Control-P for Personal Diagnosis

An interview with Professor John Brennan
Chemistry Researcher, McMaster University

How can paper be used as a diagnostic?

Going to the drugstore you can get a pregnancy test kit or, in a lot of cases, people who are diabetic will go and get a glucose monitor. And if you think about that, it's a really simple technology. One of the questions that we asked was why can't we go to the drugstore and buy tests for a whole bunch of different things? And this has a lot of relevance not just to doing tests at home, but if you think about resource-limited areas – so Northern Ontario for example, or Africa, India – there is not the capability to use advanced technologies in these settings. So we're really trying to develop something you can walk around with; very simple, cheap, easy to use, that gives you an answer.

What have you discovered so far?

We've developed a number of very simple paper-based strips for things like pesticides, heavy metals in water, and our most recent one has been to look at *E. coli* in water and on food. We're at the point where it works in the laboratory, when we have skilled technicians doing the work. We're now partnering with printing companies with the goal of taking very simple inkjet printing technology that everybody has access to and using that as a platform to scale up the paper-based strips.

What does the future hold for your research?

In 5-10 years, the vision would be that you can go to your drugstore or the doctor would have within his office, a whole panel of test strips that would allow him to very quickly diagnose your ailment without having to wait 3 weeks and spend $10,000 or $20,000 in order to get an answer back. That's really going to be transformative in terms of how healthcare is done, in terms of knowing whether your water is safe and your food is safe; and other applications that we haven't even dreamed of yet.