

Sebastián L. Vega

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Education

Rutgers University

Doctor of Philosophy in Chemical and Biochemical Engineering (2014)

Carnegie Mellon University

Bachelor of Science in Chemical Engineering (2006)

Carnegie Mellon University

Bachelor of Science in Biomedical Engineering (2006)

Research Appointments

Rowan University

Assistant Professor (2018 – Present)
Department of Biomedical Engineering

University of Pennsylvania

Postdoctoral Researcher (2015 – 2018)
Department of Bioengineering
Advisor: Jason A. Burdick

University of Twente

Visiting Scholar (2014)
Department of Tissue Regeneration
Advisor: Jan de Boer

Rutgers University

Graduate Research Assistant (2008 – 2014)
Department of Chemical and Biochemical Engineering
Advisors: Prabhas V. Moghe and Joachim Kohn

Industry Experience

Samsung Austin Semiconductor

Process Engineer (2006 – 2008)

L'Oreal USA

Research and Development Intern (2005)

Westinghouse Electric Corporation

Risk Assessment Intern (2004)

Awards

- ORS New Investigator Recognition Award (NIRA) Finalist (2022)
- Frances R. Lax Fund for Faculty Development (2019)
- NSF ASSIST Travel Award (2018)
- SFB Student Travel Achievement Recognition (STAR) Award (2017)
- NSF Center for Engineering MechanoBiology Research Fellowship (2017 – 2018)
- Compact for Faculty Diversity Travel Award (2016)
- NSF International Internship Travel Award (2014)
- NSF Mini-Grant on Innovation through Institutional Integration (2013)
- NSF Diversity Service and Excellence Award Fellowship (2012)
- NSF Stem Cell IGERT Fellowship (2009 – 2012)
- Rutgers University Graduate School Diversity Fellowship (2008)

Publications

In Preparation

2. KA Gultian, R Gandhi, A Copling, K DeCesari, TW Kim, **SL Vega**. Peptide-functionalized hyaluronic acid hydrogels crosslinked via tetrazine-norbornene chemistry. *Biomaterials*, **expected submission Dec. 2021**.
1. M DiCerbo, MM Benmassaoud, **SL Vega**. Porous scaffolds perfused with cell-laden hydrogels spatially regulate 3D cell morphology and YAP signaling. *Frontiers in Medical Technology – Regenerative Technologies*, **expected submission Feb. 2022**.

Submitted & Under Review

3. KA Gultian, R Gandhi, K Sarin, M Sladkova, M Zimmer, **SL Vega**. Human induced mesenchymal stem cells have increased sensitivity to matrix stiffness. *Stem Cell Reports*, **submitted**.
2. A Simon, G Gilbert, S Weiss, A Fisher, P Johnsen, B Herb, **SL Vega**, E Bodofsky, DA Fuller. Comparison of loose versus tight suture repair techniques in nerve tissue undergoing Wallerian degeneration in a rat model. *HAND*, **submitted**.
1. AP Liu, EA Appel, PD Ashby, BM Baker, E Franco, L Gu, K Haynes, NS Joshi, AM Kloxin, PHJ Kouwer, J Mittal, L Morsut, V Noireaux, S Parekh, R Shulman, SKY Tang, MT Valentine, **SL Vega**, W Weber, N Stephanopoulos, O Chaudhuri. The 'living interface': a bridge between synthetic biology and biomaterials. *Nature Materials*, **submitted second revision Sept. 2021**.

