



## HEALTH &amp; SCIENCE

# UCLA Researchers Build World's Fastest Camera to Screen for Cancer

 By [Keith Wagstaff](#) | July 09, 2012 | 0

The best slow-motion shots money can buy usually are shot at a rate of between 5,000 and 10,000 frames per second — we're talking seriously slow, like [bullets shattering glass](#) in beautiful, explosive detail.

Researchers at the University of California, Los Angeles (UCLA) [have developed something much faster](#): a camera capable of recording 36.7 million frames per second. Of course, the high-throughput imaging flow analyzer, as it's called, won't be used to take awesome slow-motion shots.

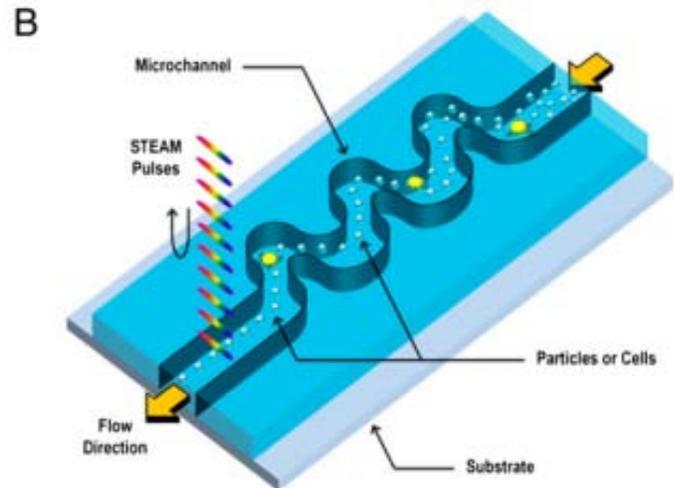
Instead, it's meant to pick out rare cancer cells in blood samples. According to UCLA, it can screen 100,000 cells per second, which is 100 times faster than other blood analyzers. Why is this important? Because a handful of cancer cells hiding in a billion healthy cells can eventually metastasize into full-blown, fatal cancer.

Today, labs use microscopes equipped with digital cameras to screen blood samples for signs of cancer. The problem with traditional CCD and CMOS cameras are that they just aren't fast or sensitive enough to do it efficiently; the higher the speed, the less sensitive to light they become, making for poor-quality pictures.

What makes the high-throughput imaging flow analyzer different? Basically, it forces particles through a narrow channel, where laser pulses bounce off them and are recorded by something called an optoelectronic time-stretch image processor. The result is real-time analysis of fluid flowing through the device at a speedy four meters per second with no motion blur.

Not only is it fast, it's also accurate, with a false-positive rate of one cell in a million. The researchers say it could also be useful in other areas of science, such as scanning vast amounts of seawater for phytoplankton.

Still, its main purpose, according to the report's lead author Keisuke Goda, is to "reduce errors and costs in medical diagnosis." Not as fun as watching bullets fire in slow-motion, but a lot more useful to humanity.



UCLA