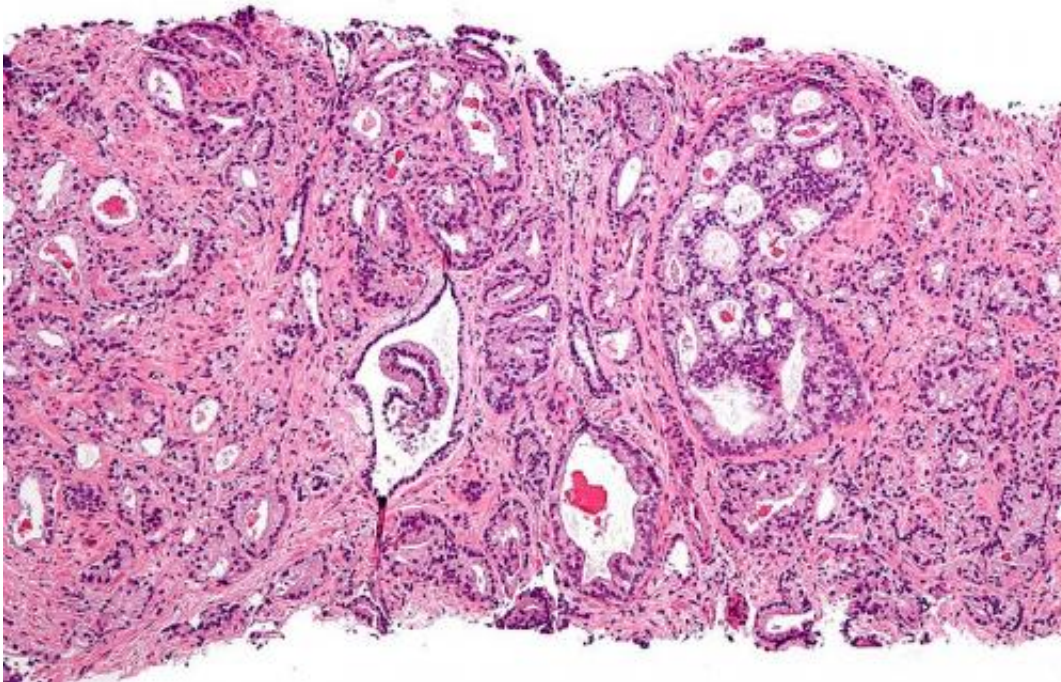


# Researchers announce progress in developing an accurate, noninvasive urine test for prostate cancer

February 28 2020

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Micrograph showing prostatic acinar adenocarcinoma (the most common form of prostate cancer) Credit: Wikipedia, [CC BY-SA 3.0](https://creativecommons.org/licenses/by-sa/3.0/)

Researchers at the Johns Hopkins Kimmel Cancer Center have made significant progress toward development of a simple, noninvasive liquid biopsy test that detects prostate cancer from RNA and other specific metabolic chemicals in the urine.

A description of their findings appears in the Feb. 28 issue of the journal *Scientific Reports*.

The investigators emphasize that this is a proof-of-principle study for the urine test, and it must be validated in additional, larger studies before it is ready for clinical use.

The researchers used RNA deep-sequencing and [mass spectrometry](#) to identify a previously unknown profile of RNAs and dietary byproducts, known as metabolites, among 126 patients and healthy, normal people. The cohort included 64 patients with prostate [cancer](#), 31 with [benign prostatic hyperplasia](#) and prostatitis diseases, and 31 healthy people with none of these conditions. RNA alone was not sufficient to positively identify the cancer, but addition of a group of disease-specific metabolites provided separation of cancer from other diseases and healthy people.

"A simple and noninvasive urine test for prostate cancer would be a significant step forward in diagnosis. Tissue biopsies are invasive and notoriously difficult because they often miss [cancer cells](#), and existing tests, such as PSA ([prostate-specific antigen](#)) elevation, are not very helpful in identifying cancer," says Ranjan Perera, Ph.D., the study's senior author. Perera is also the director of the Center for RNA Biology at Johns Hopkins All Children's Hospital, a senior scientist at the Johns Hopkins All Children's Cancer & Blood Disorders Institute and the Johns Hopkins All Children's Institute for Fundamental Biomedical Research, and an associate professor of oncology at the Johns Hopkins University School of Medicine and Johns Hopkins Kimmel Cancer Center member.

"We discovered cancer-specific changes in urinary RNAs and metabolites that—if confirmed in a larger, separate group of patients—will allow us to develop a urinary test for [prostate cancer](#) in the

future," says Bongyong Lee, Ph.D., the study's first author and a senior scientist at the Cancer & Blood Disorders Institute.

**More information:** *Scientific Reports* (2020).  
[www.nature.com/articles/s41598-020-60616-z](https://www.nature.com/articles/s41598-020-60616-z)

Provided by Johns Hopkins University School of Medicine

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