

USDA explores using novel genetic labs for faster detection of *E. coli*

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Pina Fratamico is on the quest to find the easiest and fastest way to test for harmful *Escherichia coli* in ground beef. In an article published in *Frontiers in Microbiology* on the 20th of December, she explores using a next-generation real-time polymerase chain reaction (PCR) system to discover specific gene targets that indicate the presence of dangerous foodborne pathogens. The results show that assays performed using this PCR system are rapid, sensitive, and reliable.

"Testing using these types of systems is faster, easier, and more reproducible than previous methods, and this should increase food safety in the long run. I feel that we could confidently move to these new systems for screening [ground beef](#) and other foods for *E. coli* contamination," says Fratamico, researcher at the USDA Agricultural Research Service in Wyndmoor, Pennsylvania.

Not all *E. coli* are dangerous, but certain strains produce a potentially dangerous toxin called Shiga toxin. These Shiga toxin-producing *E. coli* also known as STEC can be found in raw meat and cause serious food poisoning in humans. According the Food Safety and Inspection Service (FSIS) website, in October of this year over, 2,300 pounds of ground beef were recalled due to contamination with STEC.

"Certain groups of STEC have been declared as adulterants by the USDA FSIS, and the availability of rapid and reliable tests for these pathogens is critical so that testing results are available before meat is shipped to restaurants and consumers," explains Fratamico.

The PCR protocol has already been used for some time in the meat industry. The genetic test detects the presence of specific gene targets that indicate the existence of STEC in meat. The new generation of real-time PCR systems, like the GeneDisc from Pall Technologies in France used in this particular study, employ a self-contained unit that standardizes the procedure and tend to be relatively portable and easy to use – offering obvious advantages for both meat processors and inspectors from the industry and government alike.

More information: Detection of Shiga Toxin-Producing Escherichia coli in Ground Beef Using the GeneDisc Real-Time PCR System, *Frontiers in Cellular and Infection Microbiology*, [DOI: 10.3389/fcimb.2012.00152](https://doi.org/10.3389/fcimb.2012.00152)

Provided by Frontiers

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