Cancer Prevention Research

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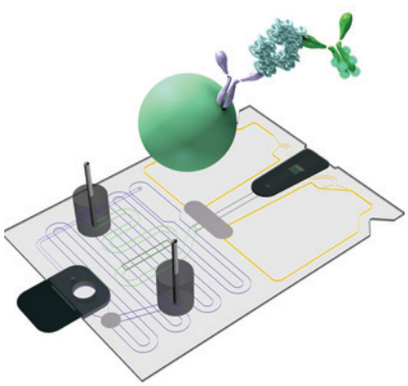
ABOUT THE COVER

Point-of-care (POC) diagnostic platforms have the potential to enable low-cost, large-scale screening. As no single biomarker is shed by all ovarian cancers, multiplexed biomarker panels promise improved sensitivity and specificity to address the unmet need for early detection of ovarian cancer. A programmable bio-nano-chip (p-BNC)—a multiplexable, microfluidic, modular platform—was configured to quantify a novel multimarker panel. The p-BNC assay card (shown) is a lab-on-a-chip platform that features a bead-based sensor core and a fully integrated microfluidic network that facilitates on-card sample preparation and metering, reagent storage, mixing, bubble and debris removal, and secure waste containment. By design, the p-BNC assay card minimizes benchtop sample and reagent preparation steps and associated laboratory tools and infrastructure, which is critical for POC analysis. In a 31-patient cohort encompassing early- and late-stage ovarian cancers along with benign and healthy controls, the multiplexed p-BNC panel was able to distinguish cases from controls with 68.7% sensitivity at 80% specificity. Taken together, the p-BNC shows strong promise as a diagnostic tool for large-scale screening that takes advantage of faster results and lower costs while leveraging possible improvement in sensitivity and specificity from biomarker panels. See article by Shadfan et al. (beginning on page 37) for more information.



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