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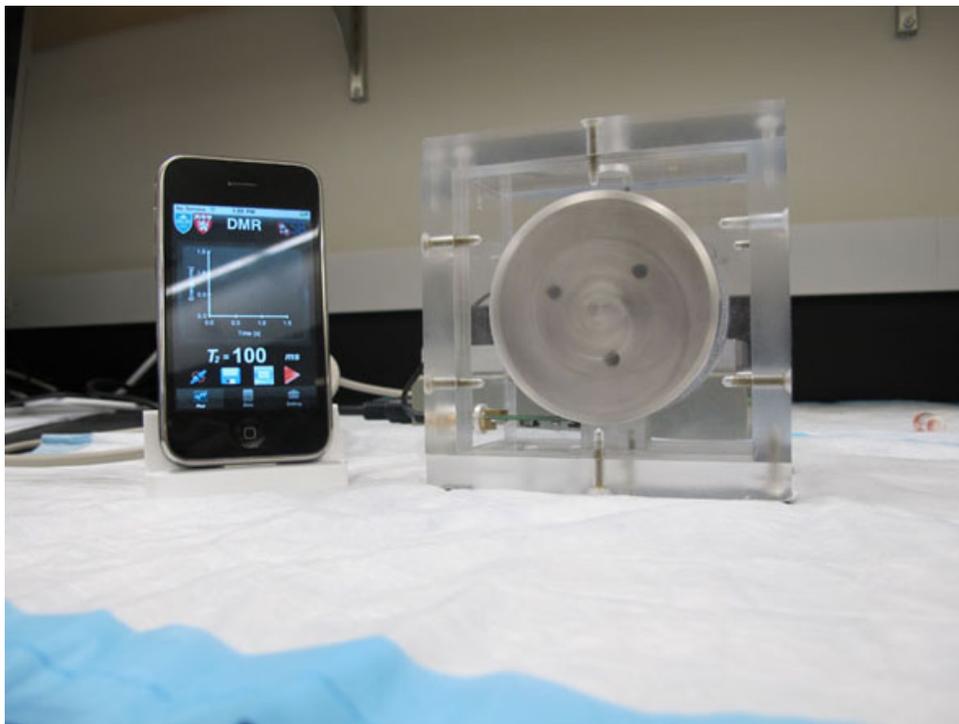
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Desktop tech detects cancer in an hour

By [Jonah Comstock](#)

Posted on 02 April 2011. Tags: [cancer detection](#), [iphone](#), [Jonah Comstock](#), [smartphone](#)



With a tiny tissue sample, the DMR, can detect cancer cells in an hour and can be interfaced with an ordinary iPhone. Photo by Jonah Comstock/Columbia Radio News.

Checking for cancer isn't a quick process. From the time doctors first notice a tumor-like growth, it takes as much as a week before they can be sure of what they're seeing. But a new technology could change all that. Doctors at Boston's Massachusetts General Hospital have completed clinical trials on what they're calling a Diagnostic Magnetic Resonance device, or DMR. The machine is smaller than a shoebox, and can diagnose cancer in an hour.

Dr. Ronald Ennis is the director of radiation and oncology at New York's St. Luke's-Roosevelt Hospital. He says cancer diagnosis usually starts with an MRI or CAT scan, and then a biopsy, which involves taking a lot of cells with a large needle.

"There can be some tissue damage caused by the biopsy itself," he said. "Those risks are usually low, but in the lung for instance there can be a possibility of causing lung collapse"

But risks like these could soon become obsolete—along with the waiting time for test results. The DMR uses a tiny fraction of the cells a biopsy takes, and can screen them for cancer within an hour.

In Boston, at his lab at Mass General, engineer Hakho Lee showed me to the DMR prototype, which was in three pieces on a table. A metal cylinder in a clear plastic cube, a little smaller than a shoebox, was connected to a plain metal box—like an external hard-drive. That was attached by a jury-rigged cable to an iPhone. Lee touched the smartphone's screen, displaying a red chart.

"And this little computer or little electronics is being interfaced with this iPhone here, so, just with a tap, you can start the measurement," he said.

The "MR" in DMR is the same as in MRI – magnetic resonance. That's because the DMR is essentially a scaled down, stripped down MRI machine. The DMR uses a magnetic field to scan tissue samples for particular proteins, the calling cards of whichever kind of cancer the doctors are looking for.

Cesar Castro—another doctor at Mass General—says that in tests like this one, DMR also detected cancer more accurately than traditional biopsies. But speed and ease of use are where the machine really shines. With a DMR, patients could get an immediate diagnosis at their bed-side, or even from their family doctor.

"It essentially equips the clinician and the researchers with more information about the status and kind of a snapshot of the cancer throughout the course of therapy. We haven't been able to do that previously with prior technologies," Castro said.

Cancer may not be the only disease the DMR can detect. By changing the protein markers, engineer Hakho Lee envisions using the device in third-world countries as a near-instant test for tuberculosis. The machine is also cheap to make – about \$200 each if they were mass-produced – though Castro says the DMR will still need to be handled by medical professionals.

Dr. Ronald Ennis is cautiously optimistic about this invention. He says the greatest benefit could be to patients, who experience a lot of anxiety waiting to hear about test results.

"If that could be shortened to an immediate procedure instead of you know a week or two of one scan and then a biopsy and then waiting for the results, that would be great in terms of patient experience," he said.

Ennis warned that technologies that look good in a lab don't always make it into the real world, and he admits that a cancer detector that's smaller, faster, cheaper, AND more accurate than current methods sounds too good to be true. But if the DMR makes it through clinical trials, it may turn out to be just that.



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