

ANDREA MAZZOCCHI

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Doctoral Candidate | Wake Forest University, Wake Forest Institute for Regenerative Medicine

EDUCATION

Virginia Tech – Wake Forest University School of Biomedical Engineering and Sciences, Biomedical Engineering Winston-Salem, NC Advisors: Shay Soker, Ph.D. & Aleksander Skardal, Ph.D. <i>Mike & Lucy Robbins Fellow</i> <i>NIH National Biomedical Imaging and Bioengineering T32 Predoctoral Training Grant Fellow</i>	Ph.D.	2016 – Present
Rochester Institute of Technology, Biomedical Engineering Rochester, NY	B.Sc.	2011 – 2016

RESEARCH EXPERIENCE

2016 – Present	Graduate Research Assistant/Doctoral Candidate Wake Forest Institute for Regenerative Medicine (WFIRM), Winston- Salem, NC Tumor Microenvironment and Extracellular Matrix Modeling, Biomaterials Development Laboratories of Shay Soker, Ph.D. & Aleksander Skardal, Ph.D.
2012 – 2016	Undergraduate Research Assistant Department of Biomedical Engineering, Rochester Institute of Technology, Rochester, NY Differentiation and Angiogenesis Models utilizing Ultrathin Membranes Laboratory of Thomas Gaborski, Ph.D.

OTHER EXPERIENCE

2019	Elpha Community Manager , Remote
2015	Combination Product & Drug Delivery Systems Co-op , Johnson & Johnson, Spring House, PA
2012 – 2014	Teaching Assistant , Rochester Institute of Technology, Rochester, NY Quantitative Organ System Physiology, Intro to Biomaterials, Intro to BME Seminar
2013	MRI Research & Development Co-op , General Electric Healthcare, Florence, SC
2012	Marketing Analyst Co-op , General Electric Transportation, Erie, PA

AREAS OF SPECIALIZATION & SKILLS

Specializations	Laboratory Skills	Analytical Skills
Tumor Microenvironments	Primary Cell Culture	Statistical Analysis
Extracellular Matrix Modeling	2D & 3D Organoid Culture	Prism, SAS
Disease Modeling	ELISA and Agent-Based Assays	VisioPharm, ImageJ
Drug Screening	Microscopy (confocal, SEM etc)	MATLAB
Biomaterials & Bioprinting	Histological Staining	Python
Materials Characterization	Rheology	GitHub

HONORS & AWARDS

2018	<i>Alumni Student Travel Award</i> , Wake Forest School of Medicine Graduate Program
2017	<i>Student Scientist Award</i> , Tissue Engineering and Regenerative Medicine International Society – Americas Conference
2017	<i>Alumni Student Travel Award</i> , Wake Forest School of Medicine Graduate Program

2017	<i>Top 5 Poster Finalist, Society for Laboratory Automation and Screening Annual Meeting</i>
2017	<i>Tony B. Academic Travel Award, Society of Lab Automation and Screening Annual Meeting</i>
2016	<i>RIT Biomedical Engineering Graduation Delegate, selected by department faculty</i>
2015	<i>Undergraduate Student Design & Research Award, Biomedical Engineering Society Annual Meeting</i>
2015	<i>Undergraduate Student Travel Award, Biomedical Engineering Society Annual Meeting</i>

MENTORSHIP

2018	<i>Summer Student Mentor, Lillian E. Ekem, Yale University Undergraduate Biomedical Engineering Student, NSF Imaging and Mechanics-based Projects on Accidental Cases of Trauma (IMPACT) Research Experience for Undergraduates (REU)</i>
2017	<i>Summer Student Mentor, Darryl Kalil, Wake Forest School of Medicine Medical Student, Clinical and Translational Science Institute (CTSI) Medical Student Research Program (MSRP)</i>

LEADERSHIP & SERVICE

VT-WF School of Biomedical Engineering and Sciences (VT-WF SBES)

2019	<i>Council Member, WFU Graduate School Honor Code</i>
2019	<i>Program Founder, Wake Forest Biomedical Engineering Peer Mentorship</i>
2018 – 2019	<i>President, Biomedical Engineering Society</i>
2018	<i>Coordinator, VT-WF SBES Annual Symposium (175 guests, 10 sponsors)</i>
2017 – 2018	<i>Vice President, Biomedical Engineering Society</i>

Wake Forest Institute for Regenerative Medicine (WFIRM)

2019	<i>Committee Member, WFIRM High School Summer Student Selection</i>
2018 – 2019	<i>Panel Organizer, Regenerative Medicine Essentials Course Industry Career Perspectives</i>

Rochester Institute of Technology

2012 – 2015	<i>Treasurer, Chapter Co-Founder – Biomedical Engineering Society</i>
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Extramural

