The Impact of the Ted Mullin Fund at the University of Chicago Medicine

September 2013

Above, Left to Right: Dr. John Cunningham, Maryellen Campbell, Anna Zimmer, Richard Mullin, Mary Henry, Lauren Kasoff & Conner Sholtis.
Thanks to the dedication of the Ted Mullin Fund supporters over the past seven years, University of Chicago Medicine (UCM) scientists are doing vital research in an effort to understand, treat, and prevent pediatric and young adult sarcoma. Your philanthropy and continued partnership has been essential in improving outcomes for pediatric, adolescent, and young adult sarcoma patients, thus keeping care at the University of Chicago at the forefront of medicine. We are pleased to provide updates on the impact of the Ted Mullin Fund at UCM and highlight a new initiative, the Ted Mullin Fund Scholars, as well as news and research from the University of Chicago Section of Pediatrics Hematology/Oncology.

Ted Mullin Fund Scholars
In the summer of 2013, UCM hosted four Ted Mullin Fund Scholars, who spent their summers working on unique laboratory research projects. While the focus of their research was broad, the Ted Mullin Fund Scholars have generated new knowledge that will have impact in sarcoma specifically and across pediatric and adult cancers.

Maryellen Campbell, a student at Georgetown University, worked with Sue Cohn, MD, Professor of Pediatrics on multiple projects. She screened expression levels in cells which had been transfected to express a long non-coding RNA believed to be implicated in high-risk neuroblastoma.

“At the University of Chicago, we aim to make a difference by excellence in research, patient care and education. Donors like those to the Ted Mullin Fund enable us to train the next generation of physicians and scientists in a rich environment, surrounded by the best and brightest minds in science.”

John Cunningham, MD
Professor of Pediatrics, Physiology and Stem Cell Research
Vice Chair, Department of Pediatrics
Chief, Section of Pediatric Hematology/Oncology
and she also assisted with experiments involving SPARC, a protein believed to cause inhibition of growth in neuroblastoma and other cancers. Her research will help to identify methods to reduce tumors in pediatric and other cancer patients.

Lauren Kasoff, a student at Washington and Lee University, worked with Eric Beyer, MD, PhD, Professor of Pediatrics. She studied gap junctions, specializations of the cell membranes that contain channels that allow adjacent cells to “communicate” with each other by exchanging ions and small molecules. Her experiments showed that deprivation of oxygen provided to cells caused a major decrease in the levels of the proteins that form gap junctions and that the levels normalized (or even “over-shot”) with re-oxygenation. These data may provide significant insights into abnormalities of the interactions between normal cells (like those in the heart and blood vessels) or abnormal cells (as in cancers) caused by hypoxia and ischemia.

Connor Sholtis, a student at Amherst College, worked with Dr. John Cunningham, Chief of the Section of Pediatric Hematology/Oncology and Professor of Pediatrics, Physiology, and Stem Cell Research. Sholtis assisted in researching the role of dual specificity protein phosphatase 1 (DUSP1) in erythropoiesis using murine erythroid leukemia (MEL) cells. This research will hopefully lead to a better understanding of leukemia and its treatment.

Anna Zimmer, a student at Carleton College, worked with Jill de Jong, MD, PhD, Assistant Professor of Pediatrics to study the major histocompatibility genes in zebra fish. More specifically, Zimmer studied self and non-self discrimination in zebra fish as relating to bone marrow transplants in humans. Understanding the mechanisms by which an organism engrafts or rejects a transplant can help make the success or failure of human transplants more predictable, contributing to more reliable treatment of cancers such as leukemia.

Above and beyond supporting our mission of excellence in research, the Ted Mullin Fund is preparing the best and brightest students to become the next generation of physician-scientists—where their impact will be felt for decades to come. We have already seen this impact in several of
the 2012 Ted Mullin Scholars. **Ashley Paquin** recently accepted a two-year post baccalaureate Intramural Research Training Award position at the National Institute of Health. Ashley will be working in the Laboratory of Translational Genomics at the National Cancer Institute while mastering the latest and most advanced techniques for basic and/or applied research working in an environment devoted exclusively to biomedical research.

**Erik Klontz** is currently taking a gap year while applying to MD/PhD programs. He is spending part of his year at the International Centre for Diarrhoeal Disease Research in Bangladesh, where he has been studying antibiotic resistance patterns in various diseases. Inspired by his work with stem cells at the University of Chicago Medicine, **Aleks Penev** is now in his first year at NYU Medical School and is interested in the potential for tissue regeneration and possibly organogenesis using stem cells. **Tony Restaino** continues to study different techniques in observing cancer biology in the same University of Chicago lab as he did when he was a Ted Mullin Scholar in 2012.
Ted Mullin Fund Fact Sheet

Amount Raised Since 2006: $801,596

Areas Supported:

- Training the next generation of physician-scientists through the Ted Mullin Scholar Program
- Developing the next generation approaches to sarcoma treatment, using genomics (Dr. Navin Pinto)
- Exploring therapeutic strategy for treating high-risk sarcomas (Dr. James LaBelle)
- Understanding basic mechanisms of cancer development critical to sarcoma and cancers (Dr. John Cunningham, Dr. Jill de Jong, and Dr. Kenan Onel)
- Establishing an informatics infrastructure to facilitate evaluation of sarcomas (Dr. Sam Volchenboum)

Future Goals:

