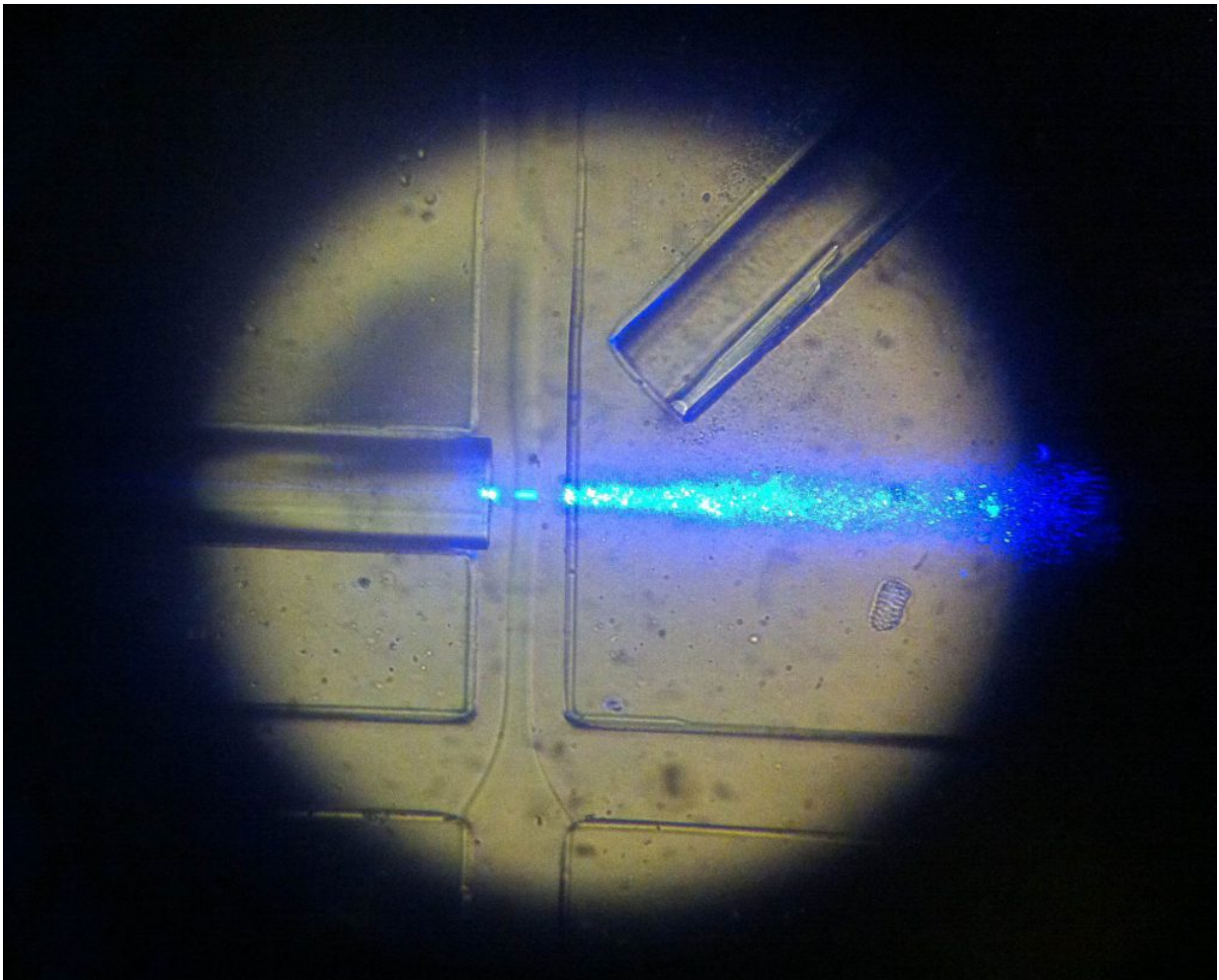


Researchers develop a device that detects tumour cells in blood

July 18 2017



The device in operation: a fiber optic shines a blue light on the sample, highlighting the cells as they flow from left to right. Credit: © URV

Researchers at the URV's Department of Physical and Inorganic Chemistry have patented a portable device that can detect tumour cells in blood. The device counts the number of tumour cells in a blood sample in real time and is thus a highly effective tool for improving the monitoring, treatment and diagnosis of cancer.

The system has been successfully tested on patients in various stages of breast cancer and could be used to determine the presence of other tumours by analysing different antibodies in the [blood sample](#).

Patients with cancer need to be constantly monitored during treatment to assess the progress of the disease. This is currently done using imaging techniques and invasive biopsies. The device designed by the URV researchers is highly sensitive and requires no surgery or treatment involving radiation. It is thus a highly useful clinical method because it improves patient quality of life by removing the need for the more invasive traditional procedures.

