2026 Florida Regional Biomaterials Day Report

University of Florida Student Chapter

I. Event Feedback

Our event showcased late-breaking research in the field through 15 trainee talks, four talks from biomaterial professionals spanning both academia and industry, and over 50 poster presentations. We also had representation from eight major research institutions across the state of Florida, which created a valuable opportunity for students to network and foster potential future collaborations. Notably, only two of these institutions currently have active student SFB chapters, so the event also served to introduce a new audience to the society and provided guidance on establishing student chapters at their home institution.

The event benefited from several key strengths. Hosting it in a grand ballroom with table seating marked a significant improvement from prior years, as consolidating all activities into one space fostered more meaningful discussions, enhanced networking opportunities, and created a more professional atmosphere. We also achieved a larger attendance than in prior years with strong representation from across the state, with approximately 20% of attendees coming from external institutions. The scientific program featured a wide range of research areas, and the inclusion of rapid-fire trainee talks allowed us to highlight an even greater number of student contributions. Each session was thoughtfully structured with effective pacing and well-timed breaks, which helped maintain attendee engagement throughout the event. Additionally, the meet-and-greet session provided an especially valuable setting, facilitating genuine and productive interactions between trainees and invited speakers.

In the future, we aim to expand outreach efforts to better engage students beyond engineering disciplines. Additionally, the meet and greet held the evening prior should be positioned as the official start of the event rather than an optional social, in order to encourage stronger attendance. We also plan to move the keynote address to the post-lunch session, when attendance is typically higher. Finally, extending the poster session to 1.5 hours, rather than one hour, will allow for more meaningful interactions and discussion.

II. Income and Expense Report

**Based on quote from vendor until we receive final bill*

Income

Biomedical Engineering Departement	$5,000
Biomaterials Day Grant	$2,500
Total	$7,500

Expenses

Item	Vendor	Cost
Venue*	Reitz Union	$250.00
Parking Reservation*	UF TAPS	$200.00
Lunch	Palm & Pine	$2,194.78
Refreshments	Sam's Club	$263.44
Event Poster	UF OSMI	$33.86
Program Agenda	Target Copy	$209.40
Poster Board Rental	UF Faculty Services	$560.00
Audio/Visual	Reitz Union	$16.00
Travel*	Ainslie	$565.50
	Gallant	$422.57
	Brooks	$228.42
	Travel Grants	$400.00
Invited Speaker Dinner	Phelps	$186.79
Attendee Gift	Koozie	$248.00
Invited Speaker Gift	UF Bookstore	$132.20
Presenter Awards	Amazon	$23.99
Meet and Greet Venue*	Cypress and Grove	$525.00
Total		$6,459.95

III. Program Agenda

9:00am – 9:10am: **Welcome Address**
SFB Chapter Board Members
9:10am – 10:25am: **Session 1 – Biomaterials for Targeted Delivery**
Keynote Speaker: Dr. Kristy Ainslie, University of North Carolina at Chapel Hill
10:25am: **Break**
10:45am – 12:00pm: **Session 2 – Tissue Engineering**
Invited Speaker: Dr. Brittany Taylor, University of Florida
12:00pm: **Lunch**
1:00pm – 2:15pm**: Session 3 – Industry Perspectives and Rising Research**
Invited Speaker: Dr. William Brooks, Johnson & Johnson
2:15pm – 3:15pm: **Poster Session**
3:15pm – 4:30pm: **Session 4 – Biomaterial-Cell Interactions**
Invited Speaker: Dr. Nathan Gallant, University of South Florida
4:30pm – 5:00pm: **Closing Remarks and Awards**
SFB Chapter Board Members

SESSION 1 – BIOMATERIALS FOR TARGETTED DELIVERY
9:10am - **Esteban Bermudez, University of Florida**
Quantitative Evaluation of Nanoparticle Lymphatic Delivery Using Magnetic Particle Imaging
9:22am - **Masahiro Fukuda, Florida A&M University – Florida State University**
Engineered Microparticles Reveal Proteolysis as a Critical Prerequisite for Chromatin Clearance in Macrophage Phagosomes
9:34am - **Kevin Smith, University of Florida**
Developing a combinatorial polymeric microparticle-lipid nanoparticle system as a Regulatory Vaccine (REGvak) for Rheumatoid Arthritis Immunotherapy
9:50am - **Dr. Kristy Ainslie, University of North Carolina at Chapel Hill**

SESSION 2 – TISSUE ENGINEERING
10:45am - **Dr. Brittany Taylor, University of Florida**
11:20am - **Cyrah Pinnock*, Florida Institute of Technology**
Microparticle-Based UPI Peptide Delivery for Improved Vascular Graft Endothelialization
* *Travel Grant Awardee*
11:32am - **Quintin Spey, University of Miami**
Freeze-dried Macroporous Microparticles as Injectable Cell Scaffolds for Regenerative Medicine
11:44am - **Damea Pham, University of Florida**
PEGylation of Stimulator Cells Results in Dampened T cell Activation of Responder Cells at Early Time Points

