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New test has a 'nose' for bacteria

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CHAMPAIGN, Ill., April 27 (UPI) -- U.S. researchers say they have developed a quick, simple method of identifying infectious bacteria by one of their telltale characteristics -- they stink.

Using a low-cost array of printed pigments that react to the distinct odor of many kinds of bacteria, researchers at the University of Illinois say they can identify bacterial infections by an aromatic "fingerprint," a university release said Wednesday.

Blood cultures have been used as the standard test for identifying blood-borne bacterial infections for more than a century, but they have serious drawback, researchers said.

"The major problem with the clinical blood culturing is that it takes too long," UI chemistry Professor Ken Suslick said. "In 72 hours they may have diagnosed the problem, but the patient may already have died of sepsis.

"Our approach to this problem has been to think of bacteria as simply micron-sized chemical factories whose exhaust is not regulated by the EPA. Our technology is now well-proven for detecting and distinguishing among different chemical odorants, so applying it to bacteria was not much of a stretch."

The artificial nose is an array of 36 reactive pigment dots that change color when they sense chemicals in the air. The pattern of color change over time is unique to each bacterium, researchers said.

In only a few hours, the array can not only confirm the presence of bacteria, but identify a specific species and strain, and can even recognize antibiotic resistance, a key factor in treatment decisions, they said.



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