CURRICULUM VITAE
CHRIS S. MANTSOUNGA

The Warren Alpert Medical School of Brown University
Ocean State Research Institute, Inc (OSRI)
Vascular Research Laboratory
Providence VA Medical Center
Ocean State Research Institute, Inc.
Research (151)
830 Chalkstone Avenue
Providence, RI 02908
Email: Email: chris_mantsounga@brown.edu
chris.mantsounga@va.gov

A. EDUCATION

Undergraduate University Marien Ngouabi, Republic of Congo (Brazzaville)
(Physiology, Cellular and Molecular Biology)

Graduate University Paris V Descartes/ Sorbonne Paris Cité, France
Ph.D. Cardiovascular Pathology

University Paris VII Diderot, France
Master's degree : Blood Vessels and Hemostasis

University Evry Val d'Essonne, France
Master's degree: Genomes and Biology

University of Science and Technology of Lille (Lille 1), France
Master's degree: Cell Biology

Others Graduate Certificates: University of Science and Technology of Lille (Lille 1), France
Master's degree level
- Molecular genetics in Prokaryotes
- Genetics in Superior Eukaryotes

B. POSITIONS, SCIENTIFIC APPOINTMENTS AND HONORS

Licensure, Certifications, and Eligibility:
2021: Postdoctoral Fellowship, Brown University/ Rhode Island Hospital
2015: Ph.D. Cardiovascular Pathology, Paris Descartes University (Paris V)

2011: Master of Science (M.sc), Hemostasis and Blood Vessels, Paris Diderot University (Paris VII)

Positions, Scientific Appointments and Honors

2023-Present: Research Assistant Professor, Department Medicine, Warren Alpert Medical School at Brown University
2023-Present: Research Biologist, Ocean State Research Institute at Providence VA Medical Center
2021-2023: Instructor of Medicine (Research), Department Medicine, Ocean State Research Institute/Providence VA Medical Center and Warren Alpert Medical School at Brown University
2016-2021 Postdoctoral fellowship, Rhode Island Hospital and Warren Alpert Medical School at Brown University.
2011-2015 Ph.D. Candidate, Paris Descartes University (Paris V)
2009-2011 Master of science student (M.sc), Paris Diderot University (Paris VII)

Professional Memberships:

2017-Present: North American Vascular Biology Organization (NAVBO)
2017-Present: American Heart Association (AHA)

Professional Honors and Recognitions:

2014-2015: France Medical Foundation Award, Paris France
2011-2014: France Research ministry, Ph.D. Program Award

Scientific and Professional Committees:

2025-Present: American Heart Association, member of Career development Award and Postdoctoral reviewers
2024-Present: Guest Editor at JOVE: Experimental Methods for Studying Vascular Calcification
2023-Present: Reviewer for the Journal of American Heart Association (JAHA); Circulation Research, Nature communications
2022-Present: CPVB COBRE reviewer for pilot project applications
2021-Present: Providence VA Institutional Animal Care and Use Committee (IACUC).

C. CURRENT, COMPLETED AND PENDING RESEARCH SUPPORT

Current Research Support:

1- NIH NHLBI R01HL181104-01A1 (Mantsounga PI) 09/20/2026-05/31/2031.
Title: Immune-mediated mechanisms of VEGF-A165 alternative splicing in angiogenesis in the context of Advanced Aging.

Pending

1- 1R2100000-00 NIH NHLBI (**Just submitted**) (Mantsounga PI)
Title: Targeting macrophage MSI2 dysfunction to promote vascular and muscle repair in diabetic peripheral artery disease.

Completed Research Support

1- NIH NIGMS P20GM103652 (Choudhary 06/01/2025-05/31/2026).
NIH Endothelial Injury and Repair: CPVB COBRE (Director: Gaurav Choudhary, MD).

Title: Autocrine Cxcl2-NLRP3 inflammasome activation as a mechanism of impaired inflammatory angiogenesis in the setting of chronic diabetes mellitus
Role: Project PI, Pilot project
2- 23CDA1056587 AHA CDA, (Mantsounga PI) 04/01/2023-03/31/2026
Title: Opposing VEGF-A isoforms cross communicate through VEGFR1/2 to alter inflammatory angiogenesis in the context of aging.
3- #16415_139169 Rhode Island Foundation Research (Mantsounga PI) 09/01/2024-08/31/2025
Title: Impaired inflammatory arteriogenesis is the result of IL-1beta resistance and macrophage IL-1 receptor complex protein defects in the context of chronic Diabetes mellitus
4- NIH NIGMS P20GM103652 (Choudhary PI 12/01/2021-05/31/2025)
NIH Endothelial Injury and Repair: CPVB COBRE (Co-Directors: Gaurav Choudhary and Elizabeth Harrington)
Title: Autocrine Cxcl2-NLRP3 inflammasome activation as a mechanism of impaired inflammatory angiogenesis in the setting of chronic diabetes mellitus (Research Project Leader)

