

**WFIRM**

Wake Forest Institute for  
Regenerative Medicine



**WORLD  
STEM CELL  
SUMMIT**



**REGENERATIVE  
MEDICINE  
FOUNDATION**

# 2023 Regenerative Medicine Essentials Course & World Stem Cell Summit

June 5–9, 2023

Sponsored by the NC Biotech Meeting Grant

**North Carolina  
Biotechnology Center**

# Welcome to the 2023 RME & WSCS

On behalf of the course organizing committee and a prominent group of course instructors, we welcome all to the Wake Forest Institute for Regenerative Medicine's (WFIRM) 10th Annual Regenerative Medicine Essentials: From the Fundamentals to the Future course, which is held in conjunction with the 20th edition of the World Stem Cell Summit.

Often referred to as the next evolution of modern health care, the regenerative medicine field touches many disciplines -- from clinical care and engineering to basic science and bioethics. We initiate this unique co-joined event with the RME "core curricula." The 3-day RME course, taught by leading experts in the field, addresses the multidisciplinary nature of regenerative medicine and provides attendees a firm foundation in this exciting field, insight into the current state of the field encompassing applications, challenges and a prognostic glance to the future.

Our primary objective is to provide an all-inclusive review of various aspects of RM including background material, key scientific components of the RM field, ethical, economic, educational, workforce and other issues important to RM, along with expanded opportunities to network and meet leading professionals in the field. Participants are able to move "beyond the essentials" as they are also able to participate in the range of sessions and activities associated with the 20th Edition of the World Stem Cell Summit.

In partnership with the Regenerative Medicine Foundation, the WFIRM organizing committee has put together a dynamic and informative course that covers the "essential" topics, fundamental principles and current progress in tissue engineering and regenerative medicine, including stem cells and cell therapy, biomaterials, technology-based tissue engineering and enabling technologies, as well as regulatory, ethical, economic issues critical to the field. Our instructors, including faculty from WFIRM as well as distinguished, prominent experts in the field from industry, academia and the government who join from across the globe, provides attendees a strong foundation along with insights into future directions and potential applications of tissue engineering and regenerative medicine.

We hope this distinctive, co-joined virtual event will further interactions among basic scientists engaged in discovery and development, translational researchers who bring laboratory discoveries to the clinical forefront, clinicians and those engaged with funding, regulatory and commercialization endeavors, and further broaden and facilitate interactions with future leaders in the field who join as students.

We look forward to an exciting, enjoyable and productive experience for all.

Anthony Atala, MD  
Director, WFIRM  
RME 2023 Course Director

Joan F. Schanck, MPA  
Chief Education Program Officer, WFIRM  
RME 2023 Course Co-Director

# Welcome to World Stem Cell Summit 2023

On behalf of the Regenerative Medicine Foundation (RMF), I welcome you to RMF's "official course"—the annual *Regenerative Medicine Essentials: From the Fundamentals to the Future*. We believe the course is a perfect platform for advancing the RMF mission to accelerate regenerative medicine to improve health and deliver cures.

Here at RMF, we recognize that the power of collaboration grows in a nonlinear fashion. One plus one is more than two, and one plus one plus one is much, much more than three — offering explosively positive and unpredictable possibilities. By attending this course, you will expand your knowledge in a totally immersive experience and gain personal connections and collaborations. Be open to all opportunities presented.

Interact with the outstanding interdisciplinary faculty and the superlative researchers of our host institution, the Wake Forest Institute for Regenerative Medicine, led by our treasured friend, Dr. Anthony Atala. We are here for you. Open to your questions and points of view.

This week I urge you to network with fellow attendees. Break bread, make new friends and remember to collect those opportunities.

In my journey, I have found Winston-Salem to be one of the most collegial places on the planet. This week, I assure you, it's the best place to learn about the future of medicine!

Cordially,

Bernard Siegel, JD  
Executive Director, Regenerative Medicine Foundation  
Founder & Chair, World Stem Cell Summit



# With Special Thanks and Recognition

## Organizing Committee

Anthony Atala, MD  
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*RME 2023 Course Co-Director,*  
Executive Director, Regenerative  
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Website Developer, RMF

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Coalition

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Chief Operating Officer and  
Founding Board Member,  
Healthspan Action Coalition

Lindsey Schwab  
Director of Community Relations,  
Innovation Quarter

James Patterson  
Director of Marketing and  
Communications, Innovation  
Quarter

Jason Kaplan  
Associate Vice President, Wake  
Forest School of Medicine

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Ecosystem Development,  
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Triad Office, North Carolina  
Biotechnology Center

Ethanie Good  
Director of Marketing and  
Communications, Greater Winston-  
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# With Special Thanks and Recognition

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PhD Candidate

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Research Fellow

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PhD Candidate

Siyuan Claire Li  
PhD Candidate

Oluwaseun Babatunde  
PhD Candidate

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Research Lab Manager, WFIRM

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Katie Benson  
Research Lab Technician, WFIRM

## **Other Contributors**

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Financial Analyst, WFIRM

Norma Zayas  
WFIRM

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[www.biospherixmedical.com](http://www.biospherixmedical.com)

## Mobile App

The RME Course has a mobile application utilizing the Yapp platform. The app contains the agenda, speaker information and much more. Visit <https://my.yapp.us/J2S2EV> on your mobile device to be directed to download.

## We're Social!

Like, follow, and connect with us on social media. Follow along, post pictures, and ask questions.



@WFIRMnews



@RegenerativeMedicineFoundation



@WFIRMnews



@WSCSummit



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[www.HealthspanAction.org](http://www.HealthspanAction.org)



[info@HealthspanAction.org](mailto:info@HealthspanAction.org)

## Internet Access

Connect to IQGuest and accept terms.

