Wallace H. Coulter Foundation
Biomedical Engineering Seminar Series

Dr. CHERIE STABLER is the J. Crayton Pruitt Family & UF Foundation Preeminence Term Professor and Departmental Chair in the Department of Biomedical Engineering, College of Engineering at the University of Florida. She also is an Affiliate Member of the UF Diabetes Institute. Dr. Stabler has established an internationally recognized research and educational program focused on the generation of translational biomaterial platforms for cellular implants, with a particular emphasis on cell-based therapies for Type 1 diabetes. Her novel bioactive materials are targeted at enhancing graft survival and utilizing local and translational approaches to dampen host immunological responses. Her work spans from designing new biomaterials to seeking FDA clearance for combinatory products. She is an inducted fellow of the Biomedical Engineering Society (BMES) and the American Institute for Medical and Biological Engineering (AIMBE) and is the recipient of the NIH NIDDK Type 1 Diabetes Pathfinder DP2 Award. Other awards include the 2022 UF Foundation Preeminence Term Professor, the 2022 HWCOE Doctoral Dissertation Advisor/Mentor of the Year, 2019 UF HWCOE Faculty-Scholar of the Year, and a UF Term Professor (2019-2022). She is the President of the international Tissue Engineering and Regenerative Medicine (TERMIS) Americas Chapter.

4/12/24

Dr. Cherie Stabler

J. Crayton Pruitt Family & UF Foundation Preeminence Term Professor and Departmental Chair, Biomedical Engineering

University of Florida

Friday, April 12th | 9:00 AM | EC 2300

Engineering biomaterials for improving cell therapy in Type 1 Diabetes

ABSTRACT: Clinical islet transplantation, the intrahepatic infusion of allogeneic islets, has the potential to provide physiological blood glucose control for insulin-dependent diabetics. The success of clinical islet transplantation, however, is hindered by the location of the implant site, which is prone to mechanical stresses, inflammatory responses, and exposure to high drug and toxin loads, as well as the strong inflammatory and immunological responses to the transplant in spite of systemic immunosuppression. To address these challenges, our research has focused on three primary strategies: the development of scaffolds to house islets at alternative transplant sites; the fabrication of encapsulation protocols for the immuno-camouflage of the transplant; and the production of bioactive biomaterials for the local delivery of oxygen and immunomodulatory drugs and/or cells. Three-dimensional scaffolds can serve to create a more favorable islet engraftment site, by ensuring optimal distribution of the transplanted cells, creating a desirable niche for the islets, and promoting vascularization. Encapsulation can substantially decrease the need for systemic immunosuppression of the recipient, by preventing host recognition of surface antigens. Finally, localization of supportive agents to the site of the transplant can serve to enhance efficacy, while minimizing the side effects commonly observed with systemic delivery. Success in these strategies should increase the efficacy of islet transplantation for the treatment of Type 1 Diabetes, whereby the long-term survival and engraftment of the transplanted islets are significantly improved.

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Through the generous support of the Wallace H. Coulter Foundation, the Department of Biomedical Engineering facilitates weekly lectures each year during academic terms. Experts in all areas of Biomedical Engineering are invited to provide a research seminar and to meet with faculty and students to discuss the latest developments and research in Biomedical Engineering.

Friday, April 12th, 2024 | 9:00AM - 10:00AM | EC 2300

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