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# Century-Old Vaccine's Surprising Efficacy Uncovered: Significant Advancement in Flu Prevention by Scientists

## Description

In a monumental breakthrough that promises to redefine our understanding of respiratory immune responses, researchers at the Research Institute of the McGill University Health Centre (RI-MUHC) have uncovered something rather unexpected about a century-old tuberculosis vaccine, Bacillus Calmette Guérin (BCG).

As the flu season in Canada coincides with an unprecedented number of strep A cases and the continuing anxieties surrounding COVID-19, this study indeed comes at a critical juncture. The researchers have found evidence that the BCG vaccine, traditionally used to protect against tuberculosis, can also shield against influenza A - the most commonly occurring strain of the flu virus.

Published in the distinguished journal, Nature Immunology, this enlightening research reveals a hitherto unknown mechanism by which the BCG vaccine extends its protection against respiratory viruses, thereby potentially widening the scope of its utility. This kind of information holds immense potential when considering avenues for new vaccine development.

Principal investigator of the study, Maziar Divangahi, a pulmonary immunologist, senior scientist at the RI-MUHC, and a Professor of Medicine at McGill University, expanded on the implications of these findings. Divangahi pointed out that exploring the unique immune interactions presented in this study could 'educate' the lungs, an organ regularly exposed to pathogens in the environment. By charting the protective immune pathways in the lungs, researchers could revolutionize both the conceptual understanding and practical strategies for developing vaccines against infections, particularly emergent respiratory viruses.

The research thus paves the way for subsequent explorations into whether the BCG vaccine, with its evidently inherent ability to offer broader virus defense, could be used to protect against other emerging viruses. Notably, there have been promising results from research investigating BCG's potential protection against none other than the notorious COVID-19.

The implications for future vaccine development are monumental. With each new study, researchers reiterate the urgent need for a better understanding of lung immunity and the complexity of vaccines - cornerstones that could save countless lives from future pandemics.

This paradigm-shattering research, entitled "BCG immunization induces CX3CR1hi effector memory T cells to provide cross-protection via IFN- $\gamma$ -mediated trained immunity", as penned by Kim A. Tran, Erwan Pernet, Mina Sadeghi, et al, is available for anyone interested in a deeper understanding of the research findings and implications in the Nature Immunology journal.

Such discoveries ought to remind us, once again, of the extraordinary lengths to which the scientific community goes to protect and safeguard our health. At a time when optimism is much needed, these findings offer hope and reaffirm our belief in the power of science.



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## Vocabulary List:

1. **Monumental** // (adjective): Very large and impressive extraordinary.
2. **Redefine** // (verb): To change and improve the meaning or function of something.
3. **Anxieties** // (noun): Feelings of worry or nervousness.
4. **Implications** // (noun): The potential future effects or results of a decision or idea.
5. **Revolutionize** // (verb): To bring about a fundamental or radical change in something.
6. **Inherent** // (adjective): Existing as a natural or basic part of something.

## Vocabulary quizzes

### Multiple Choice ( Select the Correct answer for each question. )

1. What term is used to describe a sudden increase in the incidence of a disease?  
Option: A) Epidemic  
Option: B) Endemic



- Option: C) Pandemic
- Option: D) Outbreak

2. Which medication is commonly used to treat erectile dysfunction?

- Option: A) Sildenafil
- Option: B) Aspirin
- Option: C) Ibuprofen
- Option: D) Penicillin

**Gap-Fill ( Fill in the blanks with the correct word from the vocabulary list. )**

3. \_\_\_\_\_ disease is a progressive neurological ailment.

4. Spreading or \_\_\_\_\_ cells are often associated with aggressive cancers.

**Matching Sentences ( Match each definition to the correct word from the vocabulary list. )**

5. Exposure to certain chemicals may result in damage to the nervous system.
6. Confirming the accuracy or reliability of something.

**Answer**

**Multiple Choice:** 1. A) Epidemic 2. A) Sildenafil

**Gap-Fill:** 3. Alzheimer 4. Infiltrating

**Matching sentence:** 1. Neurotoxic 2. Validation

**CATEGORY**

- 1. Health - LEVEL5

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