Published

18. S Trujillo, **SL Vega**, KH Song, AS Félix, MJ Dalby, JA Burdick, M Salmeron-Sanchez. Engineered full-length fibronectin-hyaluronic acid hydrogels for stem cell engineering. *Advanced Healthcare Materials* **2020**. 9(21), 2000989.
17. MM Benmassaoud, KA Gultian, M DiCerbo, **SL Vega**. Hydrogel screening approaches for bone and cartilage tissue regeneration. *Annals of the New York Academy of Sciences* **2020**. 1460(1), 25.
16. **SL Vega**, V Arvind, P Mishra, J Kohn, NS Murthy, PV Moghe. Substrate micropatterns produced by polymer demixing regulate focal adhesions, actin anisotropy, and lineage differentiation of stem cells. *Acta Biomaterialia* **2018**. 76, 21.
15. MY Kwon, **SL Vega**, WM Gramlich, M Kim, RL Mauck, JA Burdick. Dose and timing of N-cadherin mimetic peptides regulate MSC chondrogenesis within hydrogels. *Advanced Healthcare Materials* **2018**. 7(9), 170199.
14. **SL Vega**, MY Kwon, KH Song, C Wang, L Han, RL Mauck, JA Burdick. Combinatorial hydrogels with biochemical gradients for screening 3D cellular microenvironments. *Nature Communications* **2018**. 9(1), 614.
13. YC Yeh, EA Corbin, SR Caliarì, L Ouyang, **SL Vega**, R Truitt, L Han, KB Margulies, JA Burdick. Mechanically dynamic PDMS substrates to investigate changing cell environments. *Biomaterials* **2017**. 145, 23.
12. AM Rosales, **SL Vega**, FW DelRio, JA Burdick, KS Anseth. Hydrogels with reversible mechanics to probe dynamic cell microenvironments. *Angewandte Chemie* **2017**. 56(40), 12132.
11. **SL Vega**, E Liu, V Arvind, J Bushman, HJ Sung, ML Becker, S Lelièvre, J Kohn, PA Vidi, PV Moghe. High-content image informatics of the structural protein NuMA parses trajectories for stem/progenitor cell lineages and oncogenic transformation. *Experimental Cell Research* **2017**. 351(1), 11.
10. **SL Vega**, MY Kwon, JA Burdick. Recent advances in hydrogels for cartilage tissue engineering. *European Cells and Materials* **2017**. 33, 59.
9. E Liu, **SL Vega**, A Dhaliwal, MD Treiser, HJ Sung, PV Moghe. High-resolution fluorescence imaging of cell-biomaterial interactions. In *Comprehensive Biomaterials II*, Elsevier, **2017**.
8. SR Caliarì*, **SL Vega***, MY Kwon, EM Soulas, JA Burdick. Dimensionality and spreading influence MSC YAP/TAZ signaling in hydrogel environments. *Biomaterials* **2016**. 103, 314.

7. **SL Vega**, MY Kwon, RL Mauck, JA Burdick. Single cell imaging to probe mesenchymal stem cell N-cadherin mediated signaling within hydrogels. *Annals of Biomedical Engineering* **2016**. 44(6), 1921.
6. **SL Vega***, A Dhaliwal*, V Arvind, PJ Patel, NRM Beijer, J de Boer, NS Murthy, J Kohn, PV Moghe. Organizational metrics of interchromatin speckle factor domains: integrative classifier for stem cell adhesion & lineage signaling. *Integrative Biology* **2015**. 7(4), 435.
5. SD Sommerfeld, Z Zhang, M Costache, **SL Vega**, J Kohn. Enzymatic surface erosion of high tensile strength polycarbonates based on natural phenols. *Biomacromolecules* **2014**. 15(3), 830.
4. YJ Lee, **SL Vega**, PJ Patel, KA Aamer, PV Moghe, MT Cicerone. Quantitative, label-free characterization of stem cell differentiation at the single-cell level by broadband coherent anti-Stokes Raman scattering microscopy. *Tissue Engineering Part C: Methods* **2013**. 20(7), 562.
3. JJ Kim, **SL Vega**, PV Moghe. A high content imaging-based approach for classifying cellular phenotypes. *Methods in Molecular Biology* **2013**. 1052, 41.
2. **SL Vega***, E Liu*, PJ Patel, AB Kulesa, AL Carlson, Y Ma, ML Becker, PV Moghe. High-content imaging-based screening of microenvironment-induced changes to stem cells. *Journal of Biomolecular Screening* **2012**, 17(9), 1151.
**Selected as Feature Cover.
1. E Liu, **SL Vega**, MD Treiser, HJ Sung, PV Moghe. Fluorescence imaging of cell-biomaterial interactions. In *Comprehensive Biomaterials*, Elsevier, **2011**.

