OHSU discovery may lead to early cancer detection

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This week researchers in the Oregon Health & Science University (OHSU) Oregon Stem Cell Center and the OHSU Digestive Health Center are shining a new ray of hope on patients with pancreatic cancer. They've developed new reagents, or antibodies, that can recognize this often lethal disease. This important discovery may one day lead to earlier detection and treatment.

The new antibodies recognize a small number of normal pancreas cells, specifically cells involved in the transport of enzymes out of the pancreas, but recognize many more cells in pancreatic cancer tissue. In addition to recognizing pancreatic cancer, these antibodies recognize gastrointestinal cancers.

"The next step is to use these antibodies in a sensitive screening test to determine their full potential in diagnosis of this devastating disease," said Brett Sheppard, M.D., study co-investigator and pancreatic cancer surgeon in the OHSU Digestive Health Center.

Sheppard, who also is professor and vice chairman of surgery in the OHSU School of Medicine and a member of the OHSU Cancer Institute, will present these findings this week at Digestive Disease Week 2008.

Today just 15 percent of pancreatic cancer cases are detected early enough to qualify for a potential cure. Unfortunately, the signs and symptoms of the disease do not usually appear until the cancer is in advanced stages, when surgery – currently the best and only treatment

for pancreatic cancer is no longer an option.

This adverse set of circumstances is compounded by the fact that pancreatic cancer is not common enough to justify routine screening in the general population, and there are no screening blood tests or radiologic procedures sensitive enough to detect it early on. As a result, today pancreatic cancer is the fourth-leading cause of cancer death in the United States.

Eager to devise an earlier means of detection and save more lives, Philip Streeter, Ph.D., lead investigator on the study and director of the monoclonal antibody resource facility in the OHSU Oregon Stem Cell Center, along with Sheppard and colleagues generated and characterized antibodies, which were developed following the injection of normal pancreas cells into mice. They next took the spleen cells of the mice and fused them with a myeloma cell line, which yields cells that can be grown for long periods of time in the laboratory. These cells secreted antibodies that the researchers were then able to screen for reaction with normal pancreatic and pancreatic cancer tissues.

“The primary goal of the antibody resource facility is to develop novel reagents which will positively impact research in the broad field of stem cell biology, including basic studies of stem cells, developmental biology, tissue regeneration and repair, and disease diagnosis and therapy. We hope that the new antibodies introduced in San Diego will allow early detection and treatment of pancreatic cancer,” said Streeter, who also is an associate professor of medicine (hematology/medical oncology) in the OHSU School of Medicine and a member of the OHSU Cancer Institute.

In addition to research with these new antibodies, Sheppard and colleagues have established the Oregon Pancreas Tumor Registry, which is intended to keep patients at high risk for pancreatic cancer under

surveillance, with the goal of early diagnosis. The registry also acts as a biospecimen repository in which patients and families may provide blood, pancreatic ductal fluid and tissue samples. Researchers may then use the samples for pancreatic cancer research.

Source: Oregon Health & Science University