## Transportation

Complimentary transportation between host hotels - Kimpton and Hampton Inn- and Innovation Quarter (WFIRM, Bowman Gray Center for Medical Education, and BioTech Place) is provided by ABC Door2Door, adhering to the following schedule:

Monday, June 5th-8th, 7:30am - 9:30am and 4:00pm - 6:30pm  
From Innovation Quarter to hotels and return service

Friday, June 9th, 7:30am - 9:30am and 12:00pm - 2:00pm  
From Innovation Quarter to hotels and return service

Wednesday and Thursday, June 7th and 8th, 2:00pm - 4:00pm,  
Shuttle from Biotech Center/Bowman Gray to WFIRM Lab Tours  
Loops every 15-20 minutes

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## Visitor Information

**Bowman Gray Center for  
Medical Education**  
475 Vine Street  
Winston-Salem, NC 27101

**Wake Forest BioTech Place**  
575 Patterson Ave.  
Winston-Salem, NC 27101

**Registration & Check-In**

**Bailey Park**  
**Wednesday Night Southern  
BBQ**



## *Faster Transition of New Therapies to Market*



Delivering on the promise of regenerative medicine requires significant progress in manufacturing to scale up technologies and make them affordable.

Making this progress a reality is the focus of the Regenerative Medicine Development Organization (ReMDO) - a non-profit organization that manages a consortium of more than 60 industry and academic members. The ultimate goal is to accelerate the transition of regenerative medicine technologies to the global market.



<http://remdo.org>

# Parking Information

## Venue Parking

Parking is available for free in the P8 lot located behind the building. Paid parking is also available across the street in the Link parking deck for \$1/30min or \$9/day.



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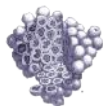
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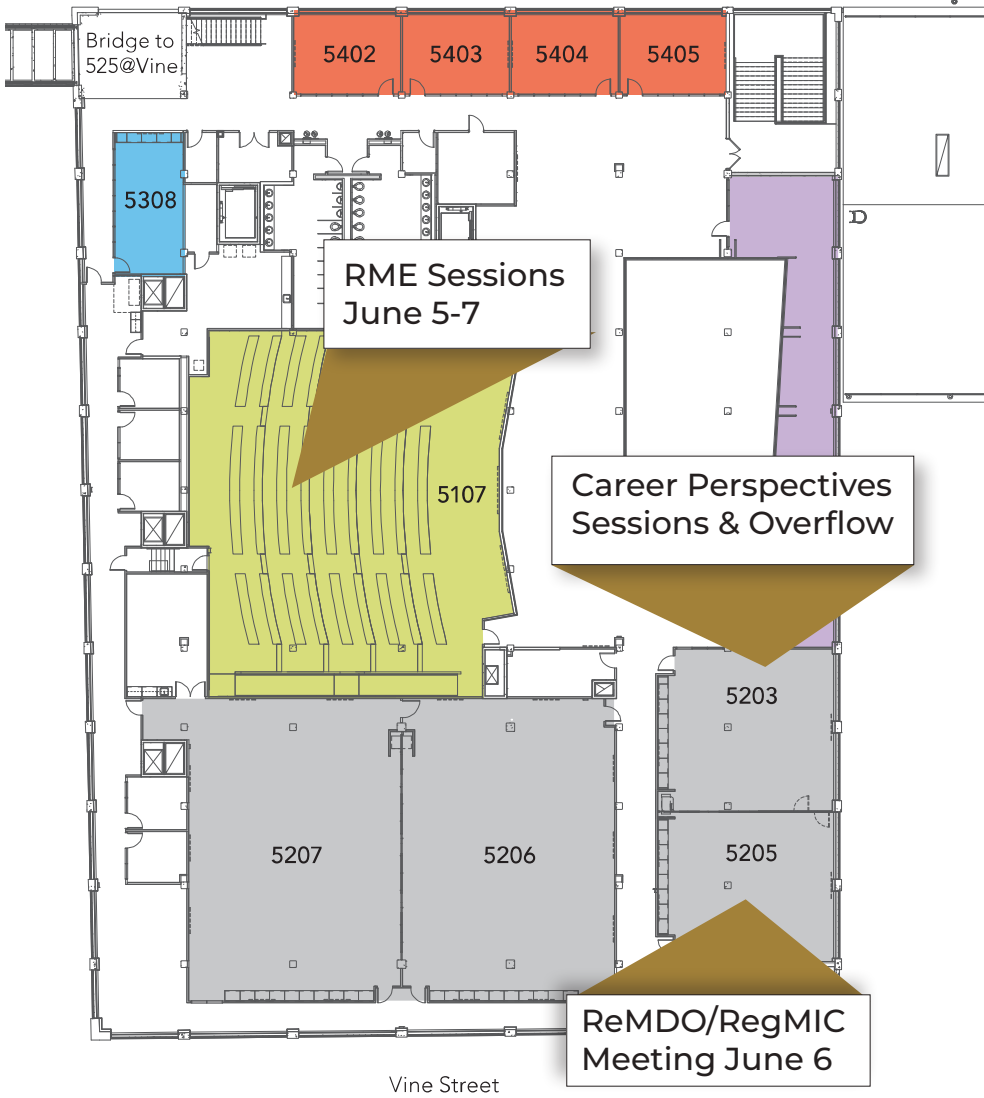
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STEM CELLS TRANSLATIONAL MEDICINE, the official journal partner of the Regenerative Medicine Foundation, publishes high impact articles and concise reviews related to the clinical translation of all types of stem cells, tissue engineering, and regenerative medicine manufacturing and therapies.

