

Scientists engineer bacteria-hunting virus to kill *E. coli* in drinking water

To rapidly detect the presence of *E. coli* in drinking water, Cornell University food scientists [now can employ](#) a bacteriophage — a genetically engineered virus — in a test used in hard-to-reach areas around the world.

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“Drinking water contaminated with *E. coli* is a major public health concern,” said Sam Nugen, Ph.D., Cornell associate professor of food science. “These phages can detect their host bacteria in sensitive situations, which means we can provide low-cost bacteria detection assays for field use — like food safety, animal health, bio-threat detection and medical diagnostics.”

The [virus] carries a gene for an enzyme NLuc luciferase, similar to the protein that gives fireflies radiance when the bacteriophage finds the *E. coli* in water, an infection starts After the [virus] binds to the *E. coli*, it shoots its DNA into the bacteria. “That is the beginning of the end for the *E. coli*,” said Nugen. The [virus] thenbreaks open the bacterium, releasing the [radiance] enzyme as well as additional [viruses] to attack other *E. coli*.

Describing the importance of phage-based detection technology, [First author Troy Hinkley, a Cornell doctoral candidate in the field of food science] said, “Global Good invents and implements technologies to improve the lives of people in the developing world. Unfortunately, improper sanitation of drinking water leads to a large number of preventable diseases worldwide.

Read full, original article: [Genetically engineered viruses discern, destroy *E. coli* in drinking water](#)