2018 – 2019	<i>Facilitator, Girls Who Code Club (Malloy/Jordan Library, Winston-Salem, NC)</i>
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ADDITIONAL PROFESSIONAL ACTIVITIES

Journal Reviewer

2019	<i>Biomedical Materials (IF: 2.9)</i>
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Continued Education

2017 - 2019	<i>WFIRM – Regenerative Medicine Essentials Course Attendee</i>
2018	<i>Rice University Tissue Engineering Short Course Attendee</i>
2018	<i>National Institute of Health National Institute of Biomedical Imaging and Bioengineering Training Grantees Bi-Annual Meeting Attendee</i>

PUBLICATIONS

Waits, C.M., **A. Mazzocchi**, A. Bashore, B. Dosso, K. Simms, T. DePalma, V. Weis, S. Sergeant, J. Parks, A. Skardal, and E. Rahbar. "Development of Three-Dimensional Patient-Specific Liver Constructs for Lipid Metabolism Studies." *Tissue Engineering*, In Review.

Mazzocchi, A., M. Devarasetty, S. Herberg, L. Miller, F. Marini, G. Kucera, W.J Petty, A. Skardal, and S. Soker. "Pleural effusion aspirate for use in 3D lung cancer modeling and chemotherapy screening." *ACS Biomaterials Sciences & Engineering*, March 2019. DOI: [10.1021/acsbiomaterials.8b01356](https://doi.org/10.1021/acsbiomaterials.8b01356)

Mazzocchi, A., S. Soker, and A. Skardal. "3D Bioprinting for high-throughput screening: drug screening, disease modeling, and precision medicine." *Applied Physics Reviews*, Jan 2019. DOI: [10.1063/1.5056188](https://doi.org/10.1063/1.5056188)

****Featured on the cover of Applied Physics Reviews, Volume 6 Issue 1****

- Votanopoulos, K.I., **A. Mazzocchi**, H. Sivakumar, S. Forsythe, J. Aleman, E. Levine, and A. Skardal. "Appendiceal cancer patient-specific tumor organoid model for predicting chemotherapy efficacy prior to initiation of treatment: a feasibility study." Society of Surgical Oncology, Jan 2019. DOI: [10.1245/s10434-018-7008-2](https://doi.org/10.1245/s10434-018-7008-2)
- Mazzocchi, A.**, M. Devarasetty, R. Huntwork, S. Soker, and A. Skardal. "Optimization of collagen type I-hyaluronan bioink for 3D bioprinted liver microenvironments." Biofabrication, Oct 2018. DOI: [10.1088/1758-5090/aae543](https://doi.org/10.1088/1758-5090/aae543)
- Mazzocchi, A.**, K. Votanopoulos, and A. Skardal. "Personalizing cancer treatments empirically in the laboratory: Patient-specific tumor organoids for optimizing precision medicine." Current Stem Cell Reports, June 2018. DOI: [10.1007/s40778-018-0122-z](https://doi.org/10.1007/s40778-018-0122-z)
- Devarasetty M., **A. Mazzocchi**, and A. Skardal. "Application of bioengineered 3D tissue and tumor organoids in drug development and precision medicine: current and future." BioDrugs, Feb 2018. DOI: [10.1007/s40259-017-0258-x](https://doi.org/10.1007/s40259-017-0258-x)
- Mazzocchi A.**, S. Rajan, K. Votanopoulos, A. Hall, and A. Skardal. "In vitro patient-derived 3D mesothelioma tumor organoids facilitate patient-centric therapeutic screening." Scientific Reports, Jan 2018. DOI: [10.1038/s41598-018-21200-8](https://doi.org/10.1038/s41598-018-21200-8)
- Mazzocchi A.**, S. Soker, A. Skardal. "Biofabrication Technologies for Developing In Vitro Tumor Models". In: Soker S, Skardal A, editors. Tumor Organoids. Berlin, Germany: Springer Nature; 2017. DOI: [10.1007/978-3-319-60511-1_4](https://doi.org/10.1007/978-3-319-60511-1_4)
- Carter, R.N., S.M. Casillo, **A. Mazzocchi**, J.P.S DesOrmeaux, J.R. Roussie, and T.R Gaborski. "Ultrathin transparent membranes for cellular barrier and co-culture models." Biofabrication, Feb 2017. DOI: [10.1088/1758-5090/aa5ba7](https://doi.org/10.1088/1758-5090/aa5ba7)
- Mazzocchi, A.**, A.J. Man, J.P.S. DesOrmeaux, and T.R. Gaborski. "Porous Membranes Promote Endothelial Differentiation of Adipose-Derived Stem Cells and Perivascular Interactions." Journal of Cellular and Molecular Bioengineering, Sept 2014. DOI: [10.1007/s12195-014-0354-7](https://doi.org/10.1007/s12195-014-0354-7)

