CLAIMS

1. A composition comprising an intact bacterial minicell, wherein the intact bacterial minicell comprises:

(i) at least one nucleic acid adjuvant molecule packaged within the minicell,

(ii) at least one plasmid comprising a segment that encodes at least one nucleic acid adjuvant molecule packaged within the minicell, and/or

(iii) at least one an agonist of a nucleic acid sensor packaged within the minicell,

wherein the at least one nucleic acid adjuvant molecule comprises dsRNA greater than 30 nucleotides in length and less than 1,000 nucleotides in length, and wherein the nucleic acid adjuvant molecule or agonist of a nucleic acid sensor produces an immune response from a target cell; and wherein the at least one agonist of a nucleic acid sensor comprises a polynucleotide product of PNPase1, poly(I:C), poly-ICLC, imiquimod, imidazoquioline resquimod, or CpG-ODNs.

2. The composition of claim 1, wherein the target cell is a:

(a) mammalian cell; or

(b) human cell; or

(c) human immune cell; or

(d) human immune cell which is a monocytic cell, a macrophage, a T cell, or a dendritic cell.

3. The composition of claim 1 or 2, wherein:

(a) the at least one nucleic acid adjuvant binds a receptor on the target cell; and/or

(b) the at least one nucleic acid adjuvant comprises a nucleic acid that binds to at least one of TLR3, TLR7, TLR8, TLR9, RIG-I, MDA5, AIM2, cGAS, or IFI16.

4. The composition of any one of claims 1-3, wherein:

(a) the intact minicell comprises at least two nucleic acid adjuvant molecules; and/or

(b) the intact minicell comprises a nucleic acid adjuvant molecule and an agonist of a nucleic acid sensor.

5. The composition of any one of claims 1-4, wherein:

(a) the at least one nucleic acid adjuvant molecule comprises a sequence of at least 40 nucleotides;

(b) the at least one nucleic acid adjuvant molecule is a 40-mer; or

(c) the at least one nucleic acid adjuvant molecule is a 50-mer.

6. The composition of any one of claims 1-5, wherein:

(a) the plasmid comprises a regulatory element operably linked to the segment that encodes at least one nucleic acid adjuvant molecule; and/or

(b) the plasmid encodes multiple nucleic acid adjuvant molecules.

7. The composition of any one of claims 1-6, further comprising a bispecific ligand, wherein:

(a) the bispecific ligand comprises a first arm that carries specificity for a minicell surface structure and a second arm that carries specificity for a non-phagocytic mammalian cell surface receptor; and/or

(b) the bispecific ligand comprises a first arm that carries specificity for a minicell surface structure and a second arm that carries specificity for a non-phagocytic mammalian cell surface receptor, wherein the minicell surface structure is an O-polysaccharide component of a lipopolysaccharide on the minicell surface; and/or

(c) the bispecific ligand comprises a first arm that carries specificity for a minicell surface structure and a second arm that carries specificity for a non-phagocytic mammalian cell surface receptor, wherein the mammalian cell surface receptor is capable of activating receptor-mediated endocytosis of the minicell; and/or

(d) the bispecific ligand comprises an antibody or antibody fragment.

8. The composition according to any one of claims 1-7, wherein:

(a) the composition comprises fewer than about 1 contaminating parent bacterial cell per 10^7 minicells; or

(b) the composition comprises fewer than about 1 contaminating parent bacterial cell per 10^8 minicells; or

(c) the composition comprises fewer than about 1 contaminating parent bacterial cell per 10^9 minicells; or

(d) the composition comprises fewer than about 1 contaminating parent bacterial cell per 10^{10} minicells; or

(e) the composition comprises fewer than about 1 contaminating parent bacterial cell per 10^{11} minicells.

9. A combination or a composition for treating a disease in a subject wherein the combination or composition comprises the composition according to any one of claims 1-8 and:

(a) a drug for the treatment of the disease, and/or

(b) a drug for the treatment of the disease to be administered to the subject, wherein the drug is a chemotherapeutic; and/or

(c) drug for the treatment of the disease to be administered to the subject, wherein the drug is an anti-viral; and/or

(d) a drug for the treatment of the disease to be administered to the subject, wherein the drug is packaged in an intact minicell.

