

Scientists find better way to boost the immune system

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Queen's University immunologists have discovered how to manipulate the immune system to increase its power and protect the body from successive viral infections.

Published in the current edition of *Viral Immunology*, these findings may point the way toward developing new and more effective vaccines against diseases like influenza or HIV and enhance new developments in immunology.

The study suggests that scientists can boost the body's resistance and fend off successive viral infections by taking components of the virus and indirectly activating specific populations of killer T cells – the body's virus-killing cells. The virus components are introduced through a process known as “cross priming” whereby virus molecules are engulfed by immune cells to activate killer T cells.

“With this mechanism in mind, we can develop better tools to make more successful and effective vaccines,” says Sam Basta, Queen's professor of Microbiology and Immunology, and the principal investigator of the study. The other members of the research team are master's students Attiya Alatery and Erin Dunbar.

The researchers hope to build on their findings by next studying which immune cells do a better job of protecting the body while using this mechanism.

“The answer to this question is like having the Holy Grail of immunotherapy and vaccine design within our grasp,” says Dr. Basta.

Dr. Basta suggests that by fully understanding this new mechanism, researchers should be able to shuttle the appropriate viral components to the right immune cells.

Source: Queen's University

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