MGCLLFLLLWALLQAWGSA. In another aspect, the encoded antigenic payload comprises the sequence SIINFEKL.

[0023a] In another aspect, disclosed herein is a host cell comprising the polynucleotide disclosed herein.

[0023b] In another aspect, disclosed herein is pharmaceutical composition comprising the polynucleotide disclosed herein or the host cell disclosed herein.

[0023c] In another aspect, disclosed herein is a therapeutic polynucleotide comprising the polynucleotide disclosed herein formulated and/or encapsulated with a delivery vehicle.

[0023d] In another aspect, disclosed herein is a therapeutic composition comprising the therapeutic polynucleotide disclosed herein.

[0023e] In another aspect, disclosed herein is the pharmaceutical composition disclosed herein, or the therapeutic composition disclosed herein, for use in therapy, wherein a therapeutically effective dose, prophylactically effective dose, or appropriate imaging dose of the pharmaceutical composition or therapeutic composition is to be administered to a subject in need thereof.

[0024] Other aspects and features of the present disclosure will become apparent to those ordinarily skilled in the art upon review of the following description of specific aspects of the disclosure in conjunction with the accompanying figures.

[0025] It should be appreciated that all combinations of the foregoing concepts and additional concepts discussed in greater detail below (provided such concepts are not mutually inconsistent) are contemplated as being part of the inventive subject matter disclosed herein and may be employed to achieve the benefits as described herein.

BRIEF DESCRIPTION OF THE DRAWINGS

[0026] FIG. 1A depicts, in one example, flow cytometry results comparing antigen presentation in the JAWS dendritic cell model for an epitope in the context of different scaffolds; untreated and murine.

[0027] FIG. 1B depicts, in one example, flow cytometry results comparing antigen presentation in the JAWS dendritic cell model for an epitope in the context of different scaffolds; human CD1d and human CD1b.

[0028] FIGs. 2A and 2B depict, in one example, flow cytometry results of mRNA with hCD1d MHC trafficking signal enhances CD8 T cell re-activation in vitro.

[0029] FIG. 3A illustrates, in one example, a comparison of IFNg T cell responses observed with Sec-hCD1d MHC-sorting sequences over peptides, native pp65 mRNA, and pp65 mRNA Sec-MITD.

[0030] FIG. 3B depicts, in one example, flow cytometry results of activated CD8 T cells in samples treated with Sec-hCD1d pp65 mRNA nanoparticles compared to native pp65 mRNA, and pp65 mRNA Sec-MITD.

[0031] FIG. 4A depicts, in one example, the comparison of CD8 T cell growth in cultures treated with 1µg/mL of non-coding mRNA-nanoparticles, 2 µg/mL of pp65 peptides, and 1µg/mL of mRNA encoding pp65 with Sec-hCD1d.

[0032] FIG. 4B depicts, in one example, flow cytometry results of T2 target cells.

[0033] FIG. 4C depicts, in one example, flow cytometry results for untreated target cells, peptide induced CD8 T cells, and mRNA induced CD8 T cells.