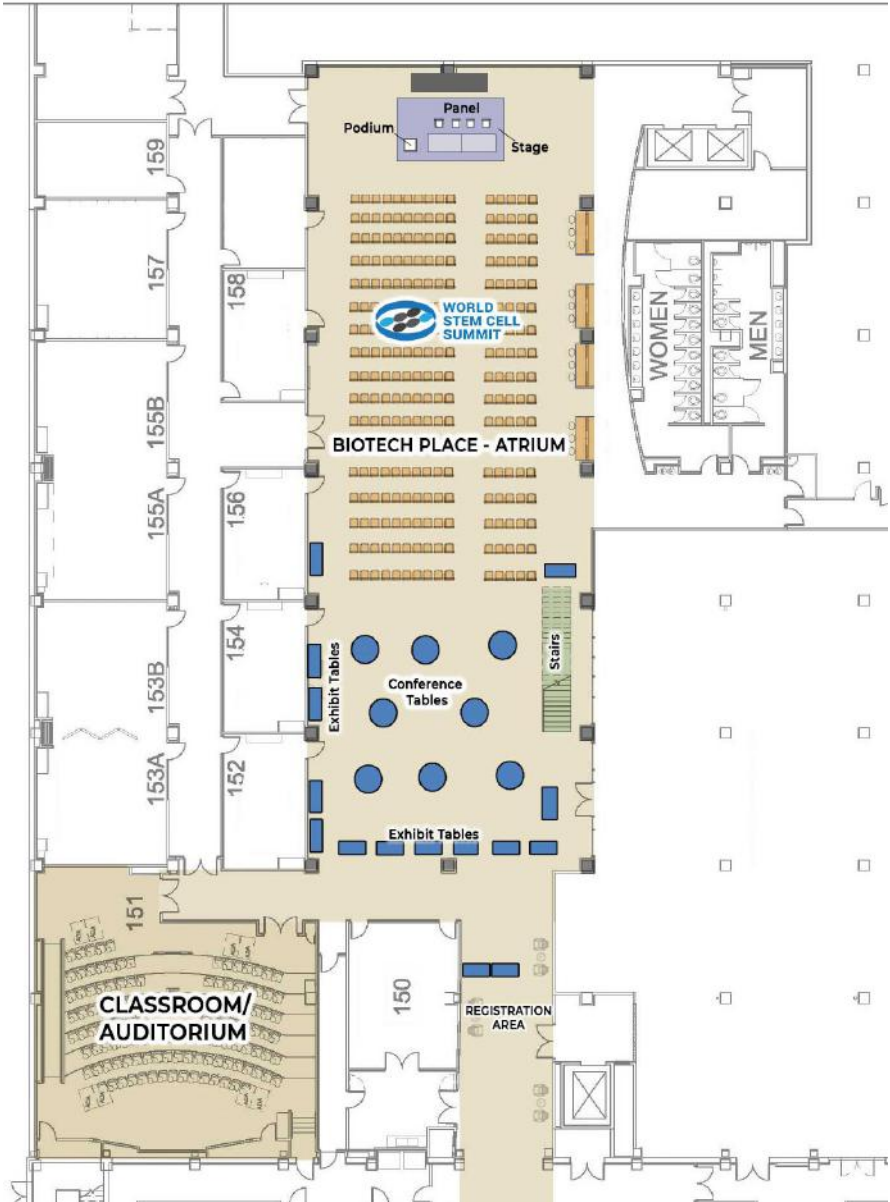


[www.StemCellsTM.com](http://www.StemCellsTM.com)

# Bowman Gray Center for Medical Education Fifth Floor



# Wake Forest BioTech Place



## Stay an Extra Day: Places to Visit

### Old Salem Museums and Gardens

900 Old Salem Rd., Winston-Salem, NC

[www.oldsalem.org](http://www.oldsalem.org)

Enjoy a self-guided walking tour of the historic town, an 18th-century Moravian village of Old Salem Museums and Gardens.



Old Salem

### Reynolda House Museum of American Art

2250 Reynolda Rd., Winston-Salem, NC

[www.reynoldahouse.org](http://www.reynoldahouse.org)

American art, decorative arts and costumes that transport visitors into the era of the early 20th century near shops and restaurants.

### Downtown Arts District & Shopping

400-700 Trade St., Winston-Salem, NC (and surrounding areas)

Downtown/Trade Street District has restaurants, retail shops, residences, business offices, and more located in this eclectic area.

## Stay an Extra Day: Places to Eat

### Sweet Potatoes

529 Trade St.,  
336-727-4844

### Yamas Mediterranean Street Food

624 W 4th St.,  
336-842-5668

### Quanto Basta

680 West 4th St.,  
336-893-6144

### Krankies

211 East 3rd St.,  
336-722-3016

### Famous Toastery

770 Liberty View  
336-306-9023

### 6th & Vine

209 W. 6th St.,  
336-725-5577

### The Katherine

401 N. Main St.,  
336-761-0203

### Six Hundred

450 Patterson Ave.,  
336-283-6754



Six Hundred's coconut shrimp



Yamas' falafel bowl



AR<sup>3</sup>T is supported by NICHD, NIBIB, and NINDS of the NIH under award number P2CHD086843



# AR<sup>3</sup>T

Alliance for Regenerative Rehabilitation Research and Training

## RESEARCH SUPPORT & EDUCATION

- Pilot Grants: up to \$150,000 is distributed each year
- Annual International Symposium on Regenerative Rehabilitation
- Webinar series
- List of publications and resources
- Advanced Training Courses

## WHAT IS AR<sup>3</sup>T

A multi-institutional network of laboratories supporting state-of-the-art research in the domains of tissue plasticity and regeneration, mechanobiology, and physical therapeutics

## NIH-FUNDED RESOURCE CENTER

Supporting the development of Regenerative Rehabilitation by providing research collaborations and educational opportunities, and supporting technology development

## RESEARCH AREAS

Biomaterials, Bioengineering, Stem Cells, Cellular Therapeutics, Mechano-transduction, Mechanosensitive, Biomarkers, Microtissue Systems, Animal Models, Gene Therapy, Imaging

# AR<sup>3</sup>T REGENERATIVE REHABILITATION SESSION TUE. JUN 6



**3:50 pm to 3:55 pm:** **Kaitlin Geran, Spaulding Rehabilitation Hospital**  
*Regenerative Rehabilitation: An Introduction*

**3:55 pm to 4:15 pm:** **Shang Song, PhD, University of Arizona**  
*A Regenerative Rehabilitation Approach with Electrical Stimulation and Stem Cell Therapy for Neural Recovery*



**4:15 pm to 4:35 pm:** **Kai Wang, PhD, Harvard Medical School**  
*Improving Aged Muscle Regeneration Using Bioengineering Approaches*

**4:35 pm to 4:55 pm:** **Christopher Nagelli, PhD, Mayo Clinic**  
*Gene Delivery for Articular Cartilage Repair: A Look Towards a Regenerative Rehabilitation Approach*



**4:55 pm to 5:05 pm:** **Moderated Panel**





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[innovationquarter@wakehealth.edu](mailto:innovationquarter@wakehealth.edu)

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**David Williams DSc, FREng, FLSW**

