MedicalXpress

Sugar helping map new ground against deadly bug

April 19 2011

A potential vaccine against bacteria that cause serious gastric disorders including stomach cancer may be a step closer following a pioneering study by a University of Guelph chemist.

In the first published study of its kind, a team led by Prof. Mario Monteiro, Department of Chemistry, found a carbohydrate-based antigen caused mice to develop antibodies against a common bacterium linked to gastric cancer.

"This is the first jab at a sugar-based vaccine against *Helicobacter pylori*," said Monteiro, who completed the study with former undergrad student Stacey Britton.

Their study was published recently in the journal *Vaccine*.

H. pylori is among numerous risk factors for stomach cancer. About half of the world's population has been infected by the bacterium during their lifetime. In Canada, the bug is especially prevalent in Aboriginal communities. It can cause gastritis and ulcers. Most infections are handled by antibiotics, but a vaccine would improve current treatment, said Monteiro.

Many scientists study potential vaccines based on proteins to prevent or control infection. Since arriving at Guelph in 2004, Monteiro has studied more complicated conjugates containing both proteins and sugars.

The Guelph researchers used a single bacterial strain in mice to induce an immune response against various strains of the bacteria.

He has studied sugar-based vaccines against two other gastric pathogens: *Campylobacter jejuni*, which causes travellers' diarrhea, and *C. difficile*, which causes antibiotic-associated diarrhea. He plans to begin studies of conjugates for use against tuberculosis.

Provided by University of Guelph