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Jefferson Researchers Identify Potential Diagnostic, Prognostic Tools for Pancreatic Cancer

When it comes to diagnosing and treating cancer, early detection is important. While other cancers can be identified through routine screenings, pancreatic cancer has been notoriously difficult to diagnose early. After pancreatic cancer is diagnosed, the optimal course of treatment is not always clear.

Hwyda Arafat, MD, PhD, Associate Professor of Surgery at Thomas Jefferson University and co-director of the Jefferson Pancreatic, Biliary and Related Cancers Center, and Jordan M. Winter, MD, Assistant Professor of Surgery, are working to change that.

Together with Mon-Li Chu, PhD, Professor and Vice Chair of the Department of Dermatology and Cutaneous Biology, Dr. Arafat has identified a protein – Collagen 6A3 – that is highly expressed in cancerous pancreatic tissue and can be identified through a noninvasive blood test.

Based on their initial findings, Dr. Arafat and Dr. Chu were awarded a $200,000 grant from the University City Science Center’s QED Proof of Concept Program. The team is using the money to validate their initial findings and to begin commercializing the test – “The COLEA3 Panel” – which is poised to become the first clinically reliable test for pancreatic ductal adenocarcinoma.

“We are exploring how this test could be used to monitor high-risk patient groups, such as those with chronic pancreatitis and those with a family history of pancreatic cancer,” Dr. Arafat explains. “This noninvasive test could also help in differentiating between malignant and benign tumors identified in imaging studies, and could be used to monitor pancreatic cancer patients as they undergo treatment.”

As Dr. Arafat works to develop a screening test, Dr. Winter is working to identify more effective prognostic tools. His work has explored the linkage between two proteins, MUC-1 and mesothelin, and pancreatic tumors with particularly aggressive biology. More specifically, Dr. Winter and his team are exploring a possible correlation between CA 15-3, a serum marker already used in treating patients with metastatic breast and ovarian cancer, and high expression of MUC-1.

“No one had looked at using CA 15-3 in patients with pancreatic cancer, probably because this marker won’t be elevated in all pancreatic cancer patients,” Dr. Winter explains. “However, if we find a reliable correlation between CA 15-3 and MUC-1, testing CA 15-3 levels may have a role in pancreatic cancer treatment.”

What’s more, Dr. Winter is collaborating with Jonathan R. Brody, PhD, J. Wallace Davis and Gail G. Davis Professor of Surgery, to research gene therapies targeting pancreatic cancer at a molecular level: “What we imagine is a clinical paradigm where we can identify which patients are most appropriate for gene therapy based on the results of their serum test,” Dr. Winter says.

Watch Drs. Arafat and Winter discuss their research projects at last year’s patient symposium: www.jeffersonhospital.org/pancreasevent