

# Pathway to Virulence Uncovered in Salmonella

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**CANADA - An anti-virulence factor in Salmonella has been identified by researchers at the University of British Columbia. It is now believed that this new insight could be used to design improved Salmonella vaccines.**

Virulence factors allow a pathogen to thrive in the host and cause disease. An anti-virulence factor controls the degree of infectiveness.

Salmonella are bacteria that infect a variety of vertebrae hosts. Salmonellosis, infection from Salmonella, can lead to gastroenteritis or typhoid fever - a severe life-threatening systemic disease.

The finding, published in Public Library of Science, suggests that there is a distinct pathway in Salmonella that acts as an anti-virulence factor during salmonellosis. This pathway is also involved in fine-tuning the host-pathogen balance during salmonellosis.

The research demonstrates that the pathway is activated prior to ingestion and entry into the intestine and then shut off once Salmonella penetrates the intestine.

“When the anti-virulence factor is knocked out Salmonella becomes up to 10 times more virulent,” says Brett Finlay, Peter Wall Prof. of Microbiology and Biochemistry at UBC and senior investigator at the Michael Smith Laboratories. “The research also demonstrates that Salmonella has the ability to control its virulence even before it enters the host.”

“The pathway is designed to initially control the level of virulence and not kill the host immediately,” says Finlay. “Tapering the level of infectiveness allows Salmonella to establish itself in the host and then become more virulent.”

“This research will allow us to design improved salmonella vaccines,” says Finlay. “We will be able to better tailor the vaccine strain with the appropriate level of virulence.”