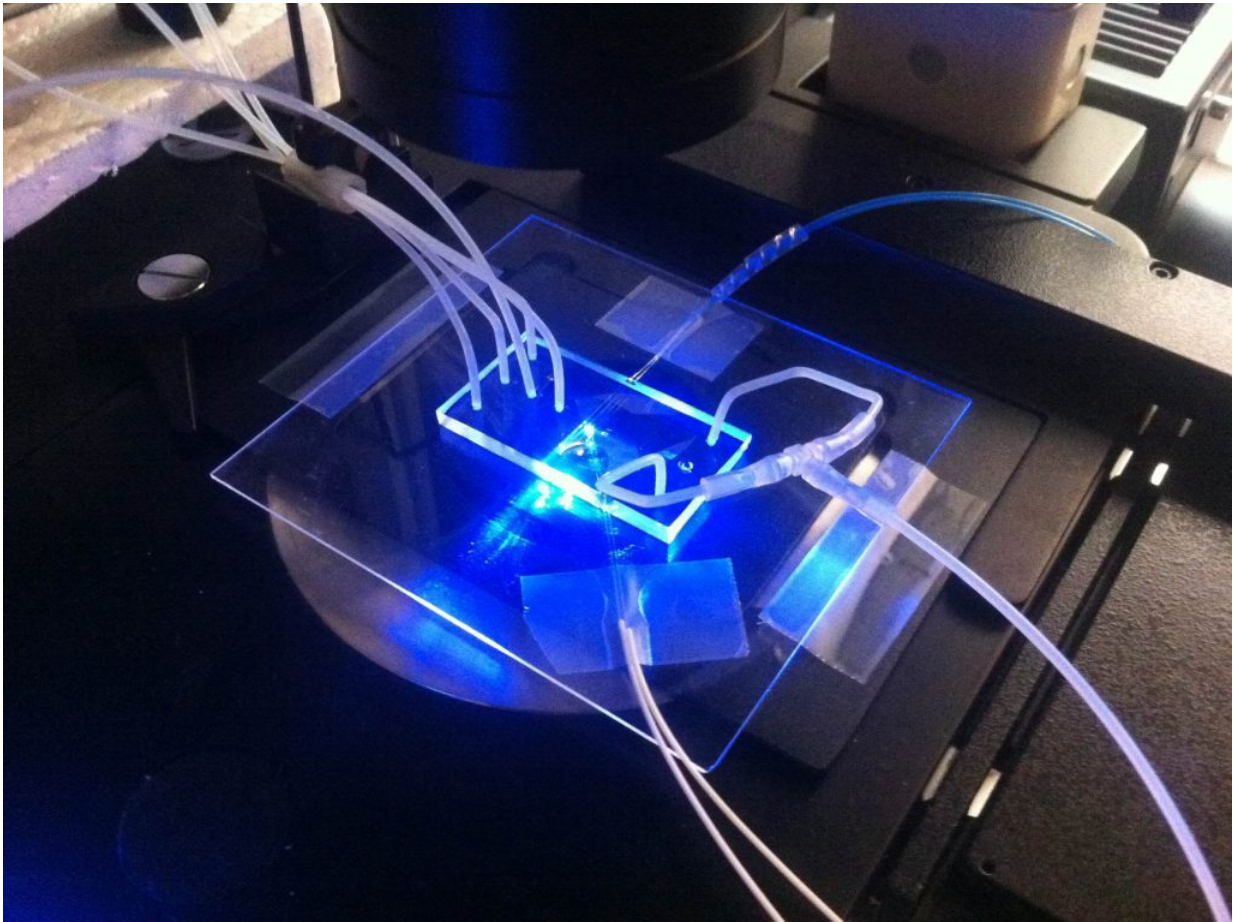
The device can accurately determine a patient's level of health and monitors cancer quickly, cheaply, effectively and noninvasively. Furthermore, it can assist in the early diagnosis of the disease and monitor tumours more effectively and in a manner that has a less negative effect on patients' bodies.



Researchers with the portable device that can detect tumor cells in blood. Credit: ©URV

Two integrated systems

The new device uses two systems in miniature: a flow system and an optical system. The first causes the blood cells to flow in alignment, while the second uses two optic fibres (a laser diode and a photodetector) to analyse and count cancerous and non-cancerous cells. The ratio between the two reveals how the cancer is progressing.



Credit: Universitat Rovira i Virgili

This complex system is the result of research published in the Nature group's *Scientific Reports*.

More information: Eric Pedrol et al, Optofluidic device for the quantification of circulating tumor cells in breast cancer, *Scientific Reports* (2017). [DOI: 10.1038/s41598-017-04033-9](https://doi.org/10.1038/s41598-017-04033-9)

Provided by Universitat Rovira i Virgili

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