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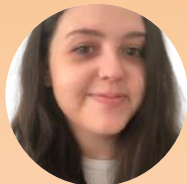
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**Allen Comer PhD**

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**Kaitlin Geran**

Research Program Manager, Alliance for Regenerative Rehabilitation Research and Training (AR3T)

**Shang Song PhD**

Assistant Professor of Biomedical Engineering, University of Arizona

**Christopher Nagelli PhD**

Assistant Professor, Physical Medicine and Rehabilitation, Mayo Clinic

**Kai Wang PhD**

Fellow, University of Pittsburgh



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**Angeli Akey MD, FACP**

Clinician, North Florida Integrative Medicine

**DAY 1**

**JUNE 5**

**WELCOME AND OPENING**

9:45-10:00am	Welcome and Overview <b>Joan Schanck MPA</b>	BGCME 5107
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**SESSION 1: PLURIPOTENT STEM CELLS & PROGENITORS**

10:00-10:20am	Regen-MED 3.0 <b>Mahendra Rao PhD</b>	BGCME 5107
10:20-10:40am	Advances in the use of Stem and Progenitor Cells in Prenatal Therapies <b>Graca Almeida-Porada MD, PhD</b>	BGCME 5107
10:40-11:00am	iPSC-derived Cell Therapies: From Discovery to Therapy <b>Jeanne Loring PhD</b>	BGCME 5107



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**For more information contact:**

Amanda Meling: [amanda.meling@oracle.com](mailto:amanda.meling@oracle.com)

Dr. Robert Schaut: [robert.schaut@oracle.com](mailto:robert.schaut@oracle.com)



**DAY 1****JUNE 5****SESSION 1: PLURIPOTENT STEM CELLS & PROGENITORS**

11:00-11:15am	Discussion Panel	BGCME
	<b>Moderator: John Jackson PhD</b>	5107

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**Break**

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**SESSION 2: BIOMATERIALS**

11:25-11:45am	3D Printing of Synthetic Resorbable Materials for Tissue Engineering Scaffold	BGCME 5107
	<b>Scott Hollister PhD</b>	

11:45am-12:05pm	Injectable and 3D-Printable Hydrogels for Tissue Engineering	BGCME 5107
	<b>Tony Mikos PhD</b>	

12:05-12:25pm	Synthetic and Natural Biodegradable Biomaterials for Cardiovascular Tissue Engineering Applications	BGCME 5107
	<b>Young Min Ju PhD</b>	

12:25-12:40pm	Discussion Panel	BGCME
	<b>Moderator: Thomas Shupe PhD</b>	5107

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**Lunch**

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**SESSION 3: ENABLING TECHNOLOGIES**

1:45-2:05pm	3D Printing Technologies for Functional Tissue and Organ Replacement	BGCME 5107
	<b>Sang Jin Lee PhD</b>	

2:05-2:25pm	Imaging and Regenerative Medicine	BGCME 5107
	<b>Frank Marini PhD</b>	

2:25-2:45pm	Genome Engineering Technologies for Regenerative Medicine	BGCME 5107
	<b>Charles Gersbach PhD</b>	

**DAY 1****JUNE 5****SESSION 3: ENABLING TECHNOLOGIES**

2:45-3:05pm	An Integrated MOE-based Microfluidic Systems for Real-Time Detection of Signaling Dynamics and Metabolomics Profiles <b>Robert Newman PhD</b>	BGCME 5107
3:05-3:20pm	Discussion Panel <b>Moderator: Frank Marini PhD</b>	BGCME 5107
<b>Break</b>		
3:40-4:15pm	Closing Day 1 of RME: Current Concepts and Changing Trends <b>Anthony Atala MD, Director of WFIRM</b>	BGCME 5107

**DAY 2****JUNE 6**

9:00-9:10am	Welcome and Introduction to Plenary <b>Anthony Atala MD</b>	<b>WSCS Day 2: BioTech Place Atrium</b>
9:10-9:45am	FDA Efforts to Advance Cell and Gene Therapy Development <b>Peter Marks PhD</b>	

**SESSION 4: CELLULAR THERAPIES**

10:00-10:20am	MSCs Are NOT Stem Cells <b>Arnold Caplan PhD</b>	BGCME 5107
10:20-10:40am	Cellular Therapies and the Heart <b>Josh Maxwell PhD</b>	BGCME 5107
10:40-11:00am	Placental-derived Stem Cells for Necrotizing Enterocolitis <b>Victoria Weis PhD</b>	BGCME 5107

**DAY 2****JUNE 6****SESSION 4: CELLULAR THERAPIES**

11:00-11:15am	Discussion Panel <b>Moderator: Josh Maxwell</b>	BGCME 5107
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**Break**

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**SESSION 5: TISSUE ENGINEERED MEDICAL PRODUCTS**

11:30-11:50am	Considerations for Developing Tissue Engineered Medical Products <b>James Yoo MD, PhD</b>	BGCME 5107
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11:50am-12:10pm	Animal Models and Strategies for Craniomaxillofacial Defect Repair <b>Pamela Yelick PhD</b>	BGCME 5107
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12:10-12:30pm	Injectible Biomaterials for Translational Regenerative Engineering <b>Karen Christman PhD</b>	BGCME 5107
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12:30-12:50pm	Human Lung Organ Tissue Equivalents for Disease Modeling and Drug Discovery <b>Sean Murphy PhD</b>	BGCME 5107
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12:50-1:10pm	Discussion Panel <b>Moderator: James Yoo</b>	BGCME 5107
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**Lunch**

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**SESSION 6: REGULATORY, PROCESS DEVELOPMENT & MANUFACTURING**

2:15-2:35pm	Innovation in Product Testing and Manufacturing for Regenerative Medicine Product Development <b>Steve Bauer PhD</b>	BGCME 5107
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**DAY 2****JUNE 6****SESSION 6: REGULATORY, PROCESS DEVELOPMENT & MANUFACTURING**

2:35-2:55pm	Improved Characterization of Stem Cell Based Regenerative Medicine Products <b>Jeanne Loring PhD</b>	BGCME 5107
2:55-3:15pm	International Perspectives on the Interplay Between Regulation and Ethics <b>David Williams DSc</b>	BGCME 5107
3:15-3:35pm	StrataGraft: Discovery, Development, and Approval <b>Allen Comer PhD</b>	BGCME 5107
3:35-3:45pm	Discussion Panel <b>Moderator: Steve Bauer PhD</b>	BGCME 5107

