

EDUCATION & TRAINING

Postdoctoral Training **2023-Current**

Stanford University, Stanford, CA

Injectable drug-delivery systems to repair the BBB after ischemic stroke

Mentor(s): Sarah C. Heilshorn & Marion Buckwalter

Ph.D. in Biomedical Engineering **2020-2022**

The Ohio State University, Columbus, OH

Nanomedicine-based strategies for peripheral nerve repair

Advisor: Daniel Gallego Perez

M.S. in Biomedical Engineering **2018-2020**

The Ohio State University, Columbus, OH

B.S. in Applied Mathematics **2012-2015**

The Ohio State University, Columbus, OH

HONORS

- **JumpStart**, Stanford Grant Writing Academy
- **2023 Stanford Propel Fellowship Awardee**
- **2022 Andreas F. von Recum Graduate Research Achievement Award**
- **NIH Blueprint D-SPAN Scholar**
 - **F99/K00 Fellowship Awardee**
- **Purdue Black Trailblazers in Engineering Fellow (2021)**, Purdue University
- **1st place graduate student poster (EHIRS 2020)**, Ohio State University
- **Chronic Brain Injury Travel Award (OSU CBI 2019)**, Ohio State University
- **Chronic Brain Injury Travel Award (OSU CBI 2018)**, Ohio State University
- **Neuroscience Scholars Program Associate, 2020-2022**, Society for Neuroscience

PUBLICATIONS

JOURNAL PUBLICATIONS

Das D, Lawrence WR, Diaz-Starokozheva L, Salazar-Puerta AI, Ott N, Goebel ER, Damughatia A, Vidal P, Gallentine S, **Moore JT**, Kayuha D, Mendonca NC, Albert JB, Houser R, Johnson J, Powell, Higuaita-Castro N, Stanford KI, Gallego-Perez D. **Injectable pulverized electrospun poly (lactic-co-glycolic acid) fibers improve human adipose tissue engraftment and volume retention. Journal of Biomedical Materials Research Part A.** 2023
<https://doi.org/10.1002/jbm.a.37581>

Pal D, Ghatak S, Singh K, Abouhashem AS, Kumar M, El Masry MS, Mohanty SK, Palakurti R, Rustagi Y, Tabasum S, Khona DK, Khanna S, Kacar S, Srivastava R, Bhasme P, Verma SS, Hernandez E, Sharma A, Reese D, Verma P, Ghosh N, Gorain M, Wan J, Liu S, Liu Y, Higuaita Castro N, Gnyawali SC, Lawrence W, **Moore J**, Gallego Perez D, Roy S, Yoder MC, Sen CK. **Identification of a physiologic vasculogenic fibroblast state to achieve tissue repair. Nature Communications.** 2023 doi: 10.1038/s41467-023-36665-z

Hannawi Y, Ewees MG, **Moore JT**, Zweier JL. **Characterizing CD38 Expression and Enzymatic Activity in the Brain of Spontaneously Hypertensive Stroke-Prone Rats. Frontiers in Pharmacology.** 2022 doi: 10.3389/fphar.2022.881708

Ortega-Pineda L, Sunyecz A, Salazar-Puerta AI, Rincon-Benavides MA, Alzate-Correa D, Anaparthi AL, Guilfoyle E, Mezache L, Struckman HL, Duarte-Sanmiguel S, Deng B, McComb DW, Dodd D, Lawrence WR, **Moore J**, Zhang J, Reátegui E, Veeraraghavan R, Nelson T, Gallego-Perez D, Natalia Higuaita-Castro. **Designer extracellular vesicles modulate pro-neuronal cell responses and improve intracranial retention. Advanced Healthcare**

Materials 2021; PMID: 35014204 doi: 10.1002/adhm.202100805

Duarte-Sanmiguel S, Panic A, Dodd DJ, Salazar-Puerta A, **Moore JT**, Lawrence WR, Nairon K, Francis C, Zachariah N, McCoy W, Turaga R, Skardal A, Carson WE, Higueta-Castro N, Gallego-Perez D. **In Situ Deployment of Engineered Extracellular Vesicles into the Tumor Niche via Myeloid-Derived Suppressor Cells.** *Adv Healthc Mater.* 2021 Oct 18:e2101619. doi: 10.1002/adhm.202101619. Epub ahead of print. PMID: 34662497.

