

CIMIT–Johnson & Johnson Young Clinician Research Recipients: Advancing Patient Care for those with Heart Disease, Obesity, Lung Cancer, and Infants on Respirators

Boston, Mass., May 3, 2006 -- It was announced by CIMIT director John A. Parrish, MD, that four physicians will be among the first CIMIT-Johnson & Johnson Young Clinician Research Award recipients. The funding was made possible through the Johnson & Johnson Corporate Office of Science and Technology (COSAT). The goal is to identify physicians who are dedicated to patient care and translational research. Dr. Parrish said: “We were looking to attract young, innovative clinicians in the Boston area, who are passionate about patient care and are willing to dedicate part of their time to translational research.”

Awards to Young Clinicians and One for Special Study

One physician from each of four member hospitals of the CIMIT consortium received the Young Clinician Research Award. Recipients are: Audrey Chung Marshall, MD, Children’s Hospital Boston – congenital heart disease, and Michael J. Davidson, MD, Brigham and Women’s Hospital – heart valve repair; Daniel S. Kohane, MD, PhD, Massachusetts General Hospital – tracheal damage prevention in infants; James Ellsmere, MD, Beth Israel Deaconess Medical Center – obesity management. The award was designed to encourage young physicians, new in their careers, to create novel, life-saving medical devices.

Additionally a “Special Study Award” for lung cancer research went to Yolonda Colson, MD, PhD, Brigham and Women’s Hospital.

The Johnson & Johnson - CIMIT Award Objective

Dr. Parrish added: “CIMIT recognizes physicians who stay awake at night thinking about new ways to solve complex medical problems through novel technology. These award recipients are women and men dedicated to patient care. And we are very grateful that Johnson & Johnson is making it possible for us to help them excel in their work and convert some of their best ideas into new tools and techniques.”

The Young Clinician Researchers

Heart Disease: A positioning device to repair heart damage in utero

Dr. Marshall of Children’s is focusing on development of a fetal positioning device to facilitate reconstruction of heart abnormalities in utero. This device is to be used with ultrasound guidance, to accomplish percutaneous cardiac intervention. With such a device it will be possible to use minimally invasive techniques on both mother and child during the mother’s second trimester. In the baby, repair of

heart problems, such as aortic constriction (stenosis) and left ventricular dysfunction, is accomplished using balloon dilation.

“I am privileged to have the opportunity to try to make a difference in one of the top three heart abnormalities to cause problems in newborns,” said Dr. Marshall. “I believe with new technology we can facilitate cardiac intervention and lower fetal complication rates and procedure time. Additionally, we will not have to make a major incision in the mother, in order to try to operate on the baby. Both procedures will be minimally invasive.”

An associate director of the Cardiac Catheterization Laboratory at Children’s Hospital Boston, Dr. Marshall is also an affiliate consultant for the Department of Newborn Medicine at Brigham and Women’s Hospital, and an assistant professor at Harvard Medical School. She received her MD from the University of Pennsylvania.

Heart disease: Valve repair without open-heart surgery

Dr. Davidson of BWH is working to solve the problem of heart valve repair. Repair for valve disease most often requires open-heart surgery, which is Dr. Davidson’s clinical expertise. However, open-heart procedures carry serious risk for those who are frail, elderly, or have other health issues. Dr. Davidson’s work to develop percutaneous (catheter-based) approaches for valve disease will offer a safer alternative.

A cardiac surgeon, Dr. Davidson said: “There are over 93,000 valve procedures performed each year and degenerative valve disease is the prevalent source of hospitalization and procedural intervention. Thus far, open heart surgery has been the mainstay for treating symptomatic heart valve disease. The availability of viable techniques for catheter-based heart valve repair and replacement will allow more patients to choose a less invasive option.”

Dr. Davidson earned a faculty position at BWH in Cardiac Surgery beginning July 2006. He received his MD from Yale University School of Medicine.

Tracheal damage prevention in infants

Dr. Kohane of MGH is proposing to develop controlled release technology to prevent problems with airway constriction in infants who have had breathing tubes.

