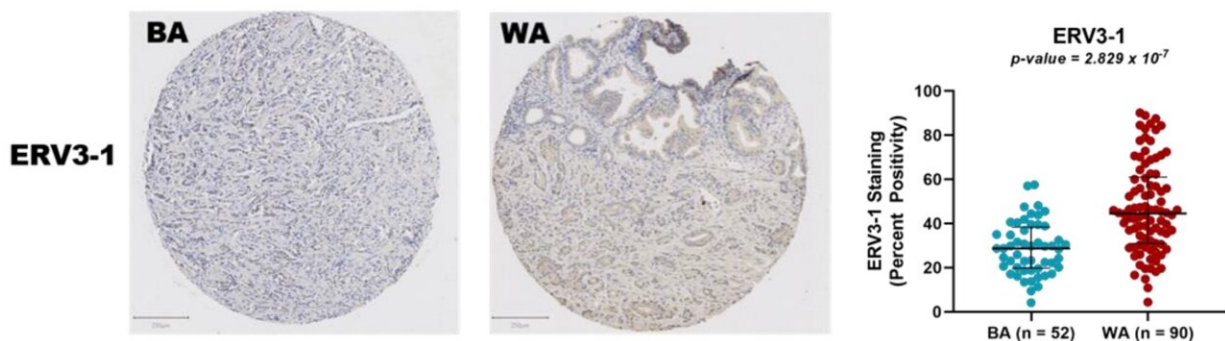


Prostate cancer molecular feature with prognostic value, distinguishes ancestral differences

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Tissue microarray slides stained with the ERV3 antibody. A tumor tissue sample from a patient of BA ancestry is shown on the left while a sample from a patient of WA ancestry is shown on the right. A scatter plot of ERV3-1 percent positivity in tissue microarrays (TMA) from 52 BA and 90 WA patient samples is also shown on the right. Blue represents BA while red represents WA. Credit: DOI: 10.3390/cancers13246347

A molecular feature in prostate cancer, called endogenous retroviral (ERV) RNA, has been found to have prognostic value and also distinguish differences between men of African and European or Middle Eastern ancestry, according to a study led by researchers at the University of California, Irvine. The team also identified ERV expression signatures that may be useful for identifying prostate cancer

patients at greatest risk of progression regardless of ancestry, which may also extend to progression in other cancers.

Findings from the study, "Expression of Endogenous Retroviral RNA in Prostate Tumors has Prognostic Value and Shows Differences among Americans of African Versus European/Middle Eastern Ancestry," were recently published in the online journal *Cancers*.

Prostate cancer is the most common cancer diagnosed in men in the U.S. and affects millions of men worldwide, but there are disparities in its aggressiveness between different ancestries. There is a higher burden among Black American men compared to White American men. Black American patients are diagnosed at an earlier age and at a more advanced stage than White American patients and being Black is an independent predictor of disease relapse in those undergoing radical prostatectomy.

"Measuring ERV expression may have the potential to help physicians predict which patients would most benefit from active surveillance or radical therapy, and they also have the potential to be useful in clinically relevant prognostic models for other cancers," said Farahnaz Rahmatpanah, Ph.D., assistant professor in residency in the Department of Pathology & Laboratory Medicine at the UCI School of Medicine, and corresponding author. "We also believe that in the future, experiments to knock out or overexpress ERVs in cells and [tissue culture](#) may further advance our understanding of the consequences of differential regulation of ERVs among people of different geographical ancestry."

To better understand the [biological basis](#) for disparities, the team investigated two potential roles for ERVs in [prostate cancer](#). They discovered differences in ERV expression among prostate tumors which may be associated with variations in the mechanism of progression

between patients of primarily African versus primarily European or Middle Eastern ancestry and determined the pathways where these genes have important functions.

A biochemical recurrence risk-prediction model was developed using clinical data and ERV transcripts, which outperformed prediction models based on [clinical data](#) alone. The ERV expression signatures that correlated with biochemical relapse among [prostate cancer patients](#) of all ancestries were revealed, indicating that ERVs may be useful for identifying patients at greatest risk of progression and that the utility of ERV expression for studying prostate [cancer](#) progression may extend to other cancers.

More information: Vinay Kumar et al, Expression of Endogenous Retroviral RNA in Prostate Tumors has Prognostic Value and Shows Differences among Americans of African Versus European/Middle Eastern Ancestry, *Cancers* (2021). [DOI: 10.3390/cancers13246347](https://doi.org/10.3390/cancers13246347)

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