SESSION 3 – INDUSTRY PERSPECTIVES AND RISING RESEARCH

1:00pm - **William Brooks, Johnson & Johnson**

1:35pm - **Jonah Ferber, University of Florida**

Quantitative Magnetic Resonance Image Fiber Tracking to Evaluate Spinal Cord Regeneration

1:40pm - **Lucy Ho, University of Miami**

Engineering Human Fibroblastic Reticular Cell-Based Reticula for Antigen-Specific Tolerance Induction in Type 1 Diabetes

1:45pm - **Emily Matheson, Florida Institute of Technology**

Bioprinted Collagen Hydrogels with Transforming Growth Factor-beta 3 Delivery for Fibrocartilage Differentiation

1:50pm - **Cameron Crouse, University of Florida**

Modulating Bead Loading in an Oxygen-Generating 3D Printed Silicone Scaffold Alters Oxygen Generation

1:55pm - **Matt Counts, University of Central Florida**

Augmenting Apoptotic Machinery: Rational Design of a BAX-Derived Peptide for Self-Assembly

2:00pm - **Zhenyu Wang, University of Florida**

Commensal bacteria-derived sugar nanoparticles encapsulating glycosylated antigen for treatment of Inflammatory Bowel Disease

2:05pm - **Questions for Rapid-Fire Talks**

SESSION 4 – BIOMATERIAL-CELL INTERACTIONS

3:15pm - **Clinton Smith, University of Florida**

From Pathogen to Platform: Transforming C. neoformans from Invader to Deliverer for Neurological Disease

3:27pm - **Alissa Brooke Anderson, University of South Florida**

Phosphonium-Based Bismuth Iodide Semiconductors as Candidates for Photo-Inhibition of Nosocomial Fungal Infections

3:39pm - **Aliyah Tate, University of Florida**

Modeling insulitis in type 1 diabetes using synthetic hydrogels

3:55pm - **Dr. Nathan Gallant, University of South Florida**

POSTER SESSION

1. Disha Iyengar, University of Central Florida

Hydrogels with Herbal-Based Additives for Wound Healing Applications

2. Anouska Seal, University of Florida

Comparative analysis of axonal regeneration using injectable formulation derived from decellularized human and porcine peripheral nerves

3. Mira Sayegh, University of Miami

Biomaterial Scaffold-Mediated Delivery of Immune Modulatory Stromal Cells for Regenerative Transplantation

4. Nishat Tasnim, University of Florida

Engineering Fusion Protein Self-Assembled Structures for Therapeutic Applications

5. Katherine Weber, University of Florida

From Biodiesel Waste to Pigment: Carotenoid Production Using Halophilic Archaea

6. Celine Xu, University of Florida
Designing Modular Hybrid Lipid-Protein Membranes for High-Density Protein Integration in Artificial Cell Models

7. Taylor Lansberry, University of Florida
Immunoprotection of Transplanted Allogeneic Islets Through Local Drug Delivering, 3D-printed Scaffolds

8. Akhil Kandamkulathy, University of Florida
Optimizing Gemcitabine-loaded Microparticles to Leverage C. neoformans-mediated Drug Delivery for Pancreatic Chemotherapy

9. Maxim Kuliyev, University of Florida
Evaluating the stability and viability of genetically modified Plodia interpunctella colonies

10. Vinitha Rani, University of Central Florida
Biodegradable polymeric implants for sustained drug delivery in cancer therapeutics

11. Rafsan Ahmed Rashik, University of South Florida
Advancing In Vitro Intestine Models: Soft Electromechanical Actuation-Based Peristalsis

12. Rylee Newport, University of Florida
3D Photopolymerizing Hydrogels for Natural Killer Cell Encapsulation

13. Nathan S. Nasseri, University of Florida
A pathogenic panacea: C. neoformans-based drug carriers for precise delivery of a JAK inhibitor for immunotherapy of type 1 diabetes

14. Macie Binda, Sebastian Guerra, Rachel Fletcher, University of Florida
Biotechnological Potential and Versatility of Halophilic Microorganisms for Fuels, Chemicals, and Bioproducts

15. Reuben Abraham, University of Florida
Homopolymeric and chimeric, gut-inspired immunosuppressive microparticles cause immunosuppression of bone-marrow-derived dendritic cells (BMDCs)

16. Abdulla Obadat, University of Central Florida
Drug-Loaded ADU-S100 Liposomes Targeting BRCA 1 / 2 Deficient Ovarian Tumors

17. Carmen Aubret, University of Florida
Two Sides of the Same Coin: Immobilizing Cryptococcus neoformans for Optimal Hemispheric Microparticle Surface Decoration

18. Amanda Gabriela Bernard, University of Central Florida
Interpenetrated GelMA/PVA-Borax Hydrogels with Tunable Mechanical and Structural Properties

19. Neel Eswaran, University of Florida
Modulating immune response after myocardial infarction (MI) using nanoparticle-hydrogel systems for drug delivery.

