



# Miniaturized Device Will Detect Food-Borne Pathogens in Meat

In Alberta's meat processing facilities, products must be regularly tested for harmful food-borne pathogens like *E.coli*. Samples are usually sent to an off-site laboratory for analysis, a process that's both expensive and slow.

But an AI Bio-supported project could radically change this. Three University of Alberta researchers—Drs. Lynn McMullen (food microbiology), Linda Pilarski (oncology /device development), and Patrick Pilarski (medicine/machine learning)—are developing a miniaturized device that can process samples within a few hours. This is much faster than most laboratories, which take a minimum of 12 hours. “It’s a matter of getting an answer for food processors really quickly,” says McMullen. In the first phase of the project, researchers adapted their molecular detection technology, termed “cassette PCR,” to create a small device to detect *E. coli*. Now, researchers are expanding the tool’s capabilities so it can also detect the presence of *Salmonella*, *Listeria*, and *Campylobacter*. “Right now, we’re building a second-generation instrument that will be faster and more robust,” McMullen says. The current prototype instrument is the size of a shoebox and runs multiple tests and samples on a cassette a bit larger than a postage stamp. Fully automated analysis software allows non-expert users to easily interpret the results. The test is fast and low cost.

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**Three University of Alberta researchers are developing a miniaturized device for Alberta’s meat processing facilities that can test, within a few hours, for harmful food-borne pathogens like *E. coli*. —a process that currently takes a minimum of 12 hours.**

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Drs. Linda Pilarski, Lynn McMullen, and Patrick Pilarski have adapted medical diagnostic lab-on-a-chip technology to detect *E. coli* and other pathogens in meat.  
Source: University of Alberta

Cassette PCR was originally developed by Linda Pilarski and her team for medical diagnostics. In fact, the project wouldn’t have happened without some scientific matchmaking. The researchers were introduced by Dr. Cornelia Kreplin, AI Bio’s executive director of sustainable production and food innovation, who suggested they should connect. From the start of the collaboration, “Cornelia recognized the value of our work and has become our champion,” says McMullen.

For more information on this project, visit [www.BioLINK.albertainnovates.ca](http://www.BioLINK.albertainnovates.ca) and search for “BIO-14-011.” This story was reprinted with permission from the Alberta Innovates Bio Solutions Highlights 2015 report.