

Antigen-specific Cell Programming Using non-viral Approaches

T cell therapies can be costly and carry serious risks

The problem with current T cell therapies and vaccines is their reliance on costly, time-consuming ex vivo processes and the risk of global T cell activation or suppression, leading to severe toxicity or immunocompromise.

This innovative technology uses synthetic nanoparticles to deliver gene modulators and engineered MHC molecules directly to antigen-specific T cells in vivo. This approach enhances T cell specificity and function while reducing off-target toxicity, significantly decreasing costs and manufacturing time, and providing a more efficient method for inducing effective T cell responses.

Novel technology uses synthetic nanoparticles to limit the need for ex vivo processes

This innovative technology leverages synthetic nanoparticles to deliver gene modulators and engineered MHC molecules directly to antigen-specific T cells in vivo. It demonstrates the capacity to redirect T cell specificity, enhance T cell functions, and sustain their activity against diseases, bypassing the need for costly and time-consuming ex vivo cell manufacturing processes.

Summary Bullets

- This innovative technology uses synthetic nanoparticles to deliver gene modulators and engineered MHC molecules directly to antigen-specific T cells in vivo, enhancing T cell functions and bypassing ex vivo processes.
- The prototype improves T cell specificity and reduces off-target toxicity, significantly lowering costs and manufacturing time for effective T cell therapies.
- It has applications in cancer therapy, immune therapy, autoimmune disease therapy, and infectious disease therapy.

Solution Advantages

- Antigen-specific targeting capabilities
- Reduced off-target toxicity
- Significantly decreased cost and manufacturing time

Potential Commercial Applications

- Cancer therapy
- Immune therapy
- Autoimmune disease therapy
- Infectious disease therapy

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IP Status

<p>The following patent has published</p>: WO2022250811A2

Publications

[In vivo gene delivery to immune cells](#), OSFPrePrints - 2023

Images

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