

Urine-sniffing dogs: Early detection of prostate cancer

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In the February 2011 issue of *European Urology*, Jean-Nicolas Cornu and colleagues reported the evaluation of the efficacy of prostate cancer (PCa) detection by trained dogs on human urine samples.

In their article, the researchers affirm that volatiles [organic compounds](#) (VOCs) in urine have been proposed as cancer biomarkers. In the study, a Belgian Malinois shepherd was trained by the clicker training method (operant conditioning) to scent and recognize urine of people having PCa. All [urine samples](#) were frozen for preservation and heated to the same temperature for all tests. After a learning phase and a training period of 24 months, the dog's ability to discriminate PCa and control urine was tested in a double-blind procedure.

Urine was obtained from 66 patients referred to an urologist for elevated prostate-specific antigen or abnormal digital rectal examination. All patients underwent prostate [biopsy](#) and two groups were considered: 33 patients with cancer and 33 controls presenting negative biopsies. The dog completed all the runs and correctly designated the cancer samples in 30 of 33 cases. Of the three cases wrongly classified as cancer, one patient was re-biopsied and a PCa was diagnosed. The sensitivity and specificity were both 91%.

This study shows that dogs can be trained to detect PCa by smelling urine with a significant success rate. It also suggests that PCa gives an odor signature to urine. Identification of the VOCs involved could lead to a potentially useful [screening tool](#) for PCa.

More information: The article "Olfactory Detection of Prostate Cancer by Dogs Sniffing Urine: A Step Forward in Early Diagnosis," by Jean-Nicolas Cornu, Géraldine Cancel-Tassin, Valérie Ondet, Caroline Girardet, Olivier Cussenot is published in *European Urology*, Volume 59, issue 2, pages 183-316, February 2011, [DOI: 10.1016/j.eururo.2010.10.006](https://doi.org/10.1016/j.eururo.2010.10.006)

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