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June 29, 2021

Dermatology Researchers Receive Top Awards from Wound Healing Society

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Researchers at the University of Miami Miller School of Medicine's Dr. Phillip Frost Department of Dermatology and Cutaneous Surgery received first-place awards in several categories during the 2021 Wound Healing Society annual meeting.

3M Fellowship Award

Rivka Stone, M.D., Ph.D., assistant professor, became the third recipient from the Miller School to win the $15,000 3M Fellowship for her research grant proposal "Targeting Inflammatory Networks that Control Healing Outcomes in Diabetic Foot Ulcers."

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Front row, from left, Vivien Chen, Rivka C. Stone, M.D., Ph.D., Jamie L. Burgess, M.S., and Irena Pastar, Ph.D. Top row, from left, Jelena Marjanaovic and Marjana Tomic-Canic, Ph.D.

The grant will be used to analyze RNA-sequencing profiles of diabetic foot ulcers (DFU) tissue to identify regulatory inflammatory networks that drive the patient's healing outcome. Since DFUs are the leading cause of non-traumatic amputations in the U.S., the project will aim to expedite the need for targeted DFU therapies.

Top Scoring Abstract Award

Jamie Burgess, M.S., a third-year M.D./Ph.D. student, received the Top Scoring Abstract in Basic Science Category award for her work “Pyroptosis Is Induced by Intracellular MRSA Colonization of Diabetic Foot Ulcers.” The winning abstract

revealed that even in DFU with no clinical sign of infection, MRSA infections invade cells in the epidermal (top layer) of the skin, causing the tissue to be protected from antibiotics.

The abstract further shows Perforin-2, an antimicrobial effector that kills intracellular bacteria, is naturally produced in the epidermis and is suppressed in DFUs, which allows for intracellular accumulation of MRSA. This accumulation leads to an inflammatory form of cell death, contributing to ulcer chronicity and healing inhibition.

“This study highlights the novel aspect of ‘silent infection’ that is clinically unrecognized – intracellular MRSA accumulation that is present even in diabetic foot ulcers with no obvious clinical signs of infection,” Burgess said. “This study also emphasizes that Perforin-2 is a potential new therapeutic target that can boost the host defense system against bacterial infection in chronic wounds.”

Trainee Award

Vivien Chen, a third-year M.D. candidate, won the Wound Healing Society Trainee Award for her abstract “Cell Therapy Stimulates Antimicrobial Properties of Venous Leg Ulcers Via Perforin-2.”

Since antimicrobial peptides contribute to the innate immune response involved in wound healing, the project investigated antimicrobial peptide regulation in acute and chronic wounds and particularly how one of these antimicrobials, Perforin-2, may be stimulated by cell therapy to promote healing in venous leg ulcers.

“What’s exciting about these preliminary results is that, to

our knowledge, this is the first evidence that cell-based therapy for chronic wounds can trigger the innate antimicrobial response of the host/patient," Chen said. "Moreover, induction of the innate antimicrobial response, specifically of Perforin-2, is associated with healing outcomes from the cell therapy.

Proud mentors

In addition to three first-place awards, Jelena Marjanovic received a nomination for the Young Investigator Award, wrapping up a successful Wound Healing Society event.

"Our department and the wound healing program have a very long tradition of excellence that is built on unique collaborations between basic scientists and clinicians focusing on advancing patient care through discoveries, said Marjana Tomic-Canic, Ph.D., director of the Miller School's Wound Healing and Regenerative Medicine Research Program and a member of the conference program committee. "Such an approach provides an exceptional training environment and inspires students and fellows to join us. Mentoring and training next generations of 'wound healers' is one of the major pillars of our program. It is wonderful to see that the hard work and quality of research of our trainees are recognized with these multiple awards on such a big national and international stage."

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