McGowan Institute for Regenerative Medicine Affiliated Faculty Receive Awards for Excellence

The Pittsburgh Carnegie Science Center established the Awards for Excellence program in 1997 to recognize and promote outstanding science and technology achievements in Western Pennsylvania. The Carnegie Science Awards have honored the accomplishments of more than 400 committed individuals and organizations that have improved lives through their contributions in science and technology. Award winners were announced on January 30, 2014. On May 9, 2014, at the Carnegie Music Hall the following award recipients will be honored for their tremendous work and its impact on the vitality in the region:

- Corporate Innovation: Center for Innovation in Restorative Medicine (J. Peter Rubin, MD)
- Leadership in STEM Education: Michael T. Lotze, PhD
- Start-Up Entrepreneur (Honorable Mention): William J. Federspiel, PhD

The Corporate Innovation Award is given to an organization or representative of an organization that develops and encourages an environment that promotes innovation in science or technology.

Center for Innovation in Restorative Medicine

The Center for Innovation in Restorative Medicine (CIRM) is a nationally recognized center for excellence in regenerative medicine therapies. Through a comprehensive system of referral, evaluation, treatment, and long-term care, the Center offers access to the most promising potential treatments for life-altering injuries -- especially for those patients who have exhausted conventional treatment options. CIRM is recognized nation-wide for the multitude of pioneering studies in translational medicine. Teams of clinicians and scientists are advancing the clinical assessment and clinical implementation of new regenerative technologies and treatments for people suffering from severe or complex traumatic injuries or disease. The focus has been on head and facial injuries, scarring from burns, pain from amputation, and limb or muscle loss.

The Center is leading the way in shaping the future of regenerative medicine technologies, devices, and reconstructive strategies by collaborating with organizations throughout the United States and the world to develop clinical trials that will help change the face of patient care. Typically, the pathway from the lab bench to the bedside is long and convoluted. Through the Center's unique approach to translational medicine, emerging technologies are being assessed, refined, and made available to those in need. What is novel and significant are the strategies used

to organize and implement clinical studies, and the amazing positive outcomes. While the fact that 100+ patients--suffering from otherwise untreatable afflictions---who have "recovered" as a result of these therapies is significant, what is even more significant is the emerging wide-spread availability of these therapies to others in need.

The impact of CIRM has been life-changing for the recipients of these new therapies. The impact is much broader than the patients treated to date. The positive outcomes are now permitting the treatment of an increasing number of patients nation-wide.

The director of CIRM is J. Peter Rubin, MD. Dr. Rubin is a noted expert on adult stem cells derived from fat tissue and body contouring surgery. His work focuses on devising innovative strategies for the use of adipose (fat)-derived stem cells to not only address problems of tissue regeneration but also other diseases that benefit from stem cell-based therapies. His laboratory research focuses on applications of adult adipose-derived stem cells for restoring damaged tissues after trauma and cancer therapy.

The Leadership in STEM Education Award recognizes an individual, team, or organization that demonstrates leadership in building literacy in science, technology, engineering, and math.

Michael T. Lotze, PhD

Dr. Michael Lotze is a pioneering educator with the University of Pittsburgh Cancer Institute (UPCI) who created the UPCI Summer Academy, now entering its 6th year. Designed to support highly motivated students to be mentored in UPCI laboratories, supplemented by formal didactic training in cancer biology and introduction to career pathways, this novel Academy has taken on a leadership role for providing STEM education of the highest order, the largest experiential program at the University. Moving from 5 students in its initial year, to now an expected 60 'scholars' this next summer, the Academy is located at one of five innovative program sites tailored to provide access to 'performance science,' culminating in an oral and poster presentation at the conclusion of an 8-week intensive experience.

This unique Program supports under-represented minorities and disadvantaged students, now termed UB's (under-represented in the biomedical sciences) with funding developed by Dr. Lotze for the next 3 years from the National Cancer Institute and from the Doris Duke Charitable Foundation. Half of the positions available within the program are filled by UB's. Dr. Lotze has reached out and partnered with both local and distant organizations to fulfill this promise including FAME, the Foundation for Advancement of Minority Education, the Pittsburgh Public Schools Science and Technology Magnet School, the Jack Kent Cooke Foundation, and the Kamehameha and Punahou Schools in Hawaii. Almost 20% of the positions are filled from

scholars from around the country including Michigan, Texas, New Jersey, New York, Virginia, California, and Hawaii, adding luster and scope. This last year, three scholars from Kazakhstan and one from Germany were admitted, reflecting the strategic partnerships of the UPCI, allowing local and regional scholars the opportunity to learn side by side with those from different cultures.

Below are some testimonials provided by the 2012-2013 scholars:

- I have an excellent understanding of the career path I now want to take, and I also have more preparation for the biology classes that are still to come.
- This course has changed my life and understanding of myself as well as the purpose of scientific research.
- UPCI was a great experience that I will always remember. Not only learning about cancer and cellular biology, but learning and doing "real science" was a life-changing experience.
- Coming here was one of the best choices I've made in my life. It allowed me to explore future careers.

The Start-Up Entrepreneur Award recognizes leadership in developing a promising innovation in an early-stage company.

William J. Federspiel, PhD

Respiratory failure affects and the need for invasive mechanical support affects over 1 million people annually. Dr. William Federspiel is the inventor of an artificial lung now being commercialized and assisting patients all over the world to recover from respiratory failure. He was the co-founder of ALung Technologies and has been instrumental in the continued development of the "Hemolung" technology and ALung as company.

The Hemolung can be used to prevent the need for mechanical ventilator support or protect the lungs from damage during mechanical ventilation. Patients requiring lung transplant often deteriorate before a donor lung is available. The Hemolung can bridge the gap until a lung is available. The Hemolung can assist the patient’s native lungs and provide support while they wait. During this support the patient is not sedated and can therefore eat, speak, and move around to maintain their strength.

Dr. Federspiel's creativity has resulted in an artificial lung that is effective, safe, and simple to use. As a result of his efforts hundreds of thousands of patients will avoid more invasive and damaging forms of therapy annually.

Illustration: Carnegie Science Center.

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