ORAL PRESENTATIONS

- Mazzocchi, A.**, S. Rajan, K. Votanopoulos, A. Hall, and A. Skardal. "Primary Patient Mesothelioma Organoids for Genetic Mutation-Driven Experimental 3-Deazaneplanocin A Treatment." Tissue Engineering and Regenerative Medicine – Americas. Charlotte, NC. 5 Dec 2017.
- Mazzocchi, A.**, R. Huntwork, S. Soker, and A. Skardal. "Hyaluronan-Collagen Type I Hybrid Bioink for 3D Printed Microenvironments." Tissue Engineering and Regenerative Medicine International Society - Americas. Charlotte, NC. 4 Dec 2017.

POSTER PRESENTATIONS

- Mazzocchi, A.**, H. Sivakumar, K. Enck, J. Aleman, S. Soker, and A. Skardal. "Universal Bioink for Support of Multiple Type 2 Diabetes Specific Tissues." Wake Forest Institute for Regenerative Medicine Retreat. Pinehurst, NC. 28 Jan 2019.
- Mazzocchi, A.**, A. Skardal, and S. Soker. "Primary Patient Lung Cancer Model for Study of Disease and Drug Response." Biomedical Engineering Society Annual Meeting. Atlanta, GA. 19 Oct 2018.
- Mazzocchi, A.**, A. Skardal, and S. Soker. "Patient Derived Lung Cancer Model for the Study of Disease and Drug Response." NIH NIBIB Training Grantees Meeting. Bethesda, MD. 21-22 June 2018.
- Mazzocchi, A.**, A. Skardal, and S. Soker. "Characterization of Laminin and Fibronectin Driver Matrix Remodeling Kinetics in Liver Models." SBES Symposium. Winston-Salem, NC. 9 May 2018.
- Mazzocchi, A.**, A. Skardal, and S. Soker. "Characterization of Laminin and Fibronectin Driver Matrix Remodeling Kinetics in Liver Models." Society for Biomaterials. Atlanta, GA. 13-14 Apr 2018.
- Mazzocchi, A.**, K. Votanopoulos, S. Soker, and A. Skardal. "Primary Patient Tumor Organoids for Personalized Drug Treatment." Tissue Engineering and Regenerative Medicine International Society – Americas. Charlotte, NC. 3 Dec 2017.

- Mazzocchi, A.,** K. Votanopoulos, S. Soker, and A. Skardal. "Primary Patient Tumor Organoids for Personalized Drug Treatment." North Carolina Tissue Engineering and Regenerative Medicine Society. Winston-Salem, NC. 10 Nov 2017.
- Mazzocchi, A.,** K. Votanopoulos, S. Soker, and A. Skardal. "Primary Patient Tumor Organoids for Personalized Drug Treatment." Biomedical Engineering Society Annual Meeting. Phoenix, AZ. 12 Oct 2017.
- Mazzocchi, A.,** R. Huntwork, S. Soker, and A. Skardal. "Collagen-I Hybrid Bioink for 3D Printed Microenvironments." Biomedical Engineering Society Annual Meeting. Phoenix, AZ. 12 Oct 2017.
- Mazzocchi, A.,** S. Soker, and A. Skardal. "3D Cancer Organoids for High Throughput Drug Screening." VT-WFU SBES Symposium. Blacksburg, VA. 9 May 2017.
- Mazzocchi, A.,** S. Soker, and A. Skardal. "3D Cancer Organoids for High Throughput Drug Screening." Society for Laboratory Automation and Screening. Washington, DC. 5 Feb 2017.
- Mazzocchi, A.,** M. Devarasetty, A. Skardal, and S. Soker. "Mesenchymal Stem Cell Supported Pancreatic Tumor Growth in 3D Culture." Biofabrication Conference. Winston-Salem, NC. 29 Oct 2016.
- Mazzocchi, A.,** M. Devarasetty, A. Skardal, and S. Soker. "Mesenchymal Stem Cell Supported Pancreatic Tumor Growth in 3D Culture." North Carolina Tissue Engineering and Regenerative Medicine Society. Chapel Hill, NC. 27 Oct 2016. Biofabrication Conference. Winston-Salem, NC. 29 Oct 2016.
- Mazzocchi, A.,** S.M. Casillo, R.N. Carter, and T.R. Gaborski. "Fabrication and Characterization of Ultrathin Transparent Glass Membranes for Cell Culture." Biomedical Engineering Society Annual Meeting. Tampa, FL. 9 Oct 2015.
- Mazzocchi, A.,** S.M. Casillo, and T.R. Gaborski. "Investigation of Adult Stem Cells on Porous Membranes." Rochester Institute of Technology Undergraduate Symposium. Rochester, NY. 8 Aug 2014.