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Naturally Occurring Microbe Fights Potentially Deadly Clostridium Difficile Infection

A University of Alberta researcher is part of an international team that has discovered a naturally occurring micro-organism that directly targets a bacteria that causes a sometimes deadly intestinal disease in young children and the elderly.

John Vederas, a U of A Chemistry Researcher working with colleagues in Ireland, found that a strain of the common soil bacteria, *Bacillus thuringiensis*, produces thuricin CD, a 1:1 mixture of two compounds (peptides) that kills the potentially deadly bacteria, *Clostridium difficile*. But unlike other antibacterial agents, thuricin CD does no harm to other bacteria in the human gut, which are necessary for a balanced state of health.

Clostridium difficile causes abdominal pain and diarrhea that can require hospitalization. Outbreaks of the disease can be deadly in long-term care facilities. Provincial health officials in Quebec listed a *Clostridium difficile* outbreak as the direct cause of death for more than 1,000 people

between 2003 and 2004.

When a bacterial infection is treated with a broad spectrum antibiotic, it clears all the bacteria from the gut and *Clostridium difficile* can take quickly take hold.

Thuricin CD has shown promising results as a specific antibiotic treatment for *Clostridium difficile* in vitro and is now being tested in animals.

Vederas is coauthor of a paper on thuricin CD published in *Proceedings of the National Academy of Sciences*.

Source: *Proceedings of the National Academy of Sciences*, 2010; DOI: 10.1073/pnas.0913554107