Cancer on the breath? The nose knows

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Prof. Hossam Haick

A breath test for "sniffing out" cancer in a person's breath is a step closer to reality, according to a study recently published in the *British Journal of Cancer*. The study results show that the device developed by Prof. Hossam Haick of the Technion Department of Chemical Engineering and the Russell Berrie Nanotechnology Institute can identify chemical signals in the breath of cancer patients even those with difficult-to-detect head-and-neck cancer.

The Nanoscale Artifical Nose (NA-NOSE), as the device is called, consists of five gold nanoparticle sensors linked to software capable of detecting patterns of molecules inherent in people with cancer. Prof. Haick and his team hope that such a test could one day be used by general practitioners to provide instant cancer diagnoses.

"There's an urgent need to develop new ways to detect head-and-neck cancer because diagnosis of the disease is complicated, requiring specialist examinations," said Prof. Haick. "We've shown that a simple 'breath test' can spot the patterns of molecules which are found in head-and-neck patients in a small, early study." Next up, he says, is testing these results in larger studies to determine if it could lead to a potential screening method for the disease.

More than 80 volunteers took part in the study, 22 of whom had various head-and-neck cancers, 24 of whom had lung cancer, and 36 who were healthy. In previous tests, the NA-NOSE was also able to detect lung cancer and kidney diseases.

According to American Cancer Society statistics, there were 35,720 new cases of head-and-neck cancer (including cancers of the eye, mouth, voice box and food pipe) in the U.S. in 2009.

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