

# New technique identifies cellular 'needle in a haystack'

July 12 2012

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Rare cells can be identified within mixed cell populations with near perfect accuracy using a detection technique devised by research teams led by Robert Wieder, MD, PhD, at the University of Medicine and Dentistry of New Jersey-New Jersey Medical School and Rajan Kumar, MD, PhD, at Genome Data Systems in Hamilton, N.J. This technique may facilitate cancer diagnosis, which often relies on the detection of rare cancerous cells in tiny amounts of biopsy tissue or fluid.

Wieder's group previously described this approach, which employs microfluidics, in which cells expressing a specific surface protein are identified as they are pumped through a narrow fluid channel. The channel is coated with a binding partner for the protein of interest, slowing the progress of the cells of interest while allowing non-specific cells to pass through unhindered.

In the new study, published in the Royal Society of Chemistry journal *Lab on a Chip*, the group optimized the assay to allow the detection of rare breast cancer cells in a mixed population with 100% sensitivity and specificity and without prior manipulation. The process left the cells undamaged, making them available for additional microfluidic, cellular or molecular testing, including analysis of surface proteins known to affect prognosis or response to treatment in patients with cancer, infectious or inflammatory diseases or exposure to toxins.

**More information:** *Lab Chip*. 2012 May 7;12(9):1646-55

Provided by University of Medicine and Dentistry of New Jersey

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