Merging Research and Clinic: The Pathology Core Facility

The rooms and walls along the eighth floor of Olson Hall are lined with boxes full of valuable research material. Some hold specimens from small Northwestern studies and others hold tissues from some of the largest clinical trials ever done.

In 2001 Northwestern’s Pathology Core Facility (PCF) took over a National Cancer Institute (NCI)-funded biorepository and now serves as the centralized center for the procurement, processing, and distribution of biospecimens obtained from ECOG patients enrolled in clinical trials.

ECOG stands for Eastern Cooperative Oncology Group, one of the largest clinical cancer research organizations in the United States and the world. It conducts clinical trials in all types of adult cancers, and the PCF serves as a reference lab for all of the trials’ specimens. During its peak, the PCF processed more than 60,000 human tissue and fluid samples in just one year.

Founded in 1997 and originally called the Pathology Coordinating Office, the PCF was originally located on the Evanston campus. However, it moved downtown to Olson Hall in 2001 to better serve the Robert H. Lurie Comprehensive Cancer Center and the global cancer community.

“All comprehensive cancer center needs a pathology facility. They can’t function without one,” says Peter Kulesza, pathology and PCF director. “Moving the pathology core downtown shows Northwestern’s commitment to cancer research and clinical trials.”

Five years later, the PCF became the reference lab for a large, NCI-sponsored, phase 3 clinical trial for breast cancer (known as the PACCT1 trial). Members of the PCF completed all of the histology and specimen procurement for thousands of solid tumors. The tumors have since been embedded into paraffin blocks and archived for future research. The PCF has more than 11,000 paraffin blocks of tissues from that specific ongoing study to date. Some blocks hold tissues from as many as 60 patients.

“The blocks are invaluable; they are precious,” Kulesza says. “They are available to researchers everywhere and someday could be used to find treatments and cures.”

Last fall the Center for Genetic Medicine received a custom-built SmaRTStore freezer system, which the PCF jointly operates with NUgene and uses to fully automate the storage and retrieval of DNA samples. A series of robotic arms loads and unloads samples from the SmaRTStore, eliminating the need for people to go in and out of the freezer. The system barcodes each sample, so it can easily be recalled when needed. Studies that used to require technicians to do days and days of sample retrieval now take a matter of hours.

The Office for Research has funded several instruments in the PCF to keep the operations running smoothly and keep the facility competitive. “We are grateful to Jay Walsh and Phil Hockberger for the equipment grant program,” Kulesza says. “Through that program, we were able to get equipment that we wouldn’t have been able to purchase otherwise.”

But as much as machinery in the facility shifts around samples for processing and archiving, Kulesza, an MD/PhD pathologist who sees patients in Northwestern Memorial Hospital’s Fine-Needle Aspiration Clinic, says it’s important to remember that they are not just dealing with blocks of paraffin and slides. Protecting research subjects is an important part of his job and a goal of the PCF.

“These are not just tissues, they are patients,” he says. “Our goal is not just to discover but to help. We care about what happens to the patients.”

Adekunle Raji, PCF technical director who has been with the facility since 2001, says that every member of the lab shares this sentiment. “When we look at samples,” he says, “we always remember that there are patients behind what we are looking at.”

Even though the Pathology Core Facility is a part of the Robert H. Lurie Comprehensive Cancer Center, it serves hundreds of Northwestern users from various disciplines across both campuses as well as outside users at collaborating institutions. The PCF works closely with researchers from Evanston’s Tumor Biology Core and Chemistry of Life Processes Institute and others. The PCF also serves research beyond cancer and will begin sharing samples with the AIDS Research Consortium, which works to conduct clinical trials to learn more about HIV/AIDS.

The PCF is a full-service facility that performs assays and diagnoses on tissues and can provide samples for research.

For more information, visit http://www.cancer.northwestern.edu/research/shared_resources/pathology/index.cfm#.