

New Blood Test to Detect Aggressive Form of Prostate Cancer

A new tool may provide a less invasive, more accurate means of diagnosis.

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Prostate cancer is a disease with many subtypes, some of which are more difficult to treat than others. While most prostate cancer cells rely on androgen hormones to grow—allowing androgen blockers to emerge as an effective therapy—15 to 20 percent of prostate cancers evolve to be “androgen-independent.” One such subtype is known as castration-resistant neuroendocrine prostate cancer (CRPC-NE), for which chemotherapy is the primary treatment strategy.

On a single cell level, the transition to CRPC-NE is hallmarked by known epigenetic changes—specifically, the attachment of a methyl group to certain genes, effectively turning them “off.” Detecting CRPC-NE in patients, however, has remained challenging, as current diagnostic methods require taking biopsies from metastatic tumor sites. In addition to being invasive, these biopsies are often unreliable, as metastatic tumors can differ widely from patient to patient.

But a new tool from former Damon Runyon Clinical Investigator Himisha Beltran, MD, and her colleagues at Dana-Farber Cancer Institute may provide a less invasive, more accurate means of diagnosis. The team has developed a blood test that can detect CRPC-NE from free-floating tumor DNA in the bloodstream, using what is known about the epigenetic markers of this type of prostate cancer. Their novel neuroendocrine monitoring (NEMO) blood test successfully identified patients with CRPC-NE in two clinical trials, including some patients who had not yet been diagnosed. The test was also able to quantify what fraction of the tumor comprised CRPC-NE cells, as the cancer underwent transition from one subtype to another.

“We hope this blood test can be used to determine if a patient is developing neuroendocrine prostate cancer,” said Dr. Beltran. “Now that we have robustly shown the accuracy of this panel test, we’re excited to apply it to clinical questions. We’d like to determine if this test can help us predict which patients respond to certain prostate cancer treatments, including precise treatments that target neuroendocrine prostate cancer.” This research was published in Cancer Discovery.

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