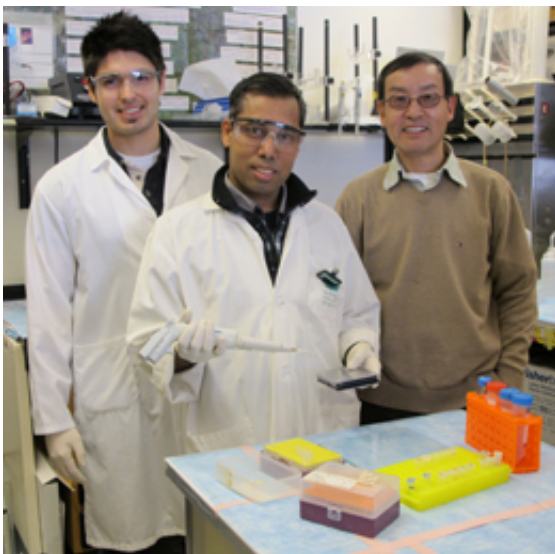


# Hunting for deadly bacteria

April 12 2011, by Danelle D'Alvise

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Professor Yingfu Li (far right) with two of his research team members, Sergio Aguirre (left) and Monsur Ali (centre), whose recently published paper in the *Angewandte Chemie* journal discusses research that will help detect deadly food-borne bacteria.

(PhysOrg.com) -- You can't see them, or smell them or taste them. They can be in our water and in our food, multiplying so rapidly that conventional testing methods for detecting pathogens such as *E.coli*, salmonella and listeria come too late for the tens of thousands of Canadians who suffer the ill effects of these deadly bacteria.

Biochemist Yingfu Li and his research team have developed a simple test that can swiftly and accurately identify specific pathogens using a

system that will 'hunt' for [bacteria](#), identifying their harmful presence before they have a chance to contaminate our food and water.

Like any living thing, bacteria have their own spoor, leaving behind molecular trails of bacterial 'droppings'. Li tracks these metabolic by-products with molecular beacons - little lighthouses on a molecular scale that actually light up when they detect one of the by-products left behind.

Li created a DNAzyme sensor that will be able to identify any bacteria, utilizing a method that doesn't require the steps and specialized equipment typically used to identify whether or not [harmful bacteria](#) are present.

"Current methods of food-borne bacterial detection take time. The five days it takes to detect listeria, for example, can translate into an outbreak that costs lives. We have developed a universal test that uses less complex procedures but still generates precise and accurate results," said Li, a Canada Research Chair in Directed Evolution of [Nucleic Acids](#).

Li's fluorescent test system was highlighted in [Angewandte Chemie International Edition](#), a prestigious weekly chemistry journal that ranks among the best for the original research it publishes. Li's paper, co-authored with lab members Monsur Ali, Sergio Aguirre and Hadeer Lazim, was designated a 'hot paper' by Angewandte's editors for "its importance in a rapidly evolving field of current interest".

"McMaster researchers are known for their ability to provide solutions to problems that impact the public's well-being, said Mo Elbestawi, vice-president, research and international affairs at McMaster. "The test that Professor Li has developed will help safeguard the health of Canadians, and supply industry with a reliable means to bring safe food products to consumers and reduce their time to market."

Provided by McMaster University

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