contacting the cell with a delivery vehicle complex described herein or a pharmaceutical formulation comprising the delivery vehicle complex. In some cases, the cell is a muscle cell, a tumor cell, or a combination thereof. In some cases, the polyanionic compound is an mRNA that encodes for a peptide, a protein, or a fragment of any of the foregoing, and the cell expresses the peptide, the protein, or the fragment after being contacted with the delivery vehicle complex.

[0013] Also disclosed herein are methods of forming a delivery vehicle complex disclosed herein, comprising contacting the compound or salt of Formula (I) with the polyanionic compound. In some cases, the method comprises admixing a solution comprising the compound or salt of Formula (I) with a solution comprising the polyanionic compound.

[0014] Also disclosed herein are vaccines comprising a delivery vehicle complex disclosed herein or a pharmaceutical composition disclosed herein. Also disclosed are vaccines comprising a delivery vehicle complex disclosed herein or a pharmaceutical composition disclosed herein for use in the treatment of cancer. Also disclosed are methods of treating or preventing cancer in a patient, comprising administering to the patient a delivery vehicle complex disclosed herein or a pharmaceutical composition disclosed herein. In various cases, the cancer is cervical cancer, head and neck cancer, B-cell lymphoma, T-cell lymphoma, prostate cancer, lung cancer, or a combination thereof.

[0014a] In one aspect, provided herein is a pharmaceutically acceptable salt of the compound as described herein.

[0014b] In another aspect, provided herein is use of the delivery vehicle complex as described herein, or the pharmaceutical formulation as described herein in the manufacture of a medicament for inducing an immune response in a subject in need thereof, wherein an effective amount of the delivery vehicle complex, or the pharmaceutical formulation is to be administered to the subject, thereby inducing an immune response in the subject.

[0014c] In another aspect, provided herein is use of the delivery vehicle complex as described herein or the pharmaceutical formulation as described herein in the manufacture of a medicament for treating a viral infection in a subject in need thereof, wherein an effective amount of the delivery vehicle complex or the pharmaceutical formulation is to be administered to the subject, thereby treating the viral infection in the subject.

[0014d] In another aspect, provided herein is use of the vaccine as described herein in the manufacture of a medicament for the treatment of cancer.

[0014e] In yet another aspect, provided herein is the delivery vehicle complex as described herein, or the pharmaceutical formulation as described herein or vaccine of as described herein for use in therapy.

[0015] It should be appreciated that all combinations of the foregoing concepts and implementations and additional concepts and implementations discussed in greater detail below are contemplated as being part of the inventive subject matter disclosed herein, and may be employed in any suitable combination to achieve the

benefits as described here. In particular, all combinations of claimed subject matter appearing at the end of this disclosure are contemplated as being part of the inventive subject matter disclosed herein.

[0016] Further aspects and advantages will be apparent to those of ordinary skill in the art from a review of the following detailed description, taken in conjunction with the drawings. While the compounds and methods disclosed herein are susceptible of implementations in various forms, the description hereafter includes specific implementations with the understanding that the disclosure is illustrative, and is not intended to limit the disclosure to the specific implementations described herein.

BRIEF DESCRIPTION OF THE DRAWINGS

[0017] FIG 1 shows the results of an in vivo assay of delivery vehicles comprising peptoids disclosed herein and control peptoids, evaluated using fLuc expression in BALB/c mice 6 hours after IV dose.

[0018] FIG 2 shows the percent of total expression in spleen, lung, and liver for formulations of peptoids disclosed herein and control peptoids.

[0019] FIG 3 shows the results of a firefly luciferase expression assay in BALB/c mice, evaluating the delivery efficacy of formulations of peptoids disclosed herein.

[0020] FIG 4 shows contour plots evaluating the effect of carbon number and branching on delivery vehicle