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**Break**


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**SESSION 7: AR3T - ALLIANCE FOR REGENERATIVE REHABILITATION RESEARCH & TRAINING**

3:55-4:00pm	Intro to Regenerative Rehabilitation <b>Kaitlin Geran</b>	BGCME 5107
4:00-4:20pm	A Regenerative Rehabilitation Approach with Electrical Stimulation and Stem Cell Therapy for Neural Recovery <b>Shang Song PhD</b>	BGCME 5107
4:20-4:40pm	Improving Aged Muscle Regeneration Using Bioengineering Approaches <b>Christopher Nagelli PhD</b>	BGCME 5107
4:40-5:00pm	Gene Delivery for Articular Cartilage Repair: A Look Towards A Regenerative Rehabilitation Approach <b>Kai Wang PhD</b>	BGCME 5107

**DAY 2****JUNE 6****SESSION 7: AR3T - ALLIANCE FOR REGENERATIVE REHABILITATION  
RESEARCH & TRAINING**

5:00-5:15pm	Discussion Panel <b>Moderator: Kaitlin Geran</b>	BGCME 5107
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**Break****Concurrent Young Scientist Perspectives Session**

4:00-5:15pm	Career Perspectives Session I: RM Research Careers with <b>L. Yang PhD, S. Song PhD, A. Sharma PhD</b> Organizers: D. Hutchins, D. Lizanets, T. Leach, A. Gorkun, O. Latham, S. Clair L, O. Babutunde, T. Criswell, PhD	BGCME 5203
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**DAY 3****JUNE 7****SESSION 8: CLINICAL TRIALS & BIOETHICS**

8:30-8:50am	Regenerative Medicine: The New Disruptor in the Role of Clinical Trials <b>Amanda Wright</b>	BGCME 5107
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8:50-9:10am	Advancing the Regenerative Medicine Ecosystem in California and Worldwide <b>Abla Creasey PhD</b>	BGCME 5107
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9:10-9:30am	TBC: Cariomyopathy and Heart Failure Clinical Trials <b>Joshua Hare MD</b>	BGCME 5107
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9:30-9:45am	Bioethics and Regenerative Medicine: Fundamentals for the Future <b>Nancy King JD</b>	BGCME 5107
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9:45-10:00am	Discussion Panel <b>Moderator: Nancy King</b>	BGCME 5107
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**Break**

**DAY 3****JUNE 7****SESSION 9: COMMERCIALIZATION**

10:15-10:35am	Early Considerations in the Development and Commercialization of Advanced Tissue Repair <b>Loran Solorio PhD</b>	BGCME 5107
10:35-10:55am	Stem Cell-Engineered “Off-The-Shelf” CAR-iNKT Cells for Cancer Immunotherapy <b>Lili Yang PhD</b>	BGCME 5107
10:55-11:15am	Commercialization from Cells to Organs: What I see now 25 years later <b>Doris Taylor PhD</b>	BGCME 5107
11:15-11:35am	Discussion Panel <b>Moderator: Shay Soker PhD</b>	BGCME 5107

**Lunch****SESSION 10: ReMDO/RegMIC & NEXT GENERATION BIOMANUFACTURING**

1:15-1:25pm	Building an Advanced Biomanufacturing Ecosystem <b>Joshua Hunsberger PhD</b>	BGCME 5107
1:25-1:35pm	National Strategy for Advanced Biomanufacturing: a NIST perspectives <b>John Schiel PhD</b>	BGCME 5107
1:35-1:45pm	Modular On Demand Biomanufacturing <b>Randy Yerden</b>	BGCME 5107
1:45-1:55pm	Real Time Digital Holography for Industrial Biomanufacturing Quality Control <b>Kersti Alm PhD</b>	BGCME 5107



**DAY 3****JUNE 7****SESSION 10: ReMDO/RegMIC & NEXT GENERATION BIOMANUFACTURING**

1:55-2:05pm	Advanced Computing for Data Processing and Optimization <b>Mark Wolff PhD</b>	BGCME 5107
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2:05-2:25pm	Discussion Panel <b>Moderator: Joshua Hunsberger</b>	BGCME 5107
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**Break**

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**SESSION 11: REGENERATIVE MEDICINE AND WORKFORCE DEVELOPMENT**

2:40-2:50pm	Connecting the Dots: An Educational Ecosystem for Regenerative Medicine <b>Gary Green EdD</b>	BGCME 5107
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2:50-3:00pm	WFIRM's Training Ecosystem: Past, Present, Future <b>Joan Schanck MPA</b>	BGCME 5107
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3:00-3:10pm	Graduate Education in Tissue Engineering and Regenerative Medicine <b>Tracy Criswell PhD</b>	BGCME 5107
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3:10-3:20pm	Required Elements for Training and Education of the Regenerative Medicine Skilled Technical Worker & Non-Technical Worker <b>Russ Read</b>	BGCME 5107
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3:20-3:30pm	The Federal Government Role in Advancing and Supporting Regenerative Medicine <b>Celeste Carter PhD</b>	BGCME 5107
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3:30-3:40pm	AAR Training Physicians in Regenology: Part I <b>Kathleen O'Neil-Smith MD</b>	BGCME 5107
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**DAY 3**

**JUNE 7**

**SESSION 11: REGENERATIVE MEDICINE AND WORKFORCE DEVELOPMENT**

3:40-3:50pm	AAR Training Physicians in Regenology: Part 2 <b>Angeli Akey MD, FACP</b>	BGCME 5107
3:50-4:00pm	Discussion Panel <b>Moderator: Gary Green</b>	BGCME 5107

**Break**

**Concurrent Young Scientist Perspectives Session**

4:00-5:15pm	Career Perspectives Session II: Non- Research Careers with <b>J. Milan PhD, P. Marks PhD, J. Marchibroda, MBA</b> Organizers: D. Hutchins, D. Lizanets, T. Leach, A. Gorkun, O. Latham, S. Clair L, O. Babutunde, T. Criswell, PhD	BGCME 5203
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**Southern BBQ Event**

**Bailey Park**

**5:15-6:30pm**

**Option and Limited Lab Tours of WFIRM**

**Tours conducted from 2:00-3:00 and 3:00**

**-4:00pm, Wednesday June 7th and Thursday June**

**8th. Limited to two groups of 30 for each day.**

**Max is 120 total. Sign-up available online or at the  
registration table until capacity is reached.**

# PUBLIC DAY at Biotech Place & First Day of WFIRM'S RME Course



KEY:   = Plenary |   = RME Course |   = Intersection of RegMed & Healthspan |   = Patient Advocacy |   = Hot Topics at WSCS

Proposed Schedule and Agenda Topics. Times are EST.

