Biomarker could lead to personalized therapies for prostate cancer

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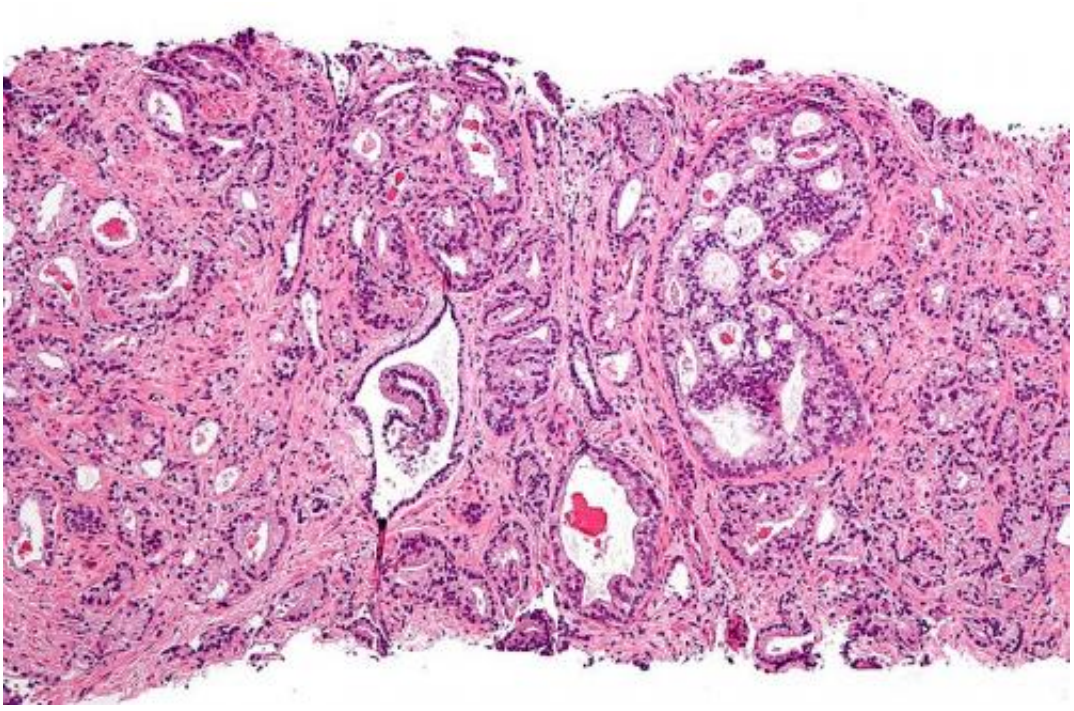

Micrograph showing prostatic acinar adenocarcinoma (the most common form of prostate cancer) Credit: Wikipedia, CC BY-SA 3.0

In 2016, more than 181,000 new cases of prostate cancer were reported in the U.S., according to the American Cancer Society. The prostate-specific antigen (PSA) test is one of the earliest ways clinicians can detect prostate cancers in their patients. Sometimes, a high PSA level may be a sign of benign conditions such as inflammation; therefore, more reliable tests are under investigation to help urologists diagnose and

treat the disease in an aging population. Now, researchers at the University of Missouri have explored how a specific protein's status may allow clinicians to better identify prostate cancer progression while helping them to make rational decisions in treating the disease.

"Our research is focused on finding genetic biomarkers that help identify prostate cancer patients at risk for more aggressive diseases as well as candidates who may have successful drug treatment or response," said Senthil Kumar the assistant director of the Comparative Oncology, Radiology and Epigenetics Laboratory (COREL) at the MU College of Veterinary Medicine and the principal investigator of the study.

The team identified that the testis-specific Y-like protein (TSPYL5) varied between normal patients and tumor tissues with different Gleason scores (which can range from 2-10), a tool used by pathologists and urologists to categorize the stages of cancer. This score can categorize patients based on disease aggressiveness, helping to define subsequent treatment options.

The multidisciplinary team, including members from the MU School of Medicine, collected human prostate cancer samples at various stages of the disease as described by the Gleason score. The researchers discovered that TSPYL5 was present in the tissues with Gleason score of 7, but was diminished or absent in some patients with Gleason score of 7 and above, which could predict a more aggressive course of prostate cancer progression. Moreover, they identified that the presence of TSPYL5 could facilitate better drug response as tested in the prostate carcinoma cells.

"TSPYL5 testing could become one of the tools in our fight against prostate cancer," Kumar said. "The anticipation is that we can use this biomarker for patients before they undergo any unnecessary and invasive surgeries or drug therapy plans."

Kumar mentioned that this study needs to be conducted in large patient cohorts to further validate its potential for clinical translation. Studies along this line are in progress, Kumar added.

The study was published in February 2017 issue of *BMC Cancer*. The interdisciplinary team included Jeffrey N. Bryan, associate professor of veterinary oncology; James Amos-Landgraf, assistant professor of veterinary pathobiology in the MU College of Veterinary Medicine; Magda Esebua, associate professor of pathology and anatomical sciences and director of cytopathology in the MU School of Medicine; and Tanner J. May, a veterinary student at Mizzou. Funding was provided in part by an award from the Jay Dix Challenge to Cure prostate cancer fund from the Ellis Fischel Cancer Center at MU.

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