Scientists identify molecular predictor of prognosis for pancreatic cancer patients

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Pancreatic cancer is one of the most challenging tumors to treat. Identifying patients who have more aggressive disease could better inform treatment decisions and predict survival prognosis. A new finding from scientists at UNC Lineberger Comprehensive Cancer Center may help.

The team analyzed gene profiles of pancreatic tumors from patients with both localized and metastasized disease. They identified a six-gene "signature" associated with metastatic disease. Their study is the first to demonstrate that molecular differences in metastatic pancreatic cancer can be identified at earlier stages and that these differences are predictive of future disease behavior. This finding, if verified in further clinical studies, could help patients and physicians make more informed decisions about treatment and could offer new research opportunities into potential therapeutic targets to treat the disease.

Their findings were reported in the July 2010 issue of the *Public Library of Science Medicine*.

"In our study we showed our six-gene signature to be superior to current methods used to stage disease and estimate prognosis," says study senior author, Jen Jen Yeh, MD, assistant professor of surgery and pharmacology at the UNC School of Medicine. "If we can better stage patients' disease, we can better determine those who may benefit most from chemotherapy before surgery or from surgery alone. As more therapies become available, this signature may be used to tailor

treatment options."

Pancreatic cancer is often not diagnosed until it is advanced because the most common tumor type - called pancreatic ductal adenocarcimona, that comprises over 90 percent of all pancreatic cancer - rarely causes early noticeable symptoms. Survival rates for cancer that has spread are poor, on average only five to eight months. At present, treatment decisions and clinical prognosis are based on tumor size and lymph node status.

Study scientists compared and evaluated 30 tumor samples from patients with early and late-stage disease and identified the six-gene signature associated with late-stage disease. They then tested the prognostic value of this signature on a group of 67 patients with localized pancreatic cancer and confirmed the validity of the signature to identify patients with high-risk, aggressive disease.

At present, the only possibility of cure for pancreatic cancer is surgery which involves removal of the tumor, usually the head of the pancreas, part of the small intestine, a portion of the stomach, and other nearby tissues, a method called a Whipple procedure.

Says Yeh, "If patients have high risk, aggressive disease, this signature may be helpful for consideration of chemotherapy before surgery or, if patients are at increased risk for complications from the surgery, this information may help them decide whether or not to have the surgery."

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