* Authors contributed equally

Patents

1. V Beachley, **SL Vega**, D Jao. Synthetic aligned tissue grafts and methods of using the same. *U.S. Provisional Patent Application No. 63/194,316*. May 2021.

Presentations

61. K Gultian*, R Gandhi, TW Kim, **SL Vega**. Self-forming hydrogels for tissue engineering applications. *Biomedical Engineering Society (BMES) Annual Meeting*, Oct. 2021, Orlando, FL.
60. R Gandhi*, K Gultian, K Sarin, M Sladkova, GM de Peppo, **SL Vega**. Assessing the morphology and mechanosensing ability of induced pluripotent stem cells. *BMES Annual Meeting*, Oct. 2021, Orlando, FL.
59. M Butani*, K Driscoll, **SL Vega**. Decellularized plant tissue microtopography regulates stem cell behavior. *BMES Annual Meeting*, Oct. 2021, Orlando, FL.
58. K Driscoll*, M Butani, **SL Vega**. Decellularized plant tissues for biomedical applications. *BMES Annual Meeting*, Oct. 2021, Orlando, FL.
57. A Pacheco Benitez*, B Herb, **SL Vega**. 3D light-degradable hydrogels to study dynamic cell environments. *BMES Annual Meeting*, Oct. 2021, Orlando, FL.
56. M Benmassaoud*, V Carabetta, **SL Vega**. Antimicrobial peptide screening to develop Staphylococcal-resistant films. *The 2021 New York Bacillus Interest Group Annual Symposium*, June 2021, New York, NY.
55. **SL Vega***. Self-forming hyaluronic acid hydrogels for biomedical applications. *Center for Engineering MechanoBiology Seminar*, May 2021, Philadelphia, PA.
54. M Dicerbo, M Benmassaoud, K Gultian, S Miskiel, TW Kim, **SL Vega***. Porous scaffold-hydrogel composite for osteochondral tissue engineering. *Society for Biomaterials World Biomaterials Congress 2020*, Dec. 2020, Virtual.
53. **SL Vega***. Peptide-functionalized hydrogels for biomedical applications. *Cooper Medical School of Rowan University Seminar*, Nov. 2020, Virtual.