Lemmerman LR, Balch MHH, **Moore JT**, Alzate-Correa D, Rincon-Benavides MA, Salazar-Puerta A, Gnyawali S, Harris HN, Lawrence W, Ortega-Pineda L, Wilch L, Risser IB, Maxwell AJ, Duarte-Sanmiguel S, Dodd D, Guio-Vega GP, McTigue DM, Arnold WD, Nimjee SM, Sen CK, Khanna S, Rink C, Higueta-Castro N, Gallego-Perez D. **Nanotransfection-based vasculogenic cell reprogramming drives functional recovery in a mouse model of ischemic stroke.** *Sci Adv.* 2021 Mar 19;7(12):eabd4735. doi: 10.1126/sciadv.abd4735. PMID: 33741587; PMCID: PMC7978431.

Moore JT, Wier CG, Lemmerman LR, Ortega-Pineda L, Dodd DJ, Lawrence WR, Duarte-Sanmiguel S, Dathathreya K, Diaz-Starokozheva L, Harris HN, Sen CK, Valerio IL, Higueta-Castro N, Arnold WD, Kolb SJ, Gallego-Perez D. **Nanochannel-Based Poration Drives Benign and Effective Nonviral Gene Delivery to Peripheral Nerve Tissue.** *Adv Biosyst.* 2020 Nov;4(11):e2000157. doi: 10.1002/adbi.202000157. Epub 2020 Sep 16. PMID: 32939985; PMCID: PMC7704786.

Shukla VC, Duarte-Sanmiguel S, Panic A, Senthilvelan A, **Moore J**, Bobba C, Benner B, Carson WE 3rd, Ghadiali SN, Gallego-Perez D. **Reciprocal Signaling between Myeloid Derived Suppressor and Tumor Cells Enhances Cellular Motility and is Mediated by Structural Cues in the Microenvironment.** *Adv Biosyst.* 2020 Jun;4(6):e2000049. doi: 10.1002/adbi.202000049. Epub 2020 May 18. PMID: 32419350; PMCID: PMC7489303.

Diaz-Starokozheva L, Das D, Gu X, **Moore JT**, Lemmerman LR, Valerio I, Powell HM, Higueta-Castro N, Go MR, Palmer AF, Gallego-Perez D. **Early Intervention in Ischemic Tissue with Oxygen Nanocarriers Enables Successful Implementation of Restorative Cell Therapies.** *Cell Mol Bioeng.* 2020 May 29;13(5):435-446. doi: 10.1007/s12195-020-00621-4. PMID: 33184576; PMCID: PMC7596150.

Duarte-Sanmiguel S, Shukla V, Benner B, **Moore J**, Lemmerman L, Lawrence W, Panic A, Wang S, Idzkowski N, Guio-Vega G, Higueta-Castro N, Ghadiali S, Carson WE, Gallego-Perez D. **Guided migration analyses at the single-clone level uncover cellular targets of interest in tumor-associated myeloid-derived suppressor cell populations.** *Sci Rep.* 2020 Jan 27;10(1):1189. doi: 10.1038/s41598-020-57941-8. PMID: 31988310; PMCID: PMC6985212.

Gallego-Perez D, Pal D, Ghatak S, Malkoc V, Higueta-Castro N, Gnyawali S, Chang L, Liao WC, Shi J, Sinha M, Singh K, Steen E, Sunyecz A, Stewart R, **Moore J**, Ziebro T, Northcutt RG, Homsy M, Bertani P, Lu W, Roy S, Khanna S, Rink C, Sundaresan VB, Otero JJ, Lee LJ, Sen CK. **Topical tissue nano-transfection mediates non-viral stroma reprogramming and rescue.** *Nat Nanotechnol.* 2017 Oct;12(10):974-979. doi: 10.1038/nnano.2017.134. Epub 2017 Aug 7. PMID: 28785092; PMCID: PMC5814120.