“Premature babies and other children who suffer injury to the airway from breathing tubes or other causes often require

repeated procedures to repair the damage,” said Dr. Kohane. “Our principal hypothesis is that providing sustained high local drug levels will be therapeutic and minimize systemic side effects of some drugs commonly used in these conditions. The devices we are proposing to develop would apply various forms of controlled release technology to these problems. They could be administered by minimally invasive methods or be placed directly in the site at the time of surgery.”

A staff intensivist in the Pediatric Intensive Care Unit at MGH, Dr. Kohane is an assistant professor in pediatrics at Harvard Medical School and also Visiting Scientist at the Langer Laboratory, in the Department of Chemical Engineering at MIT. Dr. Kohane received his MD and PhD from Boston University School of Medicine.

Obesity: A device to manage care after obesity surgery

Dr. Ellsmere of BIDMC is focusing on a method that will make it safer to easily access implanted ports. In the past few years, the number of implanted ports has been increasing rapidly. Much of this has been driven by Laparoscopic Adjustable Gastric Banding (LAGB). In order to limit the amount of food a person can take in at a single meal, a small pouch is created in the upper part of the stomach. Then by wrapping a band around the stomach, only a narrow passage from the new pouch remains thereby limiting food intake.

Dr. Ellsmere said: “Since obesity affects 25 percent of the population and causes serious medical conditions, as well as some 300,000 deaths each year in the US alone, I felt it was important to give patients a more manageable option for their health. Our long term goal is to make port access sufficiently safe and reliable so that it can be easily accomplished in an office setting without imaging system support.”

A Minimally Invasive Surgery Fellow at BIDMC, Dr. Ellsmere received his MD from Dalhousie University in Halifax, Nova Scotia, and his MSc from Massachusetts Institute of Technology.

Special Study Award

Lung Cancer: A study using local delivery of drugs to inhibit recurrence

Dr. Colson, BWH, is focusing her work on lung cancer, the leading cause of cancer deaths in both men and women. Despite what appears to be successful surgical resection, tumor recurrence at the site of the prior surgery still often calls for removal of a large amount of normal lung. Dr. Colson is assessing safety and feasibility of using local delivery of chemotherapeutic drugs to inhibit malignant cell growth at surgical resection using minimally invasive surgery.

“For an estimated 90,000 men and 71,000 women in the US, lung cancer will be fatal,” said Dr. Colson. “I am honored to have the opportunity to pursue a course of treatment that has the potential to reduce the risk of local tumor recurrence in our patients.”

Dr. Colson has been named the first Director of the Women’s Lung Cancer Center at the Dana Farber/ Brigham and Women’s Hospital Cancer Center. An assistant professor of surgery, Thoracic Surgery, BWH, and assistant professor of medicine,

Harvard University, she received her MD from the Mayo Medical School.

CIMIT: Overcoming Barriers to Innovation

Each year CIMIT selects some 40 new research projects from multidisciplinary teams to receive science awards ranging from \$25,000 to \$250,000. There are 150 active projects from more than 300 awarded to date. Additionally there have been 400 peer-reviewed publications. CIMIT-supported projects have led to the formation of 170 invention disclosures, 80 patent applications, and 30 options and license agreements. Ten small businesses have been created or strategically impacted by CIMIT technology. With enabled funding of more than \$120 million, CIMIT has significantly impacted the standard of care.

As part of CIMIT’s Award Program, its Office of Technology Development and its Industry Liaison Program help investigators overcome hurdles in business, law, intellectual property protection, and product development. The team of experts enables investigators’ ideas to move rapidly from bench to bedside.

COSAT-CIMIT Alliance and Award

“We believe that during the early phases of their career, physicians are particularly interested in finding new techniques and procedures that will improve the care of their patients,” said Ted Torphy, Corporate Vice-President for Science and Technology, Johnson & Johnson. “If these young doctors have the opportunity to convert their ideas into working models and prototypes, and to test them in the laboratory, they will have a much better chance of making a major contribution to medicine.”

Torphy explained that while COSAT and CIMIT have collaborated in the past, this award represents a new chapter of closer interaction that will help improve healthcare outcomes by fostering innovation and translational research.

The CIMIT Consortium

CIMIT is a Boston-based research consortium of the major teaching hospitals and engineering schools dedicated to advancing the standard of patient care through collaboration and development of novel technologies and therapies.

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