

WFIRM 2015 SUMMER SCHOLARS PROGRAM

RESEARCH DAY

CELEBRATING MULTIDISCIPLINARY RESEARCH EXPERIENCES FOR UNDERGRADUATE SCHOLARS IN CHALLENGING AREAS OF REGENERATIVE MEDICINE

Friday, August 7th, 2015

The Wake Forest Institute for Regenerative Medicine (WFIRM) is an international leader in translating scientific discovery into clinical therapies. Our mission is, “To improve patients’ lives by developing regenerative medicine therapies and support technologies”. A significant challenge in this promising field is developing the next generation of engineers, scientists, clinicians and entrepreneurs cognizant of the challenges and approaches needed to solve regenerative medicine problems and design functional replacement tissues and organs. Here at WFIRM, inherently tied to our mission is the training of next generation experts to whom we will look toward to continue to advance and deliver upon the promise of this field and make a lasting impact on health conditions ranging from heart disease, diabetes, injury and aging.

Congratulations to our WFIRM Summer Scholars 2015

Today we invite you to join us in celebrating the graduation of 16 summer undergraduate scholars, who participated in our annual 10-week summer research program. June 1st, 2015 marked the beginning of the WFIRM’s Annual, 10-week, Summer Scholar Program. Today’s Final Research Day with scientific poster symposium and poster presentation provides the opportunity for interns to present their summer undergraduate research. We offer our congratulations to both interns and their mentors for their important contributions and participation. Much success is extended to our interns in their future educational and career pursuits. WFIRM is privileged to be a part of your intellectual and professional growth. We thank you all for joining us and the support you have extended to these fine young adults.

Sincerely,

Anthony Atala, MD
Director

2015 WFIRM Summer Scholars

Summer Scholar	Primary Mentor(s)
<p>Mark Bartel North Carolina State University Biomedical & Electrical Engineering, Sophomore</p>	John D. Jackson, PhD, Associate Professor
<p>Bryan Chan Cornell University Bioengineering, Senior</p>	Anthony Atala, MD, Professor and Director of WFIRM
<p>Savannah Est Washington University Biomedical Engineering, Sophomore</p>	Anthony Atala, MD, Professor and Director of WFIRM
<p>Sarah Grebennikov University of Oklahoma Microbiology, Junior</p>	Thomas Shupe, PhD, Assistant Professor
<p>Samantha Eryn Huddleston University of Missouri BioEngineering, Junior</p>	Frank Marini, PhD, Professor
<p>Michael Hunckler University of Notre Dame Mechanical & Bioengineering, Senior</p>	Emmanuel Opara, PhD, Professor
<p>Blake Johnson University of Iowa Human Physiology, Junior</p>	John Jackson, PhD, Associate Professor
<p>Ryan Louer Purdue University Biochemistry, Senior</p>	Anthony Atala, MD, Professor, Director of WFIRM, James Yoo, MD, PhD, Professor, Associate Director, CSO and John D. Jackson, Associate Professor
<p>Tian McCann University of Connecticut Biomedical Engineering, Junior</p>	Khalil Bitar, PhD, Professor

Summer Scholar	Primary Mentor(s)
Maxwell Marlowe University of Tennessee Biology, Junior	Shay Soker, PhD, Professor
Natasha Morales Salem College Chemistry & Math, Senior	Frank Marini, PhD, Professor
Amanda Paraluppi Bueno University of Idaho Biomedical Sciences, Senior	Graca Almeida-Porada, MD, PhD, Professor and Christopher Porada, PhD, Associate Professor
Tracey Pu Wake Forest University Biology & Studio Art, Junior	Benjamin Harrison, PhD, Associate Professor, Chief of Lab Operations and Tracy Criswell, PhD, Assistant Professor
Ivy Shen Dartmouth College Neuroscience, Junior	Frank Marini, PhD, Professor
Brian Shing University of California, Berkeley Molecular & Cellular Biology, Sophomore	Anthony Atala, MD, Professor, Director of WFIRM and James Yoo, MD, PhD, Professor, Associate Director, CSO and In Kap Ko, PhD, Assistant Professor
Samantha Austin Starr George Washington University Biomedical Engineering, Junior	Heng-Jie Cheng, MD, PhD, Assistant Professor

WFIRM Summer Scholars Final Research Day 2015

Friday, August 7th, 2015¹

Wake Forest Biotech Place Conference Center
575 N. Patterson Avenue, Winston Salem, NC 27101

[Event Venue Map](#) and [Parking Map](#)