BOOK CHAPTER

Lemmerman L. R., **Moore J. T.**, Goebel E.R., Maxwell A. J., Deguzman J., Gallego-Perez D. **Nanotechnology for Manipulating Cell Plasticity.** Nanomedicine in the series of Micro/Nano Technologies (ed Ning Gu). (2023) Springer Major Reference Works. doi: 10.1007/978-981-16-8984-0_21

Moore J, Alzate-Correa D, Dasgupta D, Lawrence W, Dodd D, Mathews C, Valerio I, Rink C, Higueta-Castro N, Gallego-Perez D. **Micro- and Nanoscale Biointerrogation and Modulation of Neural Tissue – From Fundamental to Clinical and Military Applications.** *In Nanotechnology and Microfluidics* (eds X. Jiang, C. Bai and M. Liu). (2020)

RESEARCH EXPERIENCE

Postdoctoral Fellow (NINDS/NIH)

2023 – Present

Postdoctoral Scholar, Stanford University

Mentor: Sarah C. Heilshorn

Co-Mentor: Marion Buckwalter

- *Designing injectable hydrogels as drug carriers to repair the blood-brain-barrier through promoting vascular maturation and treating neuroinflammation through modulating infiltration of peripheral immune cells in a mouse distal middle cerebral artery occlusion model.*

Graduate Research Fellow (NINDS/NIH)

2021 – 2022

Graduate Student, Nanomedicine Lab, Ohio State University

Advisor: Daniel Gallego Perez

- *Designed and performed experiments applying nanoscale tissue nano-transfection to nerve injury/repair at the nerve and muscle level*
- *Performed cell culture experiments to investigate cellular reprogramming capabilities*

Graduate Research Associate

2018 – 2022

Graduate Student, Nanomedicine Lab, Ohio State University

Advisor: Daniel Gallego Perez

- *Designed and performed experiments applying nanoscale tissue nano-transfection to nerve injury/repair applications and other neurodegenerative conditions*
- *Performed cell culture experiments to investigate cellular reprogramming capabilities*
- *Provided peer-review of manuscripts for journals*
- *Performed literature reviews and contributed to grant writing for DoD and NIH applications*

Summer Graduate Intern

2021 – Present

Intern, In Vitro Core Lab, Air Force Research Lab, Wright Patterson Air Force Base, Dayton, OH

Advisor: M. Tyler Nelson, Ph.D.

- *Designed and optimized protocols for a high-throughput, two-compartment, organ-on-a-chip platform to model tissue innervation using human induced pluripotent stem cells*
- *Performed micro-electrode array experiments investigating the impact of neuronal density and axonal length on excitability and synchrony in response to stimuli*
- *Presented findings at branch meetings and symposia*

Research Assistant

2016 - 2018

Laboratory Manager, Dr. Daniel Gallego-Perez Lab, Ohio State University

- *Performed in vivo transfections and assisted with tissue collection of rodents*
- *Performed immunohistochemistry (ICC, IF, DAB)*
- *Performed RNA and DNA isolation, cDNA synthesis, and qRT-PCR*
- *Assisted with electrophysiology measurements of rodents*
- *Worked with adherent cell cultures*

Volunteer Research Assistant

2015 – 2016

Dr. Daniel Gallego-Perez Lab

Major Topics:

- *Non-Viral Gene Delivery to Peripheral Nerve through a Nanostructured Chip Platform*

Research Assistant 1 B/H

2015 – 2016

Laboratory Manager, Laser-Capture Molecular (LCM) Core Lab, Ohio State University

- *Managed the Laser Capture Molecular Core facility that currently houses two state-of-the-art laser capture microdissection instruments*
- *Managed and coordinated facility operational budgets and fiscal forecasting – analyzed and reconciled financial reports*
- *Presented facility growth, financial activities and fiscal projection in the monthly advisory meetings*
- *Managed one staff, multiple students, and supervised facility users*
- *Involved in hiring, coaching and mentoring staffs*
- *Coordinated research projects with several principal investigators (PIs) within OSU*
- *Implemented a new inventory management system*

TEACHING EXPERIENCE

Graduate Teaching Assistant

2018 – 2019

Department of Biomedical Engineering, Ohio State University

TA for undergraduate tissue-engineering, mechanobiology, and bioimaging labs (approximately 25 students)

- *Guided students through introductory labs of biomechanics, cell/tissue engineering, and imaging*
- *Performed demonstrations in a cleanroom facility for photolithography*

TA for undergraduate nanotechnology introductory course (approximately 25 students)

- *Created quiz questions over lecture material*
- *Created rubrics and graded assignments*
- *Guest lecture for nanotechnology used in mechanobiology*

Guest Lecture: Intro to Biomedical Engineering (BME 2000, approximately 75 students)

- *Presented a lecture on nanotechnology/nanomedicine*

CONFERENCE PRESENTATIONS

ORAL PRESENTATION

J. Moore, J. Winograd, I. Valerio, S. Kolb, W. D. Arnold, D. Gallego-Perez.

“Nanotransfection-Driven Cell-Reprogramming Strategies for Peripheral Nerve Injury”.