52. K Driscoll*, M Butani, **SL Vega**. Stem cell behavior and osteogenic differentiation in plant tissue scaffold materials. *BMES Annual Meeting*, Oct. 2020, Virtual.
51. N Belanger*, C Burns, **SL Vega**, V Beachley. Creating aligned polycaprolactone nanofiber hydrogel composites through layer-by-layer assembly. *BMES Annual Meeting*, Oct. 2020, Virtual.
50. R Gandhi*, K Gultian, TW Kim, **SL Vega**. Gelatin-based bioactive hydrogels for bone tissue engineering applications. *BMES Annual Meeting*, Oct. 2020, Virtual.
49. **SL Vega***. Stem cell therapy: Basic science and current regulations overview. *Regenerative Medicine and Orthobiologics Symposium*, Sept. 2020, Cherry Hill, NJ.
48. **SL Vega***. Hydrogel-based engineering of cellular microenvironments. *Cooper Cancer Research Showcase*, March 2020, Camden, NJ.
47. K Gultian, A Quinones, S Miskiel, TW Kim, **SL Vega***. Osteogenic biomarker expression of mesenchymal stem cells in response to substrate dimensionality and stiffness. *Orthopaedic Research Society (ORS) Annual Meeting*, Feb. 2020, Phoenix, AZ.
46. M Dicerbo, M Benmassaoud, S Miskiel, TW Kim, **SL Vega***. Scaffold-hydrogel composite for osteochondral tissue engineering. *ORS Annual Meeting*, Feb. 2020, Phoenix, AZ.
45. **SL Vega***. Hydrogels to investigate stem cell-material interactions. *New York Stem Cell Foundation Seminar*, Oct. 2019, New York, NY.
44. K Gultian*, **SL Vega**. Injectable gelatin-based hydrogels for biomedical applications. *BMES Annual Meeting*, Oct. 2019, Philadelphia, PA.
43. M Benmassaoud*, K Driscoll, GM de Peppo, **SL Vega**. Differences in mechanosensing between MSCs and iPSC derived MSCs. *BMES Annual Meeting*, Oct. 2019, Philadelphia, PA.
42. CJ Robinson*, ME Lowe, M Benmassaoud, **SL Vega**. Stiffness-mediated changes in cell-to-nuclear area of mesenchymal stem cells. *BMES Annual Meeting*, Oct. 2019, Philadelphia, PA.
41. A Quinones*, K Gultian, S Miskiel, TW Kim, **SL Vega**. Effects of dimensionality and stiffness on osteogenic biomarker expression of mesenchymal stem cells. *BMES Annual Meeting*, Oct. 2019, Philadelphia, PA.
40. S Naranjo*, A Venkatakrisnan, **SL Vega**, D Jariwala. Graphene-based microdevices to probe effects of electrical stimulation on stem cell behavior. *BMES Annual Meeting*, Oct. 2019, Philadelphia, PA.
39. DE Mason*, **SL Vega**, SJ Heo, R Daniels, ED Bonnevie, JA Burdick, RL Mauck, JD Boerckel. Transcriptional control of cytoskeletal remodeling and cell motility. *BMES Annual Meeting*, Oct. 2019, Philadelphia, PA.
38. DE Mason*, **SL Vega**, SJ Heo, R Daniels, ED Bonnevie, JA Burdick, RL Mauck, JD Boerckel. Transcriptional control of cytoskeletal remodeling and cell motility. *Society of Engineering Science Annual Meeting*, Oct. 2019, St. Louis, MO.
37. K Gultian*, A Quinones, S Miskiel, TW Kim, **SL Vega**. Single-cell osteogenic biomarkers to evaluate biomaterials for bone tissue engineering. *Life Sciences Future – BioPharm*, Oct. 2019, King of Prussia, PA.
36. M Dicerbo*, M Benmassaoud, S Miskiel, TW Kim, **SL Vega**. Biomaterial composite to recreate the osteochondral interface. *Carnegie Mellon Forum on Biomedical Engineering*, Sept. 2019, Pittsburgh, PA.
35. K Gultian*, A Quinones, S Miskiel, TW Kim, **SL Vega**. Evaluating the progression of mesenchymal stem cell osteogenic biomarker expression in response to biomaterial properties. *Carnegie Mellon Forum on Biomedical Engineering*, Sept. 2019, Pittsburgh, PA.
34. **SL Vega***. Hydrogels for bone and cartilage tissue engineering. *Cooper Bone and Joint Institute Research Day*, June 2019, Camden, NJ.

