A faster, simpler test for disease biomarkers

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In an advance toward earlier diagnosis of cancer and other disorders, scientists are reporting development of a potentially fast, simple and inexpensive blood test to detect disease "biomarkers." The study is scheduled for the Dec. 26 issue of ACS' *Journal of the American Chemical Society*.

Cagri A. Savran and colleagues explain that serum biomarkers can reveal critical information about the onset and progression of many diseases. Several roadblocks hinder clinical use of existing biomarker tests, which will demand smaller sensors, faster detection times, and less expensive ways of analyzing samples of blood and other body fluids.

The study describes development of an integrated serum biomarker detection system for the folate receptor and testing of blood samples from patients with different types of cancer. Researchers captured the folate receptors — proteins that are biomarkers for the growth of cancer cells — with microscopic magnetic beads and assembled them to form a structure termed a "diffraction grating." A laser beam focused on the grating yielded a pattern that could potentially be used to determine the biomarker concentration and thus the state of tumor growth.

"The same principles presented here should apply for detection of many other disease markers present in various body fluids," the researchers stated. "Due to its simplicity and high sensitivity, we expect this method to be extremely useful both in research laboratories and in development of devices for point-of-care diagnostics."

Source: ACS