Podium Presentation at the Neurological Research Institute Retreat, Columbus, OH, November 2021

J. Moore, N. Higueta-Castro, C. Wier, S. Kolb, I. Valerio, D. Gallego-Perez. “Tissue nano-transfection promotes localized delivery of therapeutics to the peripheral and/or central nervous system via minimally invasive methods”. Podium Presentation at the 5th Annual Engineering in Healthcare: Industry and Research Symposium, Columbus, OH, February 2020

J. Moore, N. Higueta-Castro, C. Wier, S. Kolb, I. Valerio, D. Gallego-Perez. “Tissue nano-transfection promotes localized delivery of therapeutics to the peripheral and/or central nervous system via minimally invasive methods”. Tissue Engineering Regenerative Medicine International Society, Orlando, FL, December 2019

J. Moore, Natalia Higueta-Castro, Maria Balch, Hallie N. Harris, William Lawrence, Richard Stewart, Alec Sunycz, Chandan K. Sen, Savita Khanna, Cameron Rink, Daniel Gallego-Perez. “Nano-reprogrammed Cell Intervention Targets Brain Injury Recovery”. Podium Presentation at 13th Annual Davis Heart and Lung Research Day, Columbus, OH, March 2018

N. Higueta-Castro, C. Wier, **J. Moore**, A. Sunyecz, C. Sen, J. Otero, S. Kolb, D. Gallego- Perez. "Novel Non-Viral Approaches for Gene Delivery to Peripheral Nerves". Podium Presentation at 3rd Annual Engineering in Healthcare: Industry and Research Symposium, Columbus, OH, March 2018

POSTER PRESENTATIONS

Moore J, Lemmerman LR, Wier C, Balch MHH, Harris H, Albert J, Winograd J, Valerio I, Higueta-Castro N, Arnold WD, Gallego-Perez D. "Nanoscale Reprogramming Strategies for Neurovascular Repair". Keystone Symposia, Whistler, BC (2023)

Moore J, Albert J, Winograd J, Valerio I, Arnold WD, Gallego-Perez D. "Nanotransfection-Driven Neurogenic Reprogramming in Skeletal Muscle Provides Protection Following Denervation". Society for Neuroscience, San Diego, CA (2022)

Moore J, Winograd J, Valerio I, Arnold WD, Gallego-Perez D. "Nanotransfection-Driven Neurogenic Reprogramming in Skeletal Muscle Plays a Protective Role following Denervation". Military Health Systems Research Symposium, Kissimmee, FL (2021)

Moore J, Ewees M, Zweier J, Gallego-Perez D, Hannawi Y. "Abstract P54: Endothelial Cells and Pericytes Collection Using Laser Capture Microdissection in Spontaneously Hypertensive Stroke Prone Rats". International Stroke Conference (2021)

Moore J, Higueta-Castro N, Wier C, Valerio I, Kolb S, Gallego-Perez D. "Non-viral delivery of gene and cell-based therapeutics mediate peripheral and central nervous system changes in vivo". Society for Neuroscience, San Diego, CA, (2019)

Moore J, Higueta-Castro N, Wier C, Kolb S, Valerio I, Gallego-Perez D. "Tissue nano-transfection promotes localized delivery of therapeutics to the peripheral and/or central nervous system via minimally invasive methods". 5th Annual Engineering in Healthcare: Industry and Research Symposium, Columbus, OH (2020)

- *1st Place Graduate Student Poster*

Higueta-Castro N, Wier C, **Moore J**, Sunyecz A, Sen C, Otero J, Kolb S, Gallego- Perez D. "Novel Non-Viral Approaches for Gene Delivery to Peripheral Nerves". Poster Presentation at Target Nucleic Acid Detection & Delivery, South Bend, IN (2018)