Monday, June 05, 2023

Start	End	Duration	Title	Location
8:00:00 AM	10:00:00 AM	2:00	Check-In & Breakfast	Biotech Place, Atrium
9:00:00 AM	9:30:00 AM	0:30	OPENING CEREMONY; Bernard Siegel, Host	Biotech Place, Atrium
9:00:00 AM	5:00:00 PM	8:00	WHITEBOARD ANIMATIONS-sponsored by Americans for Cures -Stem Cells 101, Bubble baby Disease, Spinal Cord Injury, Sickle Cell Disease, type 1 Diabetes, Multiple Sclerosis, ...more	Classroom - Video
9:30:00 AM	10:00:00 AM	0:30	Regional Hub of Innovation: How Winston-Salem's Regenerative Medicine Leads the Way; Gary M. Green, WFIRM, Isaac L. Perry, Life Science Ecosystem Development, Laura Lee, Greater Winston-Salem, Inc., Nancy Johnson, NC Biotechnology Center	Biotech Place, Atrium
10:00:00 AM	10:30:00 AM	0:30	Inside the Cellular Universe - Revealing the Wonders of Extreme Microscopy; Prof. Frank Marini, PhD	Biotech Place, Atrium
10:30:00 AM	11:00:00 AM	0:30	Advancing Human Health in Space: The Final Frontier is Expanding; Ian White, PhD	Biotech Place, Atrium
11:00:00 AM	11:30:00 AM	0:30	The Bioethical Basis for Healthspan: Will Stem Cells Get Lost in the Translation?; Graham Parker, MD	Biotech Place, Atrium
11:30:00 AM	12:00:00 PM	0:30	Rudy the Rhino & Jeanne Loring: Saving Endangered Species with Stem Cells	Biotech Place, Atrium
12:40:00 PM	1:45:00 PM	1:05	LUNCH BREAK (Coordinated with RME lunch time)	Biotech Place, Atrium
1:30:00 PM	2:20:00 PM	0:50	Heroic Tales of the Human Spirit - Overcoming Pain and Suffering; Lisa McClellan, founder of Ring of Brotherhood Foundation and Christy Martin, World Boxing Council	Biotech Place, Atrium
2:30:00 PM	3:00:00 PM	0:30	The Power of Regenerative and Rejuvenating Technologies	Biotech Place, Atrium
2:35:00 PM	5:00:00 PM	2:25	Career Showcase Presented by Innovate Bio, Forsyth Tech, RemDO	Biotech Place, Classroom
3:00:00 PM	4:45:00 PM	1:45	TBD	Biotech Place, Atrium
4:45:00 PM	5:00:00 PM	0:15	Anthony Atala, MD	Biotech Place, Atrium

# WSCS DAY 2 & Day 2 of WFIRM'S RME Course: 06/06/23



KEY:   = Plenary |   = RME Course |   = Intersection of RegMed & Healthspan |   = Patient Advocacy |   = Hot Topics at WSCS

Proposed Schedule and Agenda Topics. Times are EST.

Tuesday, June 06, 2023

Start	End	Duration	Title	Location
8:45:00 AM	9:00:00 AM	0:15	Opening Remarks, Bernard Siegel, Host	Classroom
9:00:00 AM	9:45:00 AM	0:45	Patient Advocacy: In Sight of a Cure for Type 1 Diabetes; Tom Karlya/DRIF & Giacomo Lanzoni, PhD	Classroom
9:45:00 AM	10:15:00 AM	0:30	Patient Advocacy: Future Health: Perspectives on Health Equity, Distributive Justice and Advocacy; Desiree Cox, MD, PhD	Classroom
10:15:00 AM	11:00:00 AM	1:00	Fireside Chat: AI Technologies at the Intersection of Regenerative Medicine & Healthspan; David Wood, Futurist and Alan Jakimo	Biotech Place, Atrium
11:00:00 AM	11:30:00 AM	0:30	HT: Potent Cell Therapy in Israel with Mesenchymal Placental Cells; Raphael Goradetsky, PhD	Classroom
11:30:00 AM	12:00:00 PM	0:30	HT: Regulatory Issues and Healthspan, Ed Hudgins	Classroom
11:30:00 AM	12:00:00 PM	0:30	HT: The Healthspan Code: Prevention, Treatments and Prevention of Disease Recurrence After A Successful Cure; Camillo Ricordi, MD	Biotech Place, Atrium
12:00:00 PM	2:00:00 PM	2:00	SUMMIT LUNCH: 12:00-1:00 pm Biotech Place; RME COURSE LUNCH: 1:10 pm - 2:15 pm, WF Bowman Gray Medical Education Ctr	
1:00:00 PM	1:45:00 PM	0:45	Keynote - Aging as Damage Accumulation, Rejuvenation as Damage Repair; Aubrey de Grey, PhD	Biotech Place, Atrium
1:45:00 PM	2:15:00 PM	0:30	Molecular Damage - Somatic Mutations, SINE and LINE Elements; Andrei Gudkov, PhD, DSc	Biotech Place, Atrium
2:15:00 PM	2:45:00 PM	0:30	Robots, Technology and the Future of Caregiving; Eve Herold, HSAC	Classroom
2:15:00 PM	2:45:00 PM	0:30	Biopreservation of Tissues and Organs - a Parallel Must-Have for the Regenerative Medicine/Aging Industry; Xiaoxi Wei PhD	Biotech Place, Atrium
2:45:00 PM	3:15:00 PM	0:30	Break	Biotech Place, Atrium
3:15:00 PM	3:45:00 PM	0:30	Evolutionary Perspective - Inflammation; Deep Dixit, DVM, PhD	Biotech Place, Atrium
2:45:00 PM	3:15:00 PM	0:30	Update on the Alliance for Longevity Initiatives; Dylan Livingston	Classroom
3:15:00 PM	3:45:00 PM	0:30	Patient Advocacy: Panel on the Importance of Patient Advocacy; Moderator: Melissa King MBA	Classroom
3:45:00 PM	4:15:00 PM	0:30	Patient Advocacy: On Hope and Hoping - How Patient Access to Information Can Both Inspire and Drive Us; Doug Oliver MSW	Classroom
3:45:00 PM	4:15:00 PM	0:30	Age-Related Decline in Immune Regulation of Senescent Cells and Immune-Based Senotherapeutics; Amit Sharma PhD	Biotech Place, Atrium
4:15:00 PM	5:00:00 PM	0:45	Panel Discussion and Ask Them Anything; Moderator: Jyothi Devakumar; Panelists: Aubrey de Grey, PhD; Andrei Gudkov, PhD, DSc; Xiaoxi Wei PhD; Deep Dixit, DVM, PhD; Amit Sharma PhD	Biotech Place, Atrium
5:05:00 PM	6:00:00 PM	0:55	Connecting Early Onset Diseases to Age-Related Diseases - Common Strategies for Intervention; Aubrey de Grey PhD, Evan Snyder MD PhD, Antony Atala MD. Moderator: Jyothi Devakumar PhD	Biotech Place, Atrium