PhD Research Support
1- France Medical Foundation, Paris, France, Predoctoral grant (Stipend/Salary) 11/2014-02/2015
Title: Diabetic angiopathy and Neuropathy- Role of Axon Guidance Molecules.
2- France Research Ministry, Paris, France, Predoctoral grant (Stipend/Salary) 10/2011-09/2014
Title: Diabetic angiopathy and Neuropathy- Role of Axon Guidance Molecules

D. CONTRIBUTION TO SCIENCE

1. In my master's Program and PhD studies, I examined the link between diabetic neuropathy and diabetic angiopathy responsible for impaired angiogenesis in experimental type 1 diabetic mice (T1DM). I also contributed to demonstrating the critical impact of peripheral blood mononuclear cells from human diabetic patients in angiogenesis cell-based therapy T1DM model.

1- Lozeron P*, **Mantsounga C.S.*,** Broquères-You D, Dohan A, Polivka M, Deroide N, Kubis N, Silvestre JS, Lévy BI. Characterization of nerve and microvessel damage and recovery in type 1 diabetic mice after permanent femoral artery ligation. J Neurosci Res. 2015;93(9):1451-1461.

2- Broquères-You* D, Leré-Déa*n C, Merkulova-Rainon T, **Mantsounga C.S.,** Allanic D, Hainaud P, Contrères JO, Wang Y, Vilar J, Virally M, Mourad JJ, Guillausseau PJ, Silvestre JS, Lévy BI. Ephrin B2-activated peripheral blood mononuclear cells from diabetic patients restore diabetes-induced impairment of postischemic neovascularization. Diabetes. 2012;61(10):2621-2632.

2. During my postdoc, I first coordinated collaborations between Dr. Sellke and Dr. Morrison on the collection of calcified coronary and aortic valve tissue in a clinical study. I then contributed to completing studies that define a novel mechanism of statin-mediated calcification of atherosclerotic plaque.
We also generated a novel myeloid-specific, inducible IL-1β-deletion mouse to determine the impact of early inflammatory stage in response to ischemic injury.

1- Rachel Carley*; Cadence Lee*;Joshua Berus; **Chris S. Mantsounga**; Jade Neverson; Sheila Sharma; Olivya Caballero; Crystal Parry; Julia Pierce; Elizabeth Amelotte; Celia Butler; Abigail Healy; Hassan Alemara; Carol L. Williams; Rachel Olson; Frank Sellke; Gaurav Choudhary and Alan R. Morrison. Macrophage Rac1 is

a Cofactor Facilitating NF-κB Transcription of IL-1β During IL-1β-induced Atherosclerotic Calcification. Submitted to the Journal of Clinical Investigation (***Under revision in Journal of Clinical Investigation***).

2- Sharma* S.; Pierce* J.; Neverson JC.; Carley-Khan R.; Lee C.; Parry C.; Butler C.; Sellke F.; Harrington E.; Choudhary G.; Morrison AR. and **Mantsounga CS**. Macrophage pro-angiogenic VEGF-A is required for inflammatory arteriogenesis during vascular injury. Biomedicines. 2025 Mar 31;13(4):828.

3- **Mantsounga CS*,** Lee C, Neverson J, Sharma S, Healy A, Berus JM, Parry C, Ceneri NM, López-Giráldez F, Chun HJ, Lu Q, Sellke F, Choudhary G, Morrison AR. Macrophage IL-1β promotes arteriogenesis by autocrine STAT3- and NF-κB-mediated transcription of pro-angiogenic VEGF-A. Cell Rep. 2022 Feb 1;38(5):110309.

4- Chung HE, Chen J, Ghosalkar D, Christensen JL, Chu AJ, **Mantsounga CS**, Neverson J, Soares C, Shah NR, Wu WC, Choudhary G, Morrison AR. Aortic Valve Calcification Is Associated with Future Cognitive Impairment. J Alzheimers Dis Rep. 2021 Apr 29;5(1):337-343.