Higueta-Castro N, Wier C, **Moore J**, Sunyecz A, Sen C, Otero J, Kolb S, Gallego- Perez D. "Non-Viral Gene Delivery to Peripheral Nerve through a Nanostructured Chip Platform". Poster Presented at Biomedical Engineering Society Meeting, Minneapolis, MN (2016)

INVITED TALKS

Biomedical Engineering, Rensselaer Polytechnic Institute, Troy, NY (March 2022)
Biomedical Engineering, Brown University, Providence, RI (February 2022)

PROFESSIONAL ACTIVITIES AND SERVICE

STANFORD UNIVERSITY

- Participant, Pathways to Neuroscience (NIH R25), 2023-2025
- Events Coordinator, Stanford Black Postdoc Associationm 2023
- Member, GLAM Inclusion & Belonging Council, 2023-Present
- Member, GLAM Postdoc Committee, 2023-Present

OHIO STATE UNIVERSITY

- Student Representative, Biomedical Engineering Diversity Committee, 2020-2022
- President, Biomedical Engineering Graduate Student Association, 2020-2021

PEER-REVIEWER

- Bioengineering & Translational Medicine

PROFESSIONAL DEVELOPMENT

- Diverse Scholars Conference, 2023
- NextProf Nexus Workshop, 2022
- WashU in St. Louis Rising BME Scholars Conference, 2022
- NSF Dissertation Institute Workshop, UT Dallas & Virginia Tech, 2021

MENTORSHIP

- Judge, Gabriela Mistral Elementary School Science Fair, 2023
 - Evaluated science fair projects for K-5 students
- Graduate Student Book Club, 2021-2022
 - Guided discussions with graduating student on 'owning' their degree and preparing for life after graduation
- Graduate Student Alumni and Peer Mentoring Program (GUIDE), 2020-2022
 - Peer mentor to our new first-year engineering graduate students as they begin their studies at Ohio State
- Discovery Prep Post Baccalaureate Program, Volunteer, 2020-2022
 - Mentor students through their gap year and provide guidance in the graduate school application process and transition

Students

- Meghan Hefferon, 2023
 - Postbac/Research Staff, Materials Science & Engineering, Stanford University
- Priya Verma 2022
 - *Current Undergraduate Student, Neuroscience, Ohio State University*
- Tyler Morris 2021 – 2022
 - *M.S. Student, Biomedical Engineering, Ohio State University*
- Jordin Marshall 2021 – 2022
 - *Current Ph.D. Student, Biomedical Engineering, Ohio State University*
- Rebecca Shaheen 2020 - 2021
 - *Current Ph.D. Student, Biomedical Engineering, Ohio State University*
- Sedzro Tamakloe 2020 – 2021
 - *Current Ph.D. Student, Material Science Engineering, Ohio State University*
- Marie Tawfik 2021 – 2022
 - *Current Undergraduate Student, Biomedical Engineering, Ohio State University*
- Hani Abou Amro 2020 – 2022
 - *Current Undergraduate Student, Neuroscience, Ohio State University*
- Luke Lemmerman, 2019
 - *Undergraduate Student, Biomedical Engineering, Ohio State University*
- William Lawrence, 2018
 - *PhD, Biomedical Sciences, Ohio State University*
- Jamilah Henry 2018 – 2022
 - *Undergraduate Student, Biology, Ohio State University*
- David Guzior 2018 – 2019
 - *Project Manager at Epic*
 - *Undergraduate, Biomedical Engineering, Ohio State University*
- Daniel Dodd 2018 – 2019
 - *Ph.D., Biomedical Sciences Graduate Program, Ohio State University*
- Rishabh Sinha 2016 – 2017
 - *Program Manager at Mastercard*

AFFILIATIONS

Society for Neuroscience (**SfN**), Biomedical Engineering Society (**BMES**), American Society of Engineering Education (**ASEE**), Tissue Engineering and Regenerative Medicine International Society (**TERMIS**)

REFERENCES

Daniel Gallego Perez	The Ohio State University	Gallegoperez.1@osu.edu
Natalia Higuiter Castro	The Ohio State University	Higuitacastro.1@osu.edu
Dana McTigue	The Ohio State University	dana.mctigue@osumc.edu
W. David Arnold	The Ohio State University	William.arnold@osumc.edu