

## Nano-chip that detects cancer at an early stage

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**Singapore:** An international team of researchers from the Institute of Photonic Sciences in Castelldefel, Spain have developed a nano-chip that can detect low concentrations of protein cancer markers in blood at an early stage.

The ultra-sensitive nano-chip uses advances in plasmonics, nano-fabrication, microfluids and surface chemistry to detect the disease in early stages.

This chip hosts various sensing sites distributed across a network of fluidic micro-channels that enables it to conduct multiple analyses.

Explaining the functioning, a report said, gold nano-particles lie on the surface of the chip and are chemically programmed with an antibody receptor in a way that they are capable of specifically attracting the protein markers circulating in blood.

When a drop of blood is injected into the chip, it circulates through the micro-channels and if cancer markers are present in the blood, they stick to the nano-particles located on the micro-channels as they pass by.

The device monitors these changes, the magnitude of which are directly related to the concentration/number of markers in the patient blood, thus providing a direct assessment of the risk for the patient to develop a cancer.