Method for Storing, Distributing, and Activating Live Cell Vaccines or Other Living Cell Products

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Technology description

A researcher at the University of New Mexico has developed a novel method to store, distribute, and activate live cell vaccines and related living cell products.
The system allows one to prepare an immunological composition that is specifically directed to virulent cells, latent cells, or is a combination composition that is directed to both virulent cells and latent cells. The dried immunological composition is typically comprised of a nanobiocomposite (NBC) composition that contains live bacteria, attenuated bacteria, or inactivated bacteria. The liquid phase in the chambers can include a growth medium or a pharmaceutically acceptable carrier. This results in a reconstituted immunological composition that can be administered as a virulent vaccine or a latent vaccine.

Background

Latent populations of cells that remain inside a host after an initial infection and treatment is a challenge that is seen in cases of tuberculosis. Due to these remaining latent cells, patients can continue to be infected withM. tuberculosisbacteria for decades and exhibit no symptoms of tuberculosis. When this occurs, approximately 10% of patients eventually exhibit immunosuppression through a different condition (e.g., HIV) and with this now compromised immune system, relapse. The latent tuberculosis cells re-enter the growth phase and the patient suffers from “reinfection” by the previously latentM. tuberculosisbacilli. Currently, no vaccine exists that specifically targets latent cells. There are known methods of boosting the efficacy of the Bacille Calmette-Guerin (BCG) vaccine, but these exist as treatments for managing the disease rather than preventative techniques for immunological advancement. A present need exists for an immunological composition or a combination composition that specifically targets virulent and latent cells of the tuberculosis disease.

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Application area

Encapsulated living cells can regrow post-encapsulation
Reconstituted composition is versatile; can come in any suitable form
Induces immunity against virulent and latency pathogens
Improved method for storing, distributing and activating live cell vaccines
Aides in preventing tuberculosis infection/reinfection
Applications in vaccines and other living cell products

Institution

The University of New Mexico

Inventors

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