What is Tissue Banking?

In 2004, under the direction of Dr. Ganepola, Valley began its Tissue Banking Program. This program was created to build a “bank” of cancer tissue which could be tapped into for genetic research for the development and growth of cancer. In 2004, Valley was one of the first community hospitals in the nation to undertake this endeavor. Today, tissue banking is a common practice in academic institutions, and research facilities around the world. Because of Dr. Ganepola’s vision, in addition to the collection of cancer tumor tissue, and adjacent “normal” tissue from the operating room, since 2006 we have also been collecting blood samples from patients. This blood is spun in a lab where we separate and save plasma, serum and white blood cells. To date, over 820 samples have been procured from various sites including pancreas, lung, esophagus, brain, liver, kidney, bladder, colon, gynecologic and breast cancers.

After obtaining informed consent from the patient, blood is drawn and the patient is taken to the operating room, where the surgical team excises the cancer. A Pathologist on duty examines the specimens, then dissects a piece of cancer and adjacent “normal” tissue which is “released for research” and is prepared by the tissue banking technician to be frozen at -80 degrees Celsius. This is done within 15 minutes of excision, so the samples do not become too hypoxic for future research. The patients’ blood is also processed and separated into smaller vials of serum, plasma, and WBC’s for freezing. When the tissue specimens and blood have been frozen, an identifying number is assigned to the group, and information regarding the samples is logged into a database.

What do we do with the samples we obtain?

Any person wishing to do research on the samples stored in our Tissue Bank must apply in writing for permission to use the specimens. This proposal is submitted to the Institutional Review Board of The Valley Hospital for approval of the research they wish to perform. If permission is granted by the IRB, the specimens are de-identified and released to the researcher, who receives the specimens labeled with only a number, thus protecting the identity of the patient donor.

The tumor tissue obtained from a patient during surgery (which would otherwise have been discarded), is used to try to unlock the cellular secrets in the development of cancer and its metastasis. The addition of blood products to the tissue bank has opened the door to protein research (proteomics), and research on circulating tumor cells in the blood, as well as providing DNA for cancer genetic research. The tissue and blood together gives us the ability to look for the identification of existing mutations in patient’s cells which cause cancer, or for errors in the cellular structure, which may lead to cancer growth. We can
compare blood patterns to cancer cells in the body, or look for clues in the body which might lead us to answers about cancer development.

Tissue and blood is currently being used for genomic research in various cancers including lung, pancreas, colorectal, breast, prostate, bladder and other cancers. Because of the generous participation of patients and colo-rectal surgeons at Valley, the first research paper on the genetics of colon cancer, entitled, “Gene Expression Profiling of Primary and Metastatic Colon Cancers Identifies a Reduced Proliferative Rate in Metastatic Tumors” was published by Dr. Ganepola et al., on November 1st, 2009 in the “Journal of Clinical and Experimental Metastasis”.

If you are interested in obtaining a copy of this publication, or for more information on this or other projects in the Oncology Research Department, please contact Janet Ashbahian; Tissue Banking Technician at extension 201-634-5369; or Cheryl Wild-Parish; Manager of the Oncology Research Department at Luckow Pavilion, 201-634-5792.