Biology*

Francisco Ricci, BS Biology, Spring 2021

Jezzan Elliott, BS Biology, Spring 2021

Harpiarjit (Piarry) Singh, BS Biology, Spring 2022

Carol Mena-Khoury, BS Biology, Spring 2022

Oumou Dukuray, BS Biology, Spring 2023

b. *BIOL370 Research in Biology I*

Bisma Rafiq, BS Biology, Spring 2021

Roodley François, BS Biology, Spring 2021

Harpiarjit (Piarry) Singh, Fall 2021

Andalatu Sadik, BS Health Science, Fall 2021  
Erika Garcia, BS Biology, Fall 2021

Rutgers-GSBS

Andrew Miller, 06/2013 – 07/2013 (*Summer Research Program*)

Albert Einstein College of Medicine

Charlotte Viard, 06/2015 – 08/2015 (*Visiting student, France*)

**GRANT SUPPORT:**

1) Principal Investigator

- (1) Mercy College, Office of the Provost - Spring 2023 Faculty Development Grant.  
**Regulation of endothelial barrier function by endosomal recycling.** Grant Period: Spring 2023 Semester. Amount: \$3,000.00
- (2) Mercy College, Office of the Provost - Spring 2021 Faculty Development Grant.  
**Endothelial protein interactions in the control of vascular barrier function.** Grant Period: Spring 2021 Semester. Amount: \$3,000.00
- (3) Mercy College, Louise T. Squitieri Family Faculty and Student Development Fund – Faculty Research Award in Biology or Physical Sciences 2020. **Regulation of vascular barrier function by Epac1-ERM protein interactions.** *Grant Period:* 2020-2021 Academic Year. Amount: \$7,000.00

**PUBLICATIONS:**

A. Refereed Original Article in Journal

1. Nepali PR, Burboa PC, Lillo MA, **Mujica PE**, Iwahashi T, Zhang J, Durán RG, Golenhofen N, Alves NG, Kim DD, Thomas AP, Breslin JW, Sánchez FA, and Durán WN. Endothelial mechanisms for inactivation of inflammation-induced hyperpermeability. *Am J Physiol Heart Circ Physiol.* 2023 May 1;324(5):H610-H623. doi: 10.1152/ajpheart.00543.2022. Epub 2023 Mar 3. PMID: 36867447; PMCID: PMC10069978
2. Aguilar G, Córdova F, Koning T, Boric MP, Birukov KG, Cancino J, Varas-Godoy M, Soza A, Alves NG, **Mujica PE**, Durán WN, Ehrenfeld P and Sánchez FA. 2021. TNF- $\alpha$  activated eNOS signaling increases leukocyte adhesion through the S-nitrosylation pathway. *Am J Physiol Heart Circ Physiol.* 2021 Dec 1;321(6):H1083-H1095. doi: 10.1152/ajpheart.00065.2021. Epub 2021 Oct 15. PMID: 34652985; PMCID: PMC8782658.
3. Korayem AH, **Mujica PE**, Aramoto H, Durán RG, Nepali PR, Kim DD, Harris AL, Sánchez FA and Durán WN. 2017. Endothelial cAMP deactivates ischemia/reperfusion-induced microvascular hyperpermeability via Rap1-mediated mechanisms. *Am J Physiol Heart Circ Physiol.* 2017 Jul 1;313(1):H179-H189. doi: 10.1152/ajpheart.00002.2017. Epub 2017 May 5. PMID: 28476918; PMCID: PMC5538859.
4. Marín N, Zamorano P, Carrasco R, **Mujica P**, González FG, Quezada C, Meininger CJ, Boric MP, Durán WN and Sánchez FA. 2012. S-Nitrosation of beta-Catenin and p120 Catenin: A novel Regulatory Mechanism in Endothelial Hyperpermeability. *Circ Res.* 2012 Aug 17;111(5):553-63. doi: 10.1161/CIRCRESAHA.112.274548. Epub 2012 Jul 9. PMID: 22777005; PMCID: PMC3966064.
5. **Mujica PE** and González FG. Interaction between IP<sub>3</sub> receptors and BK channels in arterial smooth muscle: non-canonical IP<sub>3</sub> signaling at work. 2011. *J Gen Physiol.* 2011 May;137(5):473-7. doi: 10.1085/jgp.201110607. Epub 2011 Apr 11. PMID: 21482693; PMCID: PMC3082923.

