# COMMENTARY

# Re: Use of TP4303 to identify prostate cancer cells in voided urine samples

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Prostate cancer is the second most common cancer in men across the world. Prior to PSA testing, men usually presented with locally advanced disease detected on digital rectal exam or with metastatic disease. PSA ushered in the era of serum biomarkers for prostate cancer. It has taken over three decades to refine the role of PSA in prostate cancer detection. The lack of specificity has spurred research into finding better, readily obtainable biomarkers with high sensitivity and specificity. The trick is to find the prostate cancers that are a threat, not the ones that aren't. Over the last decade and more, many biomarkers have been proposed and tested (HK-2, Pro-PSA, PCA3, TMPRSS2:ERG fusion transcripts, miRNA, just to name a few) but we still await that magical combination of a readily available, reproducible, and hopefully inexpensive biomarker with high sensitivity and specificity.

The authors describe the use of a peptide labeled fluorophore for the VPAC1 receptors that are expressed on malignant prostate cancer cells shed in the urine. After initial feasibility work, the authors collected urine from 318 men with lower urinary tract symptoms and a PSA > 4. The patients underwent prostate biopsy yielding Grade Group 2 or higher prostate cancer in 158 patients. One hundred fifty-four or those patients with cancer had a positive result for the biomarker. The sensitivity of the test was 100%, the specificity was 97.56%, positive predictive value was 97.47%, and negative predictive value was 100%.[1] These are impressive numbers for a urine biomarker (or any biomarker). This work is certainly promising, BUT, we have seen promising early data on many biomarkers. In this study, the mean PSA in the cancer group was 34.53 ng/mL versus 9.41 in the control (negative) group. Since patients with infection were excluded, the significantly different PSA levels seemed to be selecting the cancers as well. Time and follow up will determine if the "negative biopsy" controls were truly negative. Can the technique and these results be reproduced? The true test will be how this biomarker consistently performs across a broader population of men with a lower, more homogenous PSA elevation. I will eagerly await results of continued study of this promising biomarker for prostate cancer. ☐

## References

1. Ghagane SC, Rangrez S, Nerli RB, Thakur ML, Gomella LG. Use of TP4303 to identify prostate cancer cells in voided urine samples. *Can J Urol* 2024;31(3):11892-11896.

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