

# An advance toward an 'electronic nose' urine test for tuberculosis

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Scientists are reporting an advance toward a fast, inexpensive urine test to detect and monitor the effectiveness of treatment for tuberculosis (TB), which is on a rampage in the developing world. Their study appears in the ACS' journal *Analytical Chemistry*.

A team led by Virander Singh Chauhan and Ranjan Kumar Nanda notes that TB strikes an estimated 10 million people and kills 3 million each year, mostly in developing countries. Health care workers diagnose the disease by identifying the [TB bacterium](#) in sputum or blood samples. But current tests tend to be time-consuming, sometimes taking days or weeks to give results. The tests also require the use of specially trained personnel or expensive equipment that might not be available in some areas.

The scientists describe an advance toward a test that overcomes these drawbacks. They analyzed so-called volatile organic compounds (VOCs) — substances that evaporate easily in the air — present in the urine of TB patients and compared them with VOCs in the urine of healthy patients. The scientists found that infection with TB produces a distinct pattern of certain VOCs in much the same way that distinct fingerprint patterns can identify individuals. Identification of these patterns sets the stage for developing a portable "electronic nose" that can quickly sniff urine samples to detect TB, the scientists suggest.

**More information:** *Anal. Chem.*, 2011, 83 (14), pp 5526–5534 [DOI: 10.1021/ac200265g](https://doi.org/10.1021/ac200265g)

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