33. S Furman*, S Naranjo, K Gultian, **SL Vega**. Microenvironmental factors regulate mesenchymal stem cell Notch and YAP signaling. *Rowan University Student Scholars Symposium*, March 2019, Glassboro, NJ.
32. JH Galarraga*, **SL Vega**, MY Kwon, JA Burdick. Combinatorial screening of 3D printable bioinks for cartilage repair. *Society for Biomaterials (SFB) Annual Meeting*, April 2019, Seattle, WA.
31. S Furman*, S Naranjo, K Gultian, A Loneker, RG Wells, **SL Vega**. Effects of substrate stiffness and cell-cell contact area on stem cell signaling. *Northeast Bioengineering Conference*, March 2019, Piscataway, NJ.
30. **SL Vega***. Gelatin-based hydrogels for musculoskeletal tissue engineering. *Northeast Bioengineering Conference*, March 2019, Piscataway, NJ.
29. **SL Vega***. Engineering stem cell microenvironments for tissue engineering applications. *Society of Hispanic Professional Engineers (SHPE) Engineering Science Symposium*, Nov. 2018, Cleveland, OH.
28. AM Rosales*, **SL Vega**, FW DelRio, JA Burdick, KS Anseth. Reversible control of hydrogel mechanics with irreversible photo-mediated reactions. *American Institute of Chemical Engineers (AIChE) Annual Meeting*, Oct. 2018, Pittsburgh, PA.
27. **SL Vega***, JA Burdick. Engineering stem cell microenvironments for cartilage repair. *7th Annual Musculoskeletal Repair and Regeneration Symposium*, Oct. 2018, New York, NY.
26. **SL Vega***. Hydrogels formed by click chemistry for investigating cellular microenvironments. *Advancing Research in Camden: A Rowan University-Wide Research Symposium*, Oct. 2018, Camden, NJ.
25. **SL Vega***. A hydrogel screening platform for cartilage tissue engineering. *2018 Cartilage Repair Symposium*, Sept. 2018, Philadelphia, PA.
24. J Galarraga, **SL Vega**, L Ouyang, C Highley, JA Burdick*. Extrusion-based 3D printing of biodegradable hydrogels. *8th World Congress of Biomechanics*, July 2018, Dublin, Ireland.
23. AM Rosales*, **SL Vega**, FW DelRio, JA Burdick, KS Anseth. Recapitulating physical changes in the extracellular matrix with dynamic hydrogels. *SFB Annual Meeting*, Apr. 2018, Atlanta, GA.
22. **SL Vega***, MY Kwon, J Durel, KH Song, C Wang, RL Mauck, L Han, JA Burdick. A hydrogel platform to probe the influence of engineered microenvironments on stem cell fate. *Northeast Bioengineering Conference*, March 2018, Philadelphia, PA.
21. **SL Vega***, J Durel, MY Kwon, RL Mauck, JA Burdick. Combinatorial hydrogels with biochemical gradients for probing cell-ECM interactions. *Penn Center for Musculoskeletal Disorders Symposium*, Nov. 2017, Philadelphia, PA.
20. L Chin*, **SL Vega**, AE Loneker, JA Burdick, PA Janmey, RG Wells. Mechanics and hepatocyte behavior in non-alcoholic fatty liver disease. *Physical Sciences-Oncology Network Annual Investigators Meeting*, Oct. 2017, Boston, MA.
19. J Durel*, **SL Vega**, JA Burdick. High-throughput single-cell analysis of MSC mechanosensing. *BMES Annual Meeting*, Oct. 2017, Phoenix, AZ.
18. S Trujillo*, **SL Vega**, JA Burdick, MJ Dalby, M Salmerón-Sánchez. Fibronectin-based hydrogel systems as new 3-dimensional microenvironments for tissue regeneration. *Federation of European Biomedical Societies Workshop: Biological Surfaces and Interfaces*, July 2017, Catalonia, Spain.
17. **SL Vega***, KH Song, C Wang, L Han, JA Burdick. Combinatorial hydrogels and rapid single cell imaging to investigate chondrogenesis in 3D." *Penn Orthopaedics Cartilage Repair Symposium*, April 2017, Philadelphia, PA.
16. **SL Vega***, KH Song, JA Burdick. Combinatorial hydrogels for deciphering the role of cell-hydrogel interactions in MSC chondrogenesis. *SFB Annual Meeting*, April 2017, Minneapolis, MN.
15. YC Yeh*, SR Caliarì, **SL Vega**, L Ouyang, L Han, JA Burdick. Modulation of cellular response using mechanically dynamic PDMS substrates. *SFB Annual Meeting*, April 2017, Minneapolis, MN.

