# Researcher uncovers treatment for E.coli

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(PhysOrg.com) -- It couldn't be more ironic. Just as the number of people in North Bay, Ont., made ill by a recent E.coli outbreak, topped 200, a University of Alberta professor has announced a breakthrough in development of a treatment for the life-threatening bacteria.

Canada's worst E.coli breakout was in Walkerton, Ont. in 2000, when seven people died and more than 20 children suffered permanent kidney damage. But chemistry professor David Bundle and his co-workers may have found a way to protect the kidneys.

"If you give [the patient] antibiotics the bacteria die and burst open, spilling their toxins," said Bundle, cautioning that if the E. coli toxin invades the kidney, the result can be fatal.

But Bundle and his colleagues-Pavel Kitov and Glen Armstrong-have created a drug that lashes the E.coli bacteria to a naturally-occurring protein molecule, preventing the E.coli from making contact with kidney cells.

The drug that acts like a lasso is called Polybait.

"Think of Polybait as piece of sticky string that wraps around the interface between the protein and the toxin," he said. "The surface of the toxin that kills kidney cells is drawn tightly against the surface of the protein and neutralizes it."

The molecules are held together long enough to be transported to the

liver and eventually eliminated from the body.

Testing is in the early stages but so far the drug looks promising. One hundred per cent of the lab mice injected with E.coli toxin were saved by Polybait, although Bundle says that doesn't mean the big pharmaceutical companies will come running. The number of E.coli outbreaks and the relatively small number of victims will not draw a lot of investment dollars, he says, so to generate more interest Bundle and his team is trying to develop more uses for Polybait.

"We want to go beyond neutralizing bacteria to targeting specific cancer cells," he said, and that the team is working with the Scribbs Research Institute in the United States to do just that.

In the meantime Bundle and his group are hopeful that someday their E.coli treatment will be of help to people in places like North Bay and Walkerton.

"From a social perspective and also from a perspective of what it costs society to have people on kidney dialysis for long periods of time, this research is worthwhile."

Provided by University of Alberta