- Develop additional immunotherapeutic clinical trials for personalized approach to treating relapsed/resistant sarcoma (Dr. Navin Pinto)
- Establish a clinic to routinely test genomics of families at risk for rare pediatric cancers (Dr. Kenan Onel)
- Continue to collaborate with other major cancer centers in developing trials for rare sarcomas (Section-wide initiative)
Updates from the Section of Pediatric Hematology/Oncology

AYA Clinic Expanding to Treat Sarcoma

The late Dr. James Nachman, who treated Ted for sarcoma, was a pioneer in improving care for young adults ages 15-30 with leukemia, lymphoma and sarcoma. Dr. Nachman conducted research with an adult oncologist, Wendy Stock, MD, that demonstrated that adolescent and young adult patients have better outcomes if treated in a pediatric setting, versus an adult setting. Their vision of bridging pediatric and adult oncology became the inspiration for the new Adolescent and Young Adult Oncology Clinic. With support from the Ted Mullin Fund, the AYA Clinic was established in 2012 to help patients in this age group confront the unique personal, psychosocial and medical challenges they face during their illness. Our cancer care physicians, drawn from both adult and pediatric cancer specialists, optimize care for young adults by offering specialized services and clinical trials targeted to this specific age group.

Research conducted by University of Chicago scientists has led to improvements in the way that adolescents and young adults throughout the world are being treated for leukemia and other cancers, including sarcoma. Five-year survival rates for AYA patients are improving (currently 70 percent)—though there is work to be done to keep pace with steadily increasing rates of survival among young children (almost 80 percent). Building on the AYA Oncology Clinic’s success with leukemia and lymphoma outcomes, the same multidisciplinary program concept and psycho-social resources will be formally applied to target pediatric sarcoma within the next year.
Dr. Pinto Named the First James B. Nachman Fellow

Dr. Navin Pinto, Assistant Professor of Pediatrics, was recently named the James B. Nachman Fellow. Named for Ted’s oncologist, the Fellowship is designed to support promising pediatric oncologists and serve as a launch-pad for their careers and the impact they will leave on patients for decades to come. A forward thinker, Dr. Nachman recognized that the next generation of pediatric oncologists was meant to bring to fruition the work he started, and we cherish the roadmap that he left them.

With the support of the Ted Mullin Fund, Dr. Pinto is currently building on Dr. Nachman’s legacy by working to identify the genetic factors that may explain why some sarcoma patients are resistant to chemotherapy. He aspires to use this genetic information to better identify the patients who could be at risk for treatment failure before chemotherapy sessions begin, in order to offer them a more personalized therapy. He will also have a key role in implementing new experimental sarcoma drug trials within the AYA Oncology Clinic, in order to bridge new scientific discovery to the benefit of AYA patients.

Exploring Relevance for Drugs Across Disease Types

A highly respected expert in pediatric cancers and blood diseases, Dr. Susan Cohn is one of the few pediatric oncologists in the United States who is conducting Phase 1 clinical trials of promising treatments for neuroblastoma. Her research has received generous support from peer-reviewed funding sources such as the National Institute of Health, and has anticipated relevance for other soft tissue cancers, such as sarcoma.
Cancer Genetics Expert Testing Synovial Sarcoma Drug

Yusuke Nakamura, MD, PhD, former Secretary General in the Japanese Government’s Office of Medical Innovation and professor of molecular medicine at Tokyo University’s Human Genome Center, joined the University of Chicago faculty in April 2012.

“I strongly wish to bring discoveries in basic medical science to the bedside, and improve the quality of life of cancer patients.”

-Yusuke Nakamura, MD, PhD  
Professor of Medicine

He is a leading authority in cancer genomics and is using large-scale genomic screening studies to better understand cancer and other genetic diseases. Over the course of many years in Japan and through his company OncoTherapy Science, Dr. Nakamura developed a synovial sarcoma antibody drug. Ted had this rare form of aggressive soft-tissue cancer that usually occurs near the joints of the leg and arm. Dr. Nakamura is conducting the clinical trials in France where synovial sarcoma patients are being treated with the new antibody drug and hopes to bring this and other trials to UCM in the next year as he builds new collaborations with Chicago’s pediatric oncology faculty.

Translating Research to Benefit Pediatric Cancer Patients

The University of Chicago recently recruited James LaBelle, MD, PhD, a pediatric stem cell transplantation expert who provides care for children of all ages with cancer and blood diseases. Dr. LaBelle specializes in stem cell transplantation, a curative therapy that replaces a cancer patient's diseased bone marrow and immune system with healthy cells.

Dr. LaBelle's laboratory research focuses on understanding, at a molecular level, why some pediatric cancers are resistant to current therapies. He currently serves as the primary investigator on a study examining a critical network of proteins that regulate whether a malignant cell lives or dies. The normal signaling between these proteins often is disturbed in cancerous cells, which allows them to continue to grow and thrive. Through this research, he is working to identify novel cell death regulatory mechanisms in resistant blood cancers and design novel and effective strategies to overcome them. Dr. LaBelle is hopeful to develop a new cellular therapeutic treatment of sarcoma within the next year.
Thank You

There is no better way to honor Ted than knowing that the Fund is paving the way for the next generation of physicians and scientists, as well as advances in the field for many years to come. Thank you for supporting our vision to improve outcomes for pediatric and adolescent/young adults with sarcoma and other cancers.

“Philanthropy is more important than ever before at the frontier of new science, where the University of Chicago now stands. Our philanthropic partners help us recruit and retain the best scientists and support their pioneering research while they seek federal funding.”

- T. Conrad Gilliam, PhD
Marjorie I. and Bernard A. Mitchell Distinguished Service Professor
Dean, Research and Graduate Education