14. **SL Vega***, KH Song, C Wang, L Han, JA Burdick. Combinatorial hydrogels and rapid single cell imaging to investigate chondrogenesis in 3D. *Penn Center for Musculoskeletal Disorders Symposium*, Nov. 2016, Philadelphia, PA.
13. **SL Vega***, KH Song, C Wang, L Han, JA Burdick. A combinatorial hydrogel platform to probe stem cell chondrogenesis in 3D. *New Jersey Center for Biomaterials Symposium*, Oct. 2016, Iselin, NJ.
12. **SL Vega***, KH Song, JA Burdick. Development of a combinatorial hydrogel platform for screening 3D cell-biomaterial interactions. *BMES Annual Meeting*, Oct. 2016, Minneapolis, MN.
11. **SL Vega***, SR Caliarì, JA Burdick. Cell spreading in 3D hydrogels regulates YAP localization. *Society for Biomaterials World Biomaterials Congress*, May 2016, Montreal, Canada.
10. V Arvind*, **SL Vega**, L McCabe, PV Moghe, NS Murthy, J Kohn. Modulating stem cell-substrate interactions and differentiation by controlling substrate topography via microphase separation. *Society for Biomaterials World Biomaterials Congress*, May 2016, Montreal, Canada.
9. **SL Vega***, MY Kwon, JA Burdick. Single cell imaging to probe early stem cell chondrogenesis in hydrogels. *Penn Center for Musculoskeletal Disorders Symposium*, Nov. 2015, Philadelphia, PA.
8. **SL Vega***, MY Kwon, JA Burdick. Fluorescent imaging to probe MSC chondrogenesis and matrix production in hydrogels. *BMES Annual Meeting*, Oct. 2015, Tampa, FL.
7. MY Kwon*, **SL Vega**, RL Mauck, JA Burdick. Influence of N-cadherin peptide dose and timing on MSC chondrogenesis in 3D HA hydrogels. *BMES Annual Meeting*, Oct. 2015, Tampa, FL.
6. **SL Vega***, PJ Patel, A Freitag, NS Murthy, PV Moghe, J Kohn. Modulating the cellular response by controlling substrate topography via demixing. *New Jersey Center for Biomaterials Symposium*, Oct. 2012, New Brunswick, NJ.
5. E Liu*, **SL Vega**, A Kulesa, H-J Sung, M Becker, J Kohn, PV Moghe. High content imaging-based mapping of stem cell phenotypes. *Stem Cells & Regenerative Medicine World Congress*, Jan. 2011, San Diego, CA.
4. **SL Vega***, E Liu, S Gordonov, PV Moghe. Parsing stem cell behaviors in complex microenvironments via high content imaging and modeling. *BMES Annual Meeting*, Oct. 2010, Austin, TX.
3. **SL Vega***, P Patel, S Gordonov, J Kim, J Kohn, PV Moghe. Utilizing early high-content nuclear features to elucidate downstream stem cell behaviors. *New Jersey Center for Biomaterials Symposium*, Oct. 2010, Bridgewater, NJ.
2. S Gordonov*, **SL Vega**, J Kohn, PV Moghe. Investigation of mesenchymal stem cell proliferation, viability, and differentiation in 3D polymeric scaffolds for tissue regeneration. *Annual National Conference on Undergraduate Research*, April 2010, Missoula, MN.
1. **SL Vega***, S Gordonov, M Treiser, D Cohen, I Androulakis, J Kohn, CS Chen, PV Moghe. Cytoskeleton-based early parsing of human mesenchymal stem cell lineage fates on biomaterials. *BMES Annual Meeting*, Oct. 2009, Pittsburgh, PA.

