New opto acoustic focusing technology stabilizes tiny biological samples

I-Micronews

Ordinarily, the particles inside droplets are detected when they randomly fall on a sensor's surface. However, the new method could improve sensor efficiency by actively moving particles to specific regions on an electronic chip for detection or analysis.

The method offers promise for future "*lab-on-a-chip*" technology, using electronic chips to analyze biological samples for medical and environmental applications. Sensors based on the technique could make possible a new class of chemical analyses, or assays, with point-of-care devices in a doctor's office or hospitals.

Such sensors might be used to quickly analyze blood, urine and other bodily fluids for a range of applications, including drug screening; paternity testing; detecting coronary artery disease, tumors and various inherited diseases including cystic fibrosis; and detecting infectious diseases and bacteria, viruses and fungi that are difficult to culture using conventional laboratory methods.

Critical to the technology are electrodes made of indium tin oxide, a transparent and electrically conductive material commonly used in consumer electronics for touch-screen displays. Liquid drops are positioned on the electrodes, and the infrared laser heats up both the electrodes and the droplets. Then electric fields in the electrodes cause the heated liquid to produce a "*microfluidic vortex*" of circulating liquid. This vortex enables researchers to position the particles in the circulating liquid by moving the infrared laser. The particles accumulate only where the laser is shined.

SOURCE [1]

Source URL (retrieved on *12/28/2014 - 9:05pm*):
http://www.mdtmag.com/news/2010/06/new-opto-acoustic-focusing-technology-stabilizes-tiny-biological-samples?qt-recent_content=0

Links:
[1] http://www.i-micronews.com/lectureArticle.asp?id=4952