

Electronic nose developed to sniff out colon diseases

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A team of researchers from the Gandia campus of Valencia's Polytechnic University and the La Fe Health Investigation Institute have developed a prototype of an electronic nose that can distinguish between patients with Crohn's disease and ulcerative colitis.

The device, called Moosy 32 eNose, can also tell whether the [disease](#) is active, with close to 90 percent accuracy. According to the researchers, this type of equipment could be available for digestive system specialists who could determine the state of the patient via a simple, three-minute stool analysis.

Non-invasive detection

It is common today to use invasive tests to diagnose and evaluate inflammatory activity as a result of colon-related illnesses such as Crohn's disease and [ulcerative colitis](#), both classified as inflammatory bowel diseases (IBD). With the new prototype, the UPV and IIS La Fe teams want to contribute to the creation of non-invasive diagnosing systems. It is believed that as many as 200,000 people currently suffer from these illnesses in Spain and the rise in incidence continues to increase annually by over 3 percent.

The sensor designed by the Valencian researchers can detect [volatile organic compounds](#) that act as diagnostic markers or to reveal the intensity level of the disease's activity. "Volatile organic compounds are

created by physiological processes of human metabolism and are expelled as waste through faeces. The concentration of these components can be a differentiating marker between certain bowel diseases, and their accurate detection by way of non-invasive devices such as the [electronic nose](#) would be a great step forward for the detection and monitoring of the evolution of these diseases," says Dr. Pilar Nos, head of the Digestive System Medicine Department at La Fe hospital.

Researchers have performed tests with 445 samples and obtained positive results. "However, it is paramount to continue working to improve the detection algorithms," says José Pelegrí, who works for the Sensors and Magnetism group within the Gandia Campus Investigation Institute, IGIC.

The system is being tested for further medical uses, such as detecting prostate cancer. Other studies are also being performed, such as detecting the microbial contamination of water or determining the maturity level of fruit, which could have key applications within the agro-food industry.

Provided by Asociacion RUVID

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