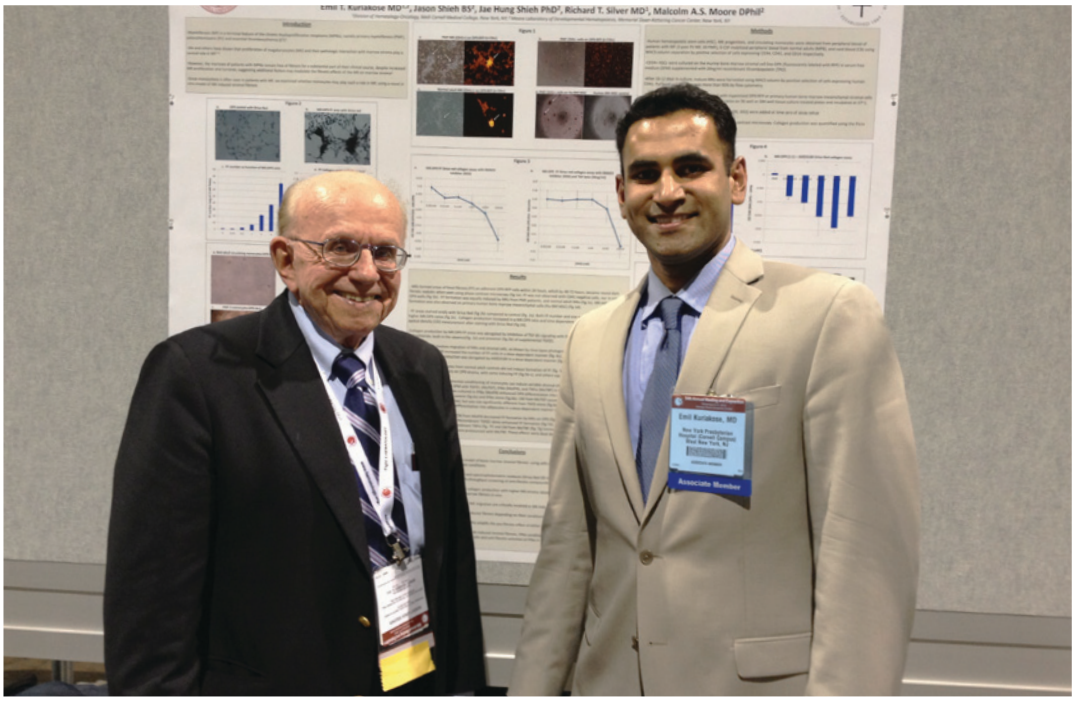
Work in Progress: Update from Johns Family Fellow, Dr. Emil Kuriakose

As I approach the end of my training as an oncologist, I want to express my utmost gratitude to the Johns Family and CR&T for sponsoring my fellowship and giving me the incredible opportunity to work with amazing mentors like Dr. Richard Silver and Dr. Malcolm Moore. It has truly been a remarkable and productive few years.

During the last two and a half years, I worked very closely with Dr. Silver on several new and important advances in the clinical understanding of MPNs. In a study of patients with polycythemia vera (PV), we made several important observations regarding the controversial role of decreasing the JAK2 mutation burden when treating PV. In early 2012, our findings were published in the journal Haematologica (the official journal of the European Hematology Association). Together, we also conceived and initiated a multi-center clinical study of pegylated interferon alfa-2b in early stage primary myelofibrosis. This study is now enrolling patients at Cornell, and will answer the very important question of whether starting treatment early for this complex disease improves symptoms and survival, compared to the currently accepted standard of watchful waiting until disease progression. In a separate study, we are collaborating with Dr. Ellen Scherl in the Department of Gastroenterology at Cornell to investigate a possible genetic predisposition common to MPNs and inflammatory bowel diseases (IBDs) that may involve the JAK2 mutation and a gene signature called 46/1. A pilot study on a small number of patients at the Cornell IBD Center was recently completed and showed encouraging results. We anticipate large-scale expansion of this study through funding from a pharmaceutical sponsor, as our findings may have important therapeutic implications for these two, seemingly unrelated diseases.

I also worked under the mentorship of Dr. Malcolm Moore and Dr. Jae Hung Shieh at Memorial Sloan Kettering Cancer Center Stem Cell Research Lab. With their guidance, and with invaluable help and advice from other members of the lab, particularly Jason Shieh (undergraduate student), our work has yielded some very exciting results. Using patient blood samples from clinic and tumor cell lines, we developed an in vitro model of bone marrow fibrosis (fibrosis in a test tube or petri dish). This is the first step to large scale testing of compounds to find new drugs for bone marrow fibrosis and other fibrotic diseases. In addition to drug testing, we used this model to study how interferon alfa may slow the progression of marrow fibrosis. These findings were presented at the annual meeting of the American Society of Hematology (ASH) in December 2012. We are now expanding this model of fibrosis to other cancers that also cause fibrosis when they spread to the bone marrow and other sites, with very promising preliminary results. If validated in other tumor types, it may serve as a novel model of tumor-induced fibrosis, an evolving and promising new target for anti-cancer therapy.



Dr. Silver and Dr. Kuriakose presenting at the American Society of Hematology conference

Our results thus far from these projects have led to several new collaborations, both with other academic institutions, and with the pharmaceutical industry. This important work would not have been possible were it not for the good will, generosity, and continued support from The Johns Family, along with other members of CR&T and its donors. In the current atmosphere of dwindling sources of support for medical research and education, organizations like CR&T are even more vital for both patients and physicians to continue the fight against cancer.