

# Bacteria may assist the immune system response against cancer

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Associate Professor Alex McLellan.

(Medical Xpress)—Recent research from the University of Otago shows that bacteria may assist the body's immune system response against cancer cells and help fight tumours like melanoma.

The research published in the official journal of the American Association of Immunologists, the *Journal of Immunology*, demonstrates that bacteria stimulate a type of immune response that results in more effective killer cell attacks against cancer.

Associate Professor Alex McLellan from the Department of Microbiology and Immunology says the new results are very encouraging and will prompt further investigation using human cells and [cancer patients](#).

"By using bacteria we can excite an immune response against cancer and our results show that natural killer cells are very important in this enhanced response," Dr McLellan explains.

"What we've discovered is that these natural killer cells are stimulated by bacteria to enhance the potency of the immune response to the tumour. Interestingly, natural killer cells don't seem to make the vaccine any stronger, but rather enhance the visibility of the tumour to the immune response induced by vaccination."

Associate Professor McLellan says that this pathway further enhances the body's ability to attack [cancer cells](#) by boosting tumour-specific T cells. The [natural killer](#) cells seem to be releasing growth factors which make other immune cell types better able to destroy the cancer.

Vaccination predominantly stimulates an 'adaptive' [immune response](#). Since [natural killer cells](#) were initially classed as members of the innate, or primitive, arm of the immune system, they were thought to play no part in protection afforded by vaccination. But this research shows important links between the innate and adaptive response of the body in anti-tumour immunity, says Dr McLellan.

An immunological approach to cancer harks back to over 120 years ago to Coley's toxins, says Dr McLellan. American surgeon William Coley discovered in the 1890s that when a patient is inoculated or even infected with [bacteria](#) this can have a significant effect or even destroy the cancer. This approach was not seriously pursued after the development of chemotherapy and radiation.

Now this area of research is again being reactivated as another possible tool in the fight against cancer.

Associate Professor McLellan says the next step is to test these very positive findings using [human cells](#), and then extend it to cancer patients through collaborators in Germany.

Provided by University of Otago

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