



Indiana University
School of Medicine

Indiana Center for Vascular Biology and Medicine Newsletter

Vessels and Vitality

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Cryptic Masons Medical
Research Foundation

Happy Spring – our weather finally has decided to be committed to Springtime! This newsletter continues our focus on the importance of training, and in particular, on one of our Indiana Center for Vascular Biology and Medicine (ICVBM) trainees, **Jason Collett**. Jason joined the elite ranks of our trainees two years ago, and has been one of our postdoctoral fellows supported by the National Institutes of Health in the laboratory of David Basile, PhD, where he has been conducting research in two important areas:



- 1) The role of adipose stem cells and the factors they secrete (growth factors as well as tiny particles called exosomes) **to rescue kidneys from acute kidney injury which can lead to progressive loss of kidney function.**
- 2) The effect of a special catheter-based approach to flush damaging cells out of the kidney to provide a complementary method to **save kidneys from injury.** He plans to test this approach in combination with the stem-cell based rescue to determine whether even better results can be obtained.

Jason has been a "point person" in collaborations between the Basile research group and Drs. Bob Bacallao and Keith March, working as a team of colleagues in the ICVBM. His research has now led to the important discovery that **providing adipose stem cells as well as removing inflammatory cells can each preserve kidney function.** The effect of the adipose stem cells is so prominent that the occurrence of death due to progression in kidney injury in pre-clinical studies is markedly reduced after receiving the adipose stem cells. We are very hopeful that this will also prove to be true in patients that suffer from kidney injury. Knowing this has prompted Jason to pursue an understanding of what stem cells are doing to help repair kidney injury, and his work has supported the idea that the "cocktail of factors" that the cells secrete are important in helping the cells

conduct tissue rescue. We look forward to learning about the factors that underlie the rescue of kidneys from failure by fat-derived stem cell-based therapy. **Understanding the factors secreted by stem cells may suggest ways to help the cells be even more powerful in accomplishing rescue and repair.**

Also, as Jason's research progresses, we are planning an approach to clinical studies, building on his findings, to help address kidney injury due to both poor blood flow and diabetes.

The training of future researchers in vascular biology and medicine is an important goal for the present researchers of our center. These trainees represent a critical part of the "engine" for future discoveries and cures in this critical field. There are several levels at which our training occurs. Many of our faculty host undergraduate or even high school students for summer internships in their laboratories. Medical students and residents also often elect to take research rotations in our laboratories to help them decide about their future careers, specifically whether they want to pursue academic medicine as a particular calling: **"working today to create the medicine of tomorrow."** Postgraduate fellows like **Jason** are those who have made the commitment to research, and are pursuing further work to build upon their prior doctoral degree (PhD). These are important colleagues in our research environment as they work to learn the techniques, intellectual approaches, and teamwork skills that are all important to future research success. This additional experience prepares them for either faculty positions or work as scientists in the biotechnology or related industries. In the ICVBM, we are thankful to have been **funded for the past decade by the National Institutes of Health as a training center for the vascular scientists of the future.** Our programmatic support from NIH supports 5 post-doctoral salaries each year. This support from the National Institutes of Health **builds directly** on the foundational support from **the Cryptic Masons' Medical Research Foundation.** The generosity of this foundation has enabled many pilot studies to be pursued by both our trainees and faculty, and has helped to provide support for Jason to conduct his original research. This research in turn has enabled him to recently obtain additional funding from another branch of the National Institutes of Health, for a highly competitive postdoctoral award through our Indiana Clinical and Translational Sciences Institute.