

Nicole Zeinstra

Ph.D. Candidate

Bioengineering
University of Washington
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Education

- University of Washington, Seattle, WA** 9/2016-
Doctor of Philosophy in Bioengineering
Advisors: Dr. Charles Murry and Dr. Ying Zheng
Thesis Committee: Dr. Michael Regnier, Dr. Kelly Stevens, Dr. Patricia Kuszler
- Massachusetts Institute of Technology, Cambridge, MA** 9/2012-6/2016
Bachelor of Science in Chemical-Biological Engineering
Bachelor of Science in Biology
Concentration in Economics
GPA: 4.7/5.0

Research Experience

- University of Washington, Seattle, WA** 9/2016-
PH.D. CANDIDATE - Bioengineering Department
Developing a pre-vascularized cardiac patch for treatment of myocardial infarction
Advisors: Dr. Charles Murry and Dr. Ying Zheng
- Massachusetts Institute of Technology, Cambridge, MA** 1/2015-5/2016
RESEARCH ASSISTANT - Koch Institute for Integrative Cancer Research
Engineered antigenic nanoparticles for HIV vaccination
Advisor: Dr. Darrell Irvine
- Massachusetts Institute of Technology, Cambridge, MA** 2/2015-6/2015
PROJECT MEMBER - Koch Institute for Integrative Cancer Research
Generated 3D microbead cultures for insulin-producing cells
Advisor: Dr. Paula Hammond
- Massachusetts Institute of Technology, Cambridge, MA** 9/2013-9/2014
RESEARCH ASSISTANT
Genetically modified sulfur-consuming bacteria to desulfurize oil
Advisor: Dr. Daniel I.C. Wang

Professional Experience

- Washington Research Foundation, Seattle, WA** 9/2021-
VENTURE ANALYST
- University of Washington Institute of Translational Health Sciences and Washington Research Foundation, Seattle, WA** 6/2020-8/2020
TECHNOLOGY COMMERCIALIZATION FELLOW
- University of Washington CoMotion, Seattle, WA** 11/2019-
PATENT INTERN 2/2020
- Abbvie Bioresearch Center, Worcester, MA** 5/2015-8/2015
PROCESS DEVELOPMENT INTERN
Optimized feed components for antibody-producing CHO cells

Professional Development

Technology Entrepreneurship Certificate, Foster School of Business, University of Washington	2021
Center for Advanced Study and Research on Innovation Policy (CASRIP)	2019
Summer Institute, University of Washington School of Law	
Dale Carnegie Skills for Success Course	2019

Relevant Coursework

Patent Law (LAW P 508), University of Washington School of Law	Fall 2019
Foundations of Entrepreneurship (ENTRE 509), UW Foster School of Business	Spring 2019
Entrepreneurial Finance (ENTRE 557), UW Foster School of Business	Fall 2019
Entrepreneurial Strategy (ENTRE 510), UW Foster School of Business	Spring 2020
Entrepreneurial Marketing (ENTRE 555), UW Foster School of Business	Spring 2020
Biomedical Entrepreneurship (BIOEN 505)	Spring 2021

Awards & Honors

Ruth L. Kirschstein National Research Service Award (NRSA) Individual	2021-
Predoctoral Fellowship (F31), NIH	
ISCRM Travel Award Scholarship for ISSCR Annual Meeting	2019
Bioengineering Cardiovascular Training Grant, NIH	2018-2020
Institute for Stem Cell and Regenerative Medicine Scholar	2017-2018
MIT Biological Engineering Research and Innovation Scholar	2015-2016
NCAA Postgraduate Scholar in Track	2016
CoSIDA Academic All-American in Cross Country, Track and Field	2016

Funding

Ruth L. Kirschstein National Research Service Award (NRSA) Individual	2021-
Predoctoral Fellowship (F31), NIH	
Bioengineering Cardiovascular Training Grant, NIH	2018-2020
Institute for Stem Cell and Regenerative Medicine Scholarship	2017-2018
Research Assistantship with University of Washington (Bioengineering Department)	2016-2017
MIT SuperUROP Program	2015-2016

Publications

Papers

1. Tang, P., M. Kirby, N. Le, Y. Li, N. Zeinstra, C. Murry, Y. Zheng, and R. Wang (2021). Polarization sensitive optical coherence tomography for imaging depth-resolved collagen organizations. *Nature, Light: Science and Applications*. Submitted.
2. Zeinstra, N., M. Redd, W. Qin, W. Wei, A. Martinson, Y. Wang, R. Wang, C. Murry, and Y. Zheng (2019). Patterned human microvascular grafts enable rapid vascularization and increase perfusion in infarcted rat hearts. *Nature Communications*.

Posters

1. Zeinstra, N. (2019). *Thick human cardiac tissue constructs containing patterned, perfusable human microvessels from pluripotent stem cells*. Institute for Stem Cell and Regenerative Medicine (ISCRM) Stem Cell Symposium Poster Session. Seattle, WA.

2. Zeinstra, N. (2019). *Thick human cardiac tissue constructs containing patterned, perfusable human microvessels from pluripotent stem cells*. International Society for Stem Cell Research (ISSCR) Annual Meeting Poster Session. Los Angeles, CA.
3. Zeinstra, N. (2019). *Thick human cardiac tissue constructs containing patterned, perfusable human microvessels from pluripotent stem cells*. BC Regenerative Medicine Initiative Poster Session. Victoria, BC.
4. Zeinstra, N. (2018). *Steps towards perfusable 3D cardiac tissue constructs from hiPSCs*. Bioengineering Cardiovascular Training Grant (BCTG) Symposium Poster Session. Seattle, WA.
5. Zeinstra, N. (2015). *Effect of Size on Lymph Node Accumulation for Amphiphilic Proteins*. SuperUROP Fall Poster Session. Cambridge, MA.

Talks

1. Zeinstra, N. (2021). *Thick human cardiac tissue constructs with patterned, perfusable microvessels from hPSCs*. Biomaterials Seminar. Seattle, WA.
2. Zeinstra, N. (2020). *Thick human cardiac tissue constructs with patterned, perfusable microvessels from hPSCs*. Biomaterials Seminar. Seattle, WA.
3. Zeinstra, N. (2019). *Patterned, perfusable microvessels from hPSCs improve host vascular integration in cardiac tissue grafts*. North American Vascular Biology Organization (NAVBO) Annual Meeting. Monterey, CA.
4. Zeinstra, N. (2018). *Steps towards perfusable 3D cardiac tissue constructs from hiPSCs*. Center for Cardiovascular Biology Trainee Research Update. Seattle, WA.
5. Zeinstra, N. (2018). *Steps towards perfusable 3D cardiac tissue constructs from hiPSCs*. Institute for Stem Cell and Regenerative Medicine (ISCRM) Symposium. Seattle, WA.

Teaching

Failure Analysis and Human Physiology, University of Washington 2019
Bioengineering, Teaching Assistant

Students Supervised

Karina Lavalley, UW Bioengineering Department, Capstone Mentor 2019-2021
Jason Fox, UW Bioengineering Department, Capstone Mentor 2017-2020
Dylan Geva, UW Engineering 2019-2020
Rachel Straughn, UW Bioengineering Department, Capstone Mentor 2016-2018
Divya Vaithiswaran, UW Biochemistry Department 2017

Community Involvement

Bioengineers Without Borders, Group Lead 2016-2017
MIT Undergraduate Biochemistry Association, Vice President/Treasurer 2014-2016
MIT Best Buddies, Treasurer 2014-2016
MIT Chemical Engineering Department, Associate Advisor 2014-2016
MIT Cross Country, Track and Field, Member 2012-2016