* Presenting author

Funding

6. Cooper Biomedical Sciences Research Support Funding
Development of Novel Biofilm-Resistant Hydrogel Coatings
PI: Carabetta
Co-PI: Vega
University Grant. **\$7,000.**
Nov. 2021 to Oct. 2022.
5. The Cooper Foundation (402860)
Enzymatically and Light Degradable Hydrogels for In Vitro Sarcoma Disease Modeling.
PI: Kim, Fuller
Co-PI: Vega, Beachley
University Grant. **\$270,000.**
June 2021 to May 2024.
4. National Institutes of Health (R21DC018818)
Handheld 3D Bioprinting of Self-Healing Hydrogels for Vocal Fold Reconstruction
PI: Miri (50%)
Co-PI: Vega (50%)
(R21) National Institute of Deafness and Other Communication Disorders. **\$450,000.**
Aug. 2020 to July 2023.
3. National Science Foundation (2037055)
Peptide-Functionalized Hydrogels that Communicate with Preprogrammed Cells
PI: Vega
Co-PI: Daringer
(EAGER) National Science Foundation Division of Materials Research. **\$250,000.**
Sept. 2020 to Aug. 2022.
2. Penn CEMB Trainee Pilot Award
Graphene-Based Microdevices to Probe Effects of Electrical Stimulation on Stem Cell Behavior
PI: Vega
Co-PI: Arinzeh (NJIT)
Center for Engineering MechanoBiology Pilot Grant **\$10,000.**
1. Camden Health Research Initiative
Injectable Hydrogels for Delivering Biologics to Reduce the Incidence of Osteoporosis-Related Hip Fractures
PI: Vega
Co-PI: Kim
University Grant. **\$150,000.**
Jan. 2019 to Dec. 2021.

Professional Development

- NSF Square-Table 2: Programmable Interfaces Workshop (2019)
Arlington, VA
- NSF ENG CAREER Proposal Writing Workshop (2019)
Organized by Kansas State University, Arlington, VA
- National Effective Teaching Institute (2019)
Organized by ASEE, San Diego, CA
- Faculty Development Symposium (2018)
Organized by SHPE, Cleveland, OH
- Rising Stars in Biomedical Workshop (2017)
MIT, Boston, MA
- Institute on Teaching and Mentoring (2016)
Organized by Compact for Faculty Diversity, Tampa, FL
- Future Faculty Career Exploration Program (2013)
RIT, Rochester, NY

Teaching and Mentoring Experience

Courses at Rowan University

Professor, Biological Transport Phenomena (BME 11.610)

Fall 2018, Fall 2019, Fall 2020

Professor, Introduction to Stem Cell Engineering (BME 11.490)

Spring 2020, Fall 2020, Fall 2021

Professor, Advanced Stem Cell Engineering (BME 11.590)

Spring 2020, Fall 2020, Fall 2021

Courses at Rutgers University

Teaching Assistant, Chemical Engineering Design & Economics I (CBE 14.155.427) (2010)

Instructor: Alkis Constantinides

Teaching Assistant, Thermodynamics I (CBE 14.155.208) (2010)

Instructor: Silvina Tomassone

Graduate Students mentored at Rowan University

- Kirstene Gultian, BME Ph.D. (2018 – Present)
- Mehdi Benmassaoud, BME Ph.D. (2018 – Present)
- Brandon Herb, BME Ph.D. (2019 – Present)
- Cameron Burns, BME M.S. (2019 – Present)
- Matthew Lowe, BME M.S. (2021 – Present)
- Matthew DiCerbo, BME M.S., *Cooper Bone and Joint Institute intern* (2018 – 2021)
- Sarah Furman, BME M.S. (2020 – 2021)

Undergraduate Students mentored at Rowan University

- Katie Driscoll, BME B.S., *Goldwater Scholar* (2018 – Present)
- Shrey Dalwadi, BME B.S. (2020 – Present)
- Kayla DeCesari, BME B.S. (2021 – Present)
- Abby Madden, BME B.S. (2021 – Present)
- Abigail McSweeney, BME B.S. (2021 – Present)
- Aryanna Copling, U-RISE Fellow (2021 – Present)
- Alexis Pacheco Benitez, NSF REU (Summer 2021)
- Sarah Furman, BME B.S., *BME M.S. graduate from Rowan University* (2018 – 2020)
- Sebastian Naranjo, BME B.S., *BME Ph.D. student at Boston University* (2018 – 2020)
- Matthew Lowe, BME B.S., *BME M.S. student at Rowan University* (2019 – 2021)
- Gatha Adhikari, BME B.S., *BioE Ph.D. student at University of Maryland* (2019 – 2021)
- Roshni Gandhi, BME B.S., *Medical student at Cooper Medical School* (2019 – 2021)
- Khushi Sarin, BME B.S. (2019 – 2021)
- Antonio Quinones, NSF REU (Summer 2019)

