A Vision for Prostate Cancer

Current methods for prostate cancer screening have drawbacks. Rectal exams only catch relatively large, posterior tumors. Levels of prostate-sensitive antigen (PSA) are a controversial tool—many men with high PSA levels never develop the disease; conversely, low levels of PSA do not mean a cancer-free guarantee. Needle biopsies provide the best evidence for cancer, but until now, doctors had no choice but to go in blindly with a needle, taking random samples and risking damage to sensitive nerves and ducts.

Over the last 10 years, a team of NIH scientists—including Peter Choyke, M.D., Chief of CCR’s Molecular Imaging Program, Bradford Wood, M.D., Director of the NIH Center for Interventional Oncology, and Peter Pinto, M.D., Staff Clinician, CCR’s Urologic Oncology Branch—have developed the technology to perform visually guided needle biopsies for prostate cancer. First they demonstrated that magnetic resonance imaging (MRI) has the power to detect prostate tumors. Then, they developed techniques to fuse images taken with conventional MRI with real-time ultrasound scans, enabling urologists to guide their ultrasound biopsies using the superior resolution of MRI. This technology has now been commercialized by Invivo (a subsidiary of Philips Medical Systems) and was unveiled as UroNav at the 2013 annual meeting of the American Urological Society.

The team that developed UroNav is not resting on their laurels. They are looking beyond diagnosis to improve treatment. “Prostate cancer has been treated for over a century by removing the whole prostate,” said Pinto. “Image-guided focal therapy for prostate cancer can avoid the side effects of whole gland therapy, erectile dysfunction, and urinary incontinence.” They have already conducted safety and feasibility studies, and are beginning a phase 2 trial for efficacy.

Natural Disaster Brings Lasting Scientific Exchange

Natural disasters make immediate and dramatic headlines, but repairing their damage—both physical and emotional—is a much longer process. On the second anniversary of the Great East Japan Earthquake, a delegation of researchers from the NIH, including CCR Investigators Michael Gottesman, M.D., Tom Misteli, Ph.D., and Shioko Kimura, Ph.D., traveled to Tohoku University in Sendai, Japan, to continue building the scientific bridges that were first formed after that tragic event.

Japanese researchers are a strong presence at the NIH, not only among the senior scientific ranks but particularly as part of a large postdoctoral program sponsored by the Japanese Society for the Promotion of Science (JSPS). In the wake of the tsunami and earthquake that devastated several Japanese cities including Sendai in March 2011, these links served as a gateway for scientists from Tohoku University to continue their work at the NIH while their labs and lives were being repaired.

To commemorate the event and to continue building the collaborations and exchanges that stemmed from it, the NIH, Tohoku University, and JSPS held a joint two-day symposium, followed by site visits to the affected areas, including a regional hospital built only a few years before the earthquake hit. “Our guide took us to the basement and asked us to kneel down to look below,” said Misteli. “It turns out the entire hospital is built on springs and lifted several feet off the ground.” This feat of engineering enabled the hospital to escape damage during the disaster and to serve as an effective emergency response center during the crisis.

A second symposium is planned for the fall of 2014, which will bring a delegation of Tohoku University scientists to the NIH.