6. Minniti AN, Cataldo R, Trigo C, **Mujica P**, Leighton F, Inestrosa NC and Aldunate R. Methionine sulfoxide reductase A expression is regulated by the DAF/FOXO pathway in *Caenorhabditis elegans*. *Aging Cell*. 2009 Dec;8(6):690-705. doi: 10.1111/j.1474-9726.2009.00521.x. Epub 2009 Sep 11. PMID: 19747232.

B. Abstracts

1. Nepali PR, **Mujica PE**, Kim DD, Thomas AP and Durán WN. Endothelial barrier restoration after inflammation-induced hyperpermeability. *FASEB J* 32:1\_supplement, 706-6, 2018
2. **Mujica PE** and Durán WN. ERM proteins may regulate deactivation of PAF-induced endothelial hyperpermeability. Presented at Experimental Biology 2013, Boston, MA. *Abstract #707.8*
3. **Mujica PE**, González FG and Durán WN. Modulation of S-nitrosation by thioredoxin regulates endothelial permeability. Presented at Experimental Biology 2012, San Diego, CA. *Abstract #676.18*
4. **Mujica PE**, González FG and Durán, WN. Regulation of endothelial permeability by protein S-nitrosation and de-nitrosation. Presented at Experimental Biology 2011, Washington, DC. *Abstract #1022.3*

**PRESENTATIONS:**

A. Scientific (*Basic Science*):

**Mujica PE**, González FG and Durán, WN. Regulation of endothelial permeability by protein S-nitrosation and de-nitrosation. *In Symposium: Adaptation of the microcirculation to Inflammatory Insult*. Experimental Biology 2011, Washington, DC. April 10, 2011

**Mujica PE** and Durán WN. Endothelial mechanisms of activation and inactivation of endothelial permeability. Department of Developmental and Molecular Biology, Albert Einstein College of Medicine, Bronx, NY. August 28, 2014.

**Mujica PE** and Müsch A. A role for VIPAR in the regulation of apical recycling dynamics in polarized epithelial cells. Department of Microbiology and Molecular Genetics, Rutgers-New Jersey Medical School, Newark, NJ. July 1, 2016.

**Mujica PE**. *Workshop: Being a Competitive Applicant to Health Professional Graduate School and Academia*. BNGAP Health Related Academic Career Development Conference for College/Post-Bacc Trainees – Rutgers New Jersey Medical School, Newark, NJ. June 24, 2017

**Mujica PE**. *Workshop: Research, Competitiveness, and Alignment with Academia*. BNGAP Health Related Academic Career Development Conference for College/Post-Bacc Trainees – Rutgers New Jersey Medical School, Newark, NJ. June 24, 2017

**Mujica PE** and Durán, WN, Mechanisms of activation and inactivation of inflammatory endothelial hyperpermeability. Department of Biology, Long Island University–Brooklyn, Brooklyn, NY. November 13, 2017.

**Mujica, PE**. *Handling Acute Inflammation: Insights from the Vascular Endothelial Cell*. Mercy College, Department of Natural Sciences, Dobbs Ferry, NY. March 5, 2020.

**Mujica PE**. *Role of the Tumor Microenvironment in Triple-Negative Breast Cancer*. III Joint Meeting of the Venezuelan Societies for Oncology and Mastology (*online*). March 20, 2021

Rafiq B and **Mujica PE**. *Investigating the role of actin in endothelial barrier function*. STEM Scholars in Biology Research Symposium (online), 16 April 2021.

Mena-Khoury C, Singh P and **Mujica PE**. Role of Radixin, and ERM protein, in the control of endothelial barrier function. 55<sup>th</sup> Annual Conference, Metropolitan Association of College and University Biologists (MACUB) (online). 30 October 2021.

Singh P, Mena-Khoury C, and **Mujica PE**. Involvement of the endosomal recycling system in the control of endothelial barrier function. 55<sup>th</sup> Annual Conference, Metropolitan Association of College and University Biologists (MACUB) (online). 30 October 2021.

Singh P, García E, Sadik A, Durán WN and **Mujica PE**. Involvement of the endosomal recycling system in the control of endothelial barrier function. Beta Beta Beta National Biological Honors Society National Convention, Oklahoma City, OK. June 1-5, 2022.

Simons JD, Haskew-Layton R, Smyth D (presenters), and **Mujica PE** (convener). *In-depth Symposium: Educator Advocacy for LGBTQ Students in STEM*. ASM Microbe 2022, American Society for Microbiology. Washington, DC. June 10, 2022.

Dukuray O, and **Mujica PE**. Pro- and anti-inflammatory agonists modulate the localization of vesicular trafficking regulators in endothelial cells. 2023 Westchester Undergraduate Research Conference, Purchase, NY. April 21, 2023.