SCHEDULE

- 7:30 am to 8:00 am** Summer Scholars Arrival: Preparation, Poster Set-up and Photo Session
- 8:00 am to 8:30 am** Guest Arrivals: Registration w/coffee
- 8:30 am to 8:45 am** Welcome and Overview
Anthony Atala, MD, Director, WFIRM and Joan Schanck, MPA, Summer Scholars Program Director
- 8:45 am to 9:15 am** **Key Note:** *Training and Supporting the Future Biomedical Workforce*
Dr. Richard Baird, Director, Division of Interdisciplinary Training at the National Institute of Biomedical Imaging and Bioengineering
- 9:15 am to 10:30 am** Summer Scholars' Presentations - Part I (Note: Group Q&A Follows each session)

Session 1

Savannah Est	<i>OPTIMIZATION OF A 3D BIOPRINTED TRACHEA IMPLANT</i>
Bryan Chan	<i>CHARACTERIZING THE MULTIPOTENT LUNG PROGENITOR PHENOTYPE</i>
Tian McCann	<i>NEO-INNervation USING INJECTION OF HUMAN NEURAL PROGENITOR CELLS FROM THE GUT</i>
Mark Bartel	<i>IDENTIFICATION AND CHARACTERIZATION OF NOVEL C-MYC ACTIVATORS FOR INNER EAR HAIR CELL REGENERATION</i>

¹ The Wake Forest Biotech Place Conference Center is located on the first floor of the 575 N. Patterson Avenue facility. Registration, lunch and poster session is held in the 7,5000 square foot Atrium. The Welcome, Keynote and Scholar Presentations are held in the first floor auditorium.

WFIRM Summer Scholars' Final Research Day Schedule (cont.)

Session 2

Samantha Austin Starr	<i>THE SEARCH FOR AND RESEARCH OF SUITABLE CARDIOMYOCYTES FOR HEART REGENERATION</i>
Blake Johnson	<i>ENGINEERING FUNCTIONAL THYMUS ORGANOID</i>
Ivy Shen	<i>MULTI-PHOTON IMAGING AND TOPOGRAPHICAL VISUALIZATION OF ICYTE CLEARED WHOLE-ORGAN REGENERATIVE TISSUES</i>
Samantha Eryn Huddleston	<i>MULTISPECTRAL CELLULAR CHARACTERIZATION OF NORMAL AND CLODRONATE TREATED BLADDER REGENERATION</i>

10:30 am to 10:45 am Coffee Break

10:45am to 11:45 pm Summer Scholars' Presentations – *Part II (Group Q&A Follows each session)*

Session 3

Maxwell Marlowe	<i>IDENTIFICATION OF FACTORS CONTRIBUTING TO FETAL LIVER FIBROSIS IN A NOVEL IN VITRO MODEL</i>
Tracey Pu	<i>EFFECTS OF PARTICULATE OXYGEN GENERATORS ON ANGIOGENESIS</i>
Sarah Grebennikov	<i>VASCULAR CONSTRUCT FOR ECHO "BODY ON A CHIP" PLATFORM</i>
Michael Hunckler	<i>ALGINATE MICROBEAD PRODUCTION FOR CELL MICROENCAPSULATION USING FLOW-FOCUSING MICROFLUIDIC TECHNOLOGY</i>

WFIRM Summer Scholars' Final Research Day Schedule (cont.)

Session 4

Natasha Morales	<i>DECIPHERING THE HIERARCHY OF STROMA IN BREAST CANCER UTILIZING MULTISPECTRAL ANALYSIS</i>
Amanda Paraluppi Bueno	<i>EVALUATION OF THE THERAPEUTIC POTENTIAL OF IMMUNOMODULATORY ENDOTHELIAL PROGENITOR CELLS IN A MURINE MODEL OF INFLAMMATORY BOWEL DISEASE</i>
Brian Shing	<i>DEVELOPMENT OF A DELIVERY SYSTEM OF PLACENTAL STEM CELL-DERIVED TROPHIC FACTORS FOR KIDNEY DISEASE</i>

11:45am to 12:00 pm Wrap-Up/Certificates of Completion

12:00pm to 1:00 pm Buffet Lunch in the Atrium at Wake Forest Biotech Place

1:00pm to 2:45 pm Poster Session in the Atrium at Wake Forest Biotech Place

2:45 pm to 3:15 pm Lab Tours at the Wake Forest Institute for Regenerative Medicine²
(Guest sign-up during registration)

² [The Wake Forest Institute for Regenerative Medicine](#) is located < 1 mile from Wake Forest Biotech Place with address: 391 Technology Way, Winston-Salem, NC 27101

Subsequent pages to include abstracts. Submission in process as of 8/3/2015 12pm