WSCS DAY 3 & Day 3 of WFIRM'S RME Course: 06/07/23



KEY:   = Plenary |   = RME Course |   = Intersection of RegMed & Healthspan |   = Patient Advocacy |   = Hot Topics at WSCS

Proposed Schedule and Agenda Topics. Times are EST.

Wednesday, June 7, 2023

Start	End	Duration	Title	Location
8:45:00 AM	9:00:00 AM	0:15	Opening Comments; Bernard Siegel, JD	Biotech Place, Atrium
9:00:00 AM	9:45:00 AM	0:45	HT: Keynote - How ARPA-H will Accelerate Transformative Biomedical Breakthroughs; Amy Jenkins, PhD	Biotech Place, Atrium
9:45:00 AM	10:15:00 AM	0:30	Umbilical Cord Blood Use in Children with Cerebral Palsy; Jessica M. Sun, MD	Classroom
9:45:00 AM	10:15:00 AM	0:30	HT: Why US Companies are Conducting Cell Therapy Clinical Trials Outside the US; Moderator: Desiree Cox, MD, PhD. Panel: Desiree Cox, MD, PhD, Joshua Hare MD, Kyle Cetrulo	Biotech Place, Atrium
10:15:00 AM	10:45:00 AM	0:30	HT: Overview of Japanese Regenerative Medicine Regulations from a US Company Perspective; Kyle Cetrulo	Biotech Place, Atrium
10:15:00 AM	10:45:00 AM	0:30	Huntington's Disease: A Patient Ambassador's Journey; Frances Saldaña	Classroom
10:45:00 AM	11:00:00 AM	0:15	Break	Biotech Place, Atrium
11:00:00 AM	11:15:00 AM	0:15	Patient Advocacy: The Emily Whitehead Story: The Power of Narrative in Patient Advocacy; George Eastwood, Emily Whitehead Foundation	Classroom
11:00:00 AM	11:30:00 AM	0:30	HT: Video: How Regenerative Medicine Will Save Contact Sports; Haime Garza	Biotech Place, Atrium
11:15:00 PM	11:45:00 PM	0:30	Patient Advocacy: True Trials; Keith March, MD, George Eastwood	Classroom
11:45:00 AM	12:15:00 PM	0:30	HT: Video: World Compass for Commercializing, Manufacturing and Marketing Cell & Gene Therapies; Hogan Lovells	Biotech Place Atrium
12:15:00 AM	1:00:00 PM	0:45	LUNCH	
1:00:00 PM	1:15:00 PM	0:15	Patient Advocacy: Sickle Cell Advocacy & Update; Adrienne Shapiro	Classroom
1:00:00 PM	1:30:00 PM	0:30	HT: Adipology: Can Business Translate the Promise of Adipose Tissue from Bench to Bedside?; Graham Parker, PhD and Adam Katz, Keith March, MD, PhD	Biotech Place, Atrium
1:15:00 PM	1:30:00 PM	0:15	Patient Advocacy: Cystic Fibrosis: How Far We've Come, Siri Vaeth	Classroom
1:30:00 PM	2:00:00 PM	0:30	HT: US Policy & Regulation: An Update; Michael Druckman, JD and Janet Marchbroda	Biotech Place, Atrium
2:00:00 PM	2:45:00 PM	0:30	Keynote - Tissue Engineering, Applicability of Different Cell Types; Tony Atala, MD	Biotech Place, Atrium
2:45:00 PM	3:15:00 PM	0:30	Patient Advocacy: Getting Into the News; Stephanie Dainow, Lifespan.io	Classroom
2:45:00 PM	3:15:00 PM	0:30	Bond for Life: Targeting the Stem Cell Vascular Niches in Aging and Tissue Regeneration; Shiri Gur-Cohen, PhD	Biotech Place, Atrium
3:15:00 PM	3:45:00 PM	0:30	Understanding Capitol Hill: Advocates and Lobbyists; Janet Marchbroda	Classroom
3:45:00 PM	4:15:00 PM	0:30	Patient Advocacy: Video: Building Coalitions as a Positive Change Agent; William Remak, HSAC	Classroom
3:15:00 PM	3:45:00 PM	0:30	Break	Biotech Place, Atrium
4:15:00 PM	5:30:00 PM	2:15	TBD	Classroom
3:45:00 PM	4:15:00 PM	0:30	Plasmapheresis for Longevity and Age-Related Disorders; Dobri Kiprov	Biotech Place, Atrium
4:15:00 PM	4:45:00 PM	0:30	The Past, Present and Future of Extracellular Vesicles Therapy; Mehdi (Aslan) Dehghani, PhD, Sartorius	Biotech Place, Atrium
4:45:00 PM	5:15:00 PM	0:30	The AGE Aging Clock in the Extracellular Matrix and Lens; Vincent Monnier, MD, MSc	Biotech Place, Atrium
5:15:00 PM	6:00:00 PM	0:45	Panel Discussion and Ask Them Anything; Moderator: Jyothi Davakumar, PhD; Panelists: Tony Atala MD, Shiri Gur-Cohen PhD, Dobri Kiprov MD, Mehdi Aslan Dehghani PhD, Vincent Monnier, MD, MSc	Biotech Place, Atrium
5:00:00 PM	6:30:00 PM	1:30	BBQ Event in Bailey Park	

