Methods for Generating Functional Therapeutic Cells

A method for genetic engineering of B Cells with the ability to target highly specific antigens for use in immunotherapy.

Georgia Tech professors have developed a method for creating a biomaterial-based synthetic environment which mimics a lymph node. This environment is able to produce the functions of a germinal center (the site where B cells are able to proliferate, differentiate, and mutate their own genes), without helper cells. The germinal center will be able to create functional B cells from peripheral blood, stem cells, or cord blood.

Summary Bullets

- **Novel** – No present technology exists
- **Versatile** – Can be adapted to suit a variety of diseases, human and animal
- **Targeted** – Antigen-binding qualities within the B cell allow for highly specific therapies

Solution Advantages

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Potential Commercial Applications

- Ready source for therapeutic antibodies for humans and animals
- Immunotherapy against cancer, infectious diseases, and autoimmune diseases
- Further study of B cell biology

Background and More Information

Immunotherapy has become the most transformative therapeutic approach in treating cancer, infectious diseases, and many devastating disorders. To date, cell-based immunotherapy has been restricted to T cells due to lack of robust methods for generating functional, antibody-producing B cells ex vivo. Although treatment of T cells is essential for cancer research, engineering B cells is essential to the future of immunotherapy due to their unique ability to bind to specific antigens.

Inventors

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IP Status

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Publications

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