High School Students mentored at Rowan University

- Maya Butani, Research Assistant (2020 – Present)
- Leila Quatorze, Summer Volunteer (2021)
- Luke Siri, Summer Volunteer (2021)
- Jillian Smith, Summer Volunteer (2021)
- Matthew Rondinella, RISER *BME B.S. student at Georgia Tech* (2019)
- Roshan Patel, RISER *Medical Program student at The College of New Jersey* (2019)

Students mentored at the University of Pennsylvania

- John Durel, NSF Center for Engineering MechanoBiology REU Program (2017)
- Sara Trujillo-Muñoz, Visiting Scholar, BME graduate at University of Glasgow (2016)
- John Bricker, NSF Research Experience for Teachers Program (2016)
- Evan Herlihy, BE graduate (2015)

Students mentored at Rutgers University

- Alejandra Aguilar, NSF RiSE REU Program (2013)
- Varun Arvind, BME undergraduate (2012 – 2014)

- Erica Harris, NSF RiSE REU Program (2012)
- Adam Freitag, CBE undergraduate (2011 – 2012)
- Gabriel Suarez, NSF RiSE REU Program (2011)
- Parth Patel, BME undergraduate (2010 – 2012)
- Anthony Kulesa, BME undergraduate (2010 – 2012)
- Simon Gordonov, BME undergraduate (2008 – 2010)

Professional Service

Institutional Appointments

Committee Member, Health Professions Advisory Committee (2020 – Present)

Committee Member, Institutional Animal Care and Use Committee (2019 – Present)

Academic Outreach

Chair, Biomedical Engineering Outreach (2020 – Present)

Faculty Lead, BioEngineering & Me (BEAM) Program (2021 – Present)

Faculty Lead, RISER Program (2019 – Present)

Faculty Lead, KINDLE Program (2018 – Present)

Conference Organization

Session chair & organizer, SFB World Biomaterials Congress Meeting (2020)

Session co-chair, BMES Annual Meeting, Philadelphia, PA (2019)

Session co-chair, SFB Annual Meeting, Minneapolis MN (2017)

Editorial Boards

Review Editor, Frontiers in Biomaterials Science (2021 – Present)

Guest Editor, JoVE Methods Collection “Recent Advances in Hydrogel Design and Imaging-Based Analysis to Probe Cell-Material Interactions” (2020 – Present)

Journal Reviewer

Frontiers in Bioengineering (2021 – Present)

Current Opinion in Biomedical Engineering (2021 – Present)

Chemical Reviews (2021 – Present)

Drug Delivery and Translational Research (2021 – Present)

Materials Horizons (2020 – Present)

Materials Science & Engineering C (2020 – Present)

Journal of Materials Chemistry B (2020 – Present)

Journal of Cellular Physiology (2020 – Present)

RCS Advances (2019 – Present)

ACS Applied Materials & Interfaces (2019 – Present)

ACS Biomaterials Science & Engineering (2018 – Present)

Acta Biomaterialia (2017 – Present)

Professional Memberships

Affiliate Member, Center for Engineering Mechanobiology (CEMB)

Affiliate Member, Penn Center for Musculoskeletal Diseases (PCMD)

Member, Biomedical Engineering Society (BMES)

Member, Society for Biomaterials (SFB)

Member, Orthopaedic Research Society (ORS)

Member, American Chemical Society (ACS)

Workshop Events

Seminar speaker, Institute on Teaching and Mentoring (2014)

Organizer, skills training workshops at Rutgers University (2013 – 2014)