WSCS DAY 4: 06/08/23



KEY:   = Plenary |   = RME Course |   = Intersection of RegMed & Healthspan |   = Patient Advocacy |   = Hot Topics at WSCS

Proposed Schedule and Agenda Topics. Times are EST.

Thursday, June 8, 2023

Start	End	Duration	Title	Location
9:15:00 AM	10:15:00 AM	1:00	HT: SPACE Panel #1: Stem Cell Frontiers: Commercial Space Stations and the Future of Regenerative Medicine	Classroom
9:00:00 AM	9:45:00 AM	0:45	Keynote - Neurobiology Strategies and the Current State-of-the-Art Methods; Evan Snyder, MD, PhD, FAAP	Biotech Place, Atrium
10:15:00 AM	11:15:00 AM	1:00	HT: SPACE Panel #2: Stem Cell Frontiers: Stem Cell Science on the International Space Station: Disease Models, Stem Cell Therapies and Tissue Engineering	Classroom
9:45:00 AM	10:15:00 AM	0:30	Integrated Epigenomics Reveal Dysregulated Chromatin Landscapes in Aged Hematopoietic Stem Cells; Isabel Beerman, PhD	Biotech Place, Atrium
11:15:00 AM	12:15:00 PM	1:00	HT: SPACE Panel #3: Stem Cell Frontiers: Transitioning from the International Space Station to Commercial Space Stations at the End of the Decade	Classroom
10:15:00 AM	10:45:00 PM	0:30	Quantum Healthy Longevity for all: Connecting Healthy People, Healthy Planet and Healthy Growth; Tina Woods MBA	Biotech Place, Atrium

10:45:00 AM	11:00:00 AM	0:30	BREAK	Biotech Place, Atrium
11:15:00 AM	11:45:00 AM	0:30	Autophagy in Aging, Strategies of Repair; Gregory Brewer, PhD	Biotech Place, Atrium
12:15:00 PM	1:00:00 PM	0:45	HT: Panel Discussion: A Roadmap to Precision Medicine; Moderator: Florina Gobel, Center for Contemporary Sciences. Participants: Aysha Akhtar, Dane Gobel, Other TBD	Classroom
11:45:00 AM	12:15:00 PM	0:30	Powering Through Time: The role of Mitochondria in Aging and Reproductive Longevity; Keshav Singh, PhD	Biotech Place, Atrium
12:15:00 PM	1:00:00 PM	0:45	Panel Discussion and Ask Them Anything ; Moderator: Jyothi Devakumar, PhD; Panelists: Evan Snyder MD, PhD, Isabel Beerman, PhD; Keshav Singh; Gregory Brewer PhD, Tina Woods MBA	Biotech Place, Atrium
1:00:00 PM	2:00:00 PM	1:00	LUNCH	Biotech Place, Atrium
2:00:00 PM	2:45:00 PM	0:45	Keynote - Longevity and Human Trials; Brian Kennedy, PhD	Biotech Place, Atrium
2:00:00 PM	2:30:00 PM	0:30	HT: Repositioning of Advanced Therapies in the Post-COVID Era; Jane Andrews, PhD, Cell Bridge Strategies, LLC Founder & CEO	Classroom
2:30:00 PM	3:00:00 PM	0:30	HT: How to Position Your Startup for the Sequence of Fundraising: Family & Friends, Angel, Series A, Series B; Neil Kellen, Cell Bridge Strategies, LLC	Classroom
3:00:00 PM	4:00:00 PM	1:00	Commercialization Sessions; Additional Companies TBA	Classroom
2:45:00 PM	3:15:00 PM	0:30	Metabolic Reprogramming in Regeneration - A Few Downstream Examples; Ellen Heber-Katz	
3:15:00 PM	3:45:00 PM	0:30	Partial Reprogramming; Mike West PhD	Biotech Place, Atrium
4:00:00 PM	4:45:00 PM	0:45	HT: The Emerging Discipline of Regenerative Surgery; Vijay Saradhi Gorantla, MD, PhD	Classroom
4:15:00 PM	4:45:00 PM	0:30	Break	Biotech Place, Atrium
4:45:00 PM	5:15:00 PM	0:30	The Role of Nonprofits and Coalitions: A Case Example; Melissa King MBA	Biotech Place, Atrium
5:15:00 PM	6:00:00 PM	0:45	Panel Discussion and Ask Them Anything; Moderator: Jyothi Devakumar, PhD; Brian Kennedy PhD, Ellen Heber-Katz PhD, Mike West PhD, Melissa King	Biotech Place, Atrium

WSCS DAY 5: 06/09/23



KEY:   = Plenary |   = RME Course |   = Intersection of RegMed & Healthspan |   = Patient Advocacy |   = Hot Topics at WSCS

Proposed Schedule and Agenda Topics. Times are EST.

Friday, June 09 ,2023

Start	End	Duration	Title	Location
9:00:00 AM	10:00:00 AM	1:00	The History of Patient Advocacy: From Stem Cells to the Future	Classroom
9:00:00 AM	12:15:00 PM	3:15	TBD	Classroom
10:00:00 AM	10:30:00 AM	0:30	Topic TBD: Evan Snyder, MD, PhD, FAAP	Biotech Place, Atrium
10:30:00 AM	11:45:00 AM	1:15	Town Hall of Attendees & Stakeholders, WSCS	Biotech Place, Atrium
11:45:00 AM	12:15:00 PM	0:30	TBD	Biotech Place, Atrium



WE THANK THE WINSTON-SALEM HOST COMMITTEE







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