5- Healy A*, Berus JM*, Christensen JL, Lee C, **Mantsounga CS**, Dong W, Watts JP Jr, Assali M, Ceneri N§, Nilson R, Neverson J, Wu WC, Choudhary G, Morrison AR. Statins Disrupt Macrophage Rac1 Regulation Leading to Increased Atherosclerotic Plaque Calcification. Arterioscler Thromb Vasc Biol. 2020 Mar;40(3):714-732.

3. Clinically, elderly patients with type 2 DM are most at risk for Peripheral Artery Disease (PAD) and critical limb ischemia (CLI), a severe consequence of PAD. We model this using by combining aging and diabetes mellitus (*T2DM Lepr$^{db/db}$*). These investigations are ongoing and are part of my next R01 application.

Abstract:

1- Mantsounga CS, Pierce J, Farinha A, Uppuluri S, Rados T, Lee C, Sharma S, Neverson J, A. Healy, Sellke F, Harrington E, Choudhary G and Morrison AR. Immune-mediated mechanisms of altered inflammatory angiogenesis in diabetes mellitus and age-related defects. AHA Basic Cardiovascular Sciences, BCVS 2025, Baltimore MD Poster #Thu116.

4. Our preliminary results from advanced aged (104-week-old) mice demonstrate severe impaired blood flow recovery after femoral artery ligation and an age-associated VEGF-A_{165} isoform switch expression. Using CRISPR/CAS9 technology, we generated two new mouse strains with VEGF-A splice variants that enable myeloid-specific upregulation of either VEGF-A_{165}a or VEGF-A_{165}b in a cell-specific manner. This is the project related to my funded NIH NHLBI R01. These experiments are being finalized with plans for a manuscript submission to a high impact journal in the coming months.

Lastly, we have developed a robust and novel data set defining the role of microRNA regulation in promoting the HuR-mediated posttranscriptional stabilization of VEGF-A RNA and the age-related impairments of this pathway by methylation of the Dicer promoter. This new mechanism is a paradigm shift as microRNAs are considered negative posttranscriptional regulators of their gene targets.

Manuscript:

Chris S. Mantsounga; Julia Pierce; Madeline E. Clark; Andrew Farinha; Sheila Sharma; Saketh Uppuluri; Theopi Rados; Olivya Caballero; Jade Neverson; Cadence Lee; Elizabeth Amelotte; Celia A. Butler; Alexey V. Fedulov; Frank W. Sellke; Gaurav Choudhary; George P. Lisi; Alan R. Morrison. Aging Impairs Inflammatory

Arteriogenesis by Disruption of Proangiogenic VEGF-A mRNA Stability Conferred by Epigenetically Controlled Dicer1 Dose-sensitive miR-29 (***Under revision, Angiogenesis 2026***).

Abstracts:

1- **Chris S Mantsounga**, Julia Pierce, Maddie Clark2, Olivya Caballero, Andrew Farinha, Sheila Sharma, Saketh Uppuluri, Elizabeth Amelotte, Theopi Rados, Jade C Neverson, Cadence Lee, Celia Butler, Frank W Sellke, Alexey Fedulov, Gauruv Choudhary, George, Alan R Morrison. Aging impairs inflammatory arteriogenesis by disruption of proangiogenic VEGF-A mRNA stability conferred by Dicer1 dose-sensitive microRNAs. NAVBO Vascular Biology 2025, Cape Cod MA Poster #W04

2- **Mantsounga CS**, Pierce J, Farinha A, Uppuluri S, Rados T, Lee C, Sharma S, Neverson J, A. Healy, Sellke F, Harrington E, Choudhary G and Morrison AR. Macrophage alternative VEGF-A165 splicing is the cause of impaired inflammatory angiogenesis in the context of advanced aging. NAVBO Vascular Biology 2025, Cape Cod MA Poster #W03.

UNIVERSITY TEACHING, ADVISING and MENTORING ROLES

1- 2024-Present Andrew Farinha, PhD Postdoctoral researcher associate
2- 2025-Present Matthew Lam, Undergraduate Student at Brown University.
3- 2023-Present Julia Pierce, MPH
4- 2023-Present Elizabeth Amelotte, BS
5- 2023-Present Saketh Uppuluri, BS
6- 2021-2024: Sheila Sharma, MSc (St. George's school of medicine, Grenada)
7- 2020-2022: Jade Neverson, BS (Yale school of medicine)

LIST OF PUBLICATIONS

https://www.ncbi.nlm.nih.gov/myncbi/chris.mantsounga.2/bibliography/public/