20. Jacob Walker, University of Florida
Engineering a Solution to Rheumatoid Arthritis: Optimizing the Lipid-Nanoparticles of the Regulatory Vaccine (REGvak)

21. Malisha Islam Tapotee, University of Central Florida
Designing Effective Antimicrobials: A Deep Learning Approach to Antimicrobial Peptide Generation and Screening

22. Christopher Spencer, University of Florida
Immunomodulatory granular hydrogels support engraftment of allogeneic islets

23. Cameron Manson, University of Florida
Immunosuppressive anti-CD3 microgels protect transplanted insulin-producing beta cells in type 1 diabetes

24. Dominic Clarke, University of Florida

The Latent Immunosuppressive Effects of PLGA Microparticles and Lipid Nanoparticles in a Dual-Particle System

25. Chih-Yi Wang, University of Florida
Volume Fluctuations in the Mechanics of a Growing Glandular Model

26. Grace Fields, University of Florida
Engineering Drug-loaded Microparticles for Fungus-Based Delivery to the Central Nervous System

27. Carleigh Eagle, University of North Florida
Investigating Failure in Rigid-Compliant Polymer Interfaces in MJAM Parts

28. Rebecca Liwang, University of Florida
Silk nanoparticles: Influence of diverse protein characteristics on drug delivery

29. Ladan Jiracek, University of Florida
High-Resolution Thin-Film Metallization on Embossed Liquid Crystal Polymer for Ultra-Thin, Bonded Neural Interfaces with Verified RAA Stability and Electrode Impedance

30. Emily Brown, University of Florida
Quantifying Cellular Orientation and Alignment in Biomimetic Tendinous Models Utilizing a Novel Semi-Automatic Process

31. Tia Monjure, University of Florida
The Supercell: a step towards developing active and autonomous materials

32. Britney Pun, University of Florida
Comparative In Vitro Analysis of Magnetic Fluid Hyperthermia and Conventional Thermotherapy in Cancer Cells

33. Ryan Wilkerson, University of Florida
Surface Roughness And Embossing As A Variable In Bonding Liquid Crystal Polymer

34. Tahoora Ateeq, University of Central Florida
Designing a peptide-based polyelectrolyte complex library for studying disease states in membraneless organelles

35. Micah Wilkerson, University of Central Florida
Characterizing Quantum Material Binding and Exfoliating Peptides for Biological Applications

36. Daniel Stafstrom, University of Florida
Calcium-modulating microparticles for influencing Vomocytosis from Macrophages

37. Amelia Lehel, University of Florida
Characterizing Pancreatic Stellate Cell-Derived Matrix Models for Pancreatic Ductal Adenocarcinoma

38. Pritha Sarkar*, University of Central Florida
Injectable Silogel Sponges for Rapid Hemostasis
** Travel Grant Awardee*

39. Grace Koch, University of Florida
Engineering Polymeric Antifungal “Backpacks” to Derisk a Novel Fungus-Based Drug Delivery Platform

40. Edwin Cheung, University of Florida
Enhancement of Regulatory Vaccine (REGvak) Delivery through Optimization of Poly(lactic-co-glycolic) acid (PLGA) Microparticle Systems for Rheumatoid Arthritis (RA) Immunotherapy

41. Zeyu Liu, University of Florida
Click-chemistry like functionalization of lactone-based nanoparticles

42. Roni Saffar, University of Florida
Examining the Effects of Collagen Addition to Electrospun Polycaprolactone Scaffolds on Biomechanical Properties for Tendon Modeling

43. Llia Byron, University of Florida

Mechanical stimulation and enzymatic degradation of silk fibroin anisotropic scaffolds toward an engineered skeletal muscle platform.

44. Sonia Cheng, University of Florida

TetR-Controlled Continuous Evolution of KLK-6 Protease Variants for Targeted Cleavage of Alpha-Synuclein

45. Kareem Abdelrahman, University of Central Florida

Utilizing Flexible Biobased Polymers of Triboelectric Nanogenerators for Greener Energy Harvesting

46. Isabel Lucia Matias Cruz, University of Florida

Applications of Tangential Flow Filtration in Silk Fibroin-Derived Biomaterials

47. Michelle Cherne, Florida Institute of Technology

Human gastric extracellular matrix hydrogels maintain organoid growth and reduce gene expression associated with epithelial-mesenchymal transition and inflammation

48. Molly Dobrow, University of Florida

Systemic delivery of nanoparticles to osteoarthritic joints