

Early prostate cancers can harbor aggressive tumor cells

January 19 2022, by Sarah Avery



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/)

Many cases of early prostate cancer are dominated by cells that are slow-growing, often leading to a clinical decision to monitor for progression before initiating treatments that can have adverse side effects.

But some of these cancers might also include a small number of aggressive [cells](#) hiding among the indolent ones like wolves in a herd of

sheep. Researchers at Duke Health have identified a molecular signature that can spot these lurking threats.

Publishing online in the journal *European Urology*, the researchers said the genomic signature they have identified makes it possible to develop a test to identify which men should undergo treatment early in their diagnosis, vs. those who could safely postpone therapy, if needed at all.

"We performed single-cell RNA sequencing analysis of freshly isolated tumor cells from primary, untreated prostate cancers in men as well as advanced [cancer](#) cells," said Jiaoti Huang, M.D., Ph.D., chair of Duke's Department of Pathology and a senior author of the study.

"We discovered that a small fraction—less than 0.5%—of primary prostate cancer cells possess the genomic features of advanced and aggressive prostate cancer cells that have become resistant to hormonal therapies," Huang said. "This shows that hormonal therapy resistance can be a feature present in a small number of [tumor cells](#) early in the disease process before therapy."

Huang said the goal now is to develop a clinical assay that identifies the more dangerous cells, which could trigger earlier, aggressive treatment in some patients to avoid disease progression. Huang said Duke owns [intellectual property rights](#) on the genomic signature.

More information: Qing Cheng et al, Pre-existing Castration-resistant Prostate Cancer–like Cells in Primary Prostate Cancer Promote Resistance to Hormonal Therapy, *European Urology* (2022). [DOI: 10.1016/j.eururo.2021.12.039](https://doi.org/10.1016/j.eururo.2021.12.039)

Provided by Duke University

Citation: Early prostate cancers can harbor aggressive tumor cells (2022, January 19) retrieved 13 February 2024 from <https://medicalxpress.com/news/2022-01-early-prostate-cancers-harbor-aggressive.html>

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