10. Use of an intact bacterial minicell in the preparation of a medicament for delivering a nucleic acid adjuvant molecule and/or an agonist of a nucleic acid sensor to a target cell for treating a disease in a subject, wherein:

(a) the intact bacterial minicell comprises:

(i) at least one nucleic acid adjuvant molecule packaged within the minicell,

(ii) at least one plasmid comprising a segment that encodes at least one nucleic acid adjuvant molecule packaged within the minicell, and/or

(iii) at least one agonist of a nucleic acid sensor packaged within the minicell,

wherein the at least one nucleic acid adjuvant molecule comprises dsRNA greater than

30 nucleotides in length and less than 1,000 nucleotides in length,and wherein the nucleic acid adjuvant molecule or agonist of a nucleic acid sensor produces an immune response from a target cell, and wherein the at least one agonist of a nucleic acid sensor comprises a polynucleotide product of PNPase1, poly(I:C), poly-ICLC, imiquimod, imidazoquioline resquimod, or CpG-ODNs;

(b) wherein the intact minicell is to be delivered to be in contact with a target cell to engulf the minicell.

11. The use of claim 10, wherein the target cell is a:

(a) mammalian cell; or

(b) human cell; or

(c) human immune cell; or

(d) human immune cell which is a monocytic cell, a macrophage, a T cell, or a dendritic cell.

12. The use of claim 10 or 11, wherein:

(a) the at least one nucleic acid adjuvant binds a receptor on the target cell; and/or

(b) the at least one nucleic acid adjuvant comprises a nucleic acid that binds to at least one of TLR3, TLR7, TLR8, TLR9, RIG-I, MDA5, AIM2, cGAS, or IFI16.

13. The use of any one of claims 10-12, wherein:

(a) the intact minicell comprises at least two nucleic acid adjuvant molecules; and/or

(b) the intact minicell comprises a nucleic acid adjuvant molecule and/or an agonist of a nucleic acid sensor.

14. The use of any one of claims 10-13, wherein:

(a) the at least one nucleic acid adjuvant molecule comprises a sequence of at least 40 nucleotides;

(b) the at least one nucleic acid adjuvant molecule is a 40-mer; or

(c) the at least one nucleic acid adjuvant molecule is a 50-mer.

15. The use of any one of claims 11-14, wherein contact between the minicell and the mammalian cell occurs *in vivo*.

16. The use of any one of claims 10-15, wherein:

(a) the plasmid comprises a regulatory element operably linked to the segment that encodes at least one nucleic acid adjuvant molecule; and/or

(b) the plasmid encodes multiple nucleic acid adjuvant molecules.

17. The use of any one of claims 10-16, wherein the medicament further comprises a bispecific ligand, wherein:

(a) the bispecific ligand comprises a first arm that carries specificity for a minicell surface structure and a second arm that carries specificity for a non-phagocytic mammalian cell surface receptor; and/or

(b) the bispecific ligand comprises a first arm that carries specificity for a minicell surface structure and a second arm that carries specificity for a non-phagocytic mammalian cell surface receptor, wherein the minicell surface structure is an O-polysaccharide component of a lipopolysaccharide on the minicell surface; and/or

(c) the bispecific ligand comprises a first arm that carries specificity for a minicell surface structure and a second arm that carries specificity for a non-phagocytic mammalian cell surface receptor, wherein the mammalian cell surface receptor is capable of activating receptor-mediated endocytosis of the minicell; and/or

(d) the bispecific ligand comprises an antibody or antibody fragment.

18. The use of claim 10-17, wherein (d) the bispecific ligand comprises an antibody or antibody fragment and wherein the target cell is phagocytosis- or endocytosis-competent.

19. The use of any one of claims 10-18, wherein:

(a) the immune response from the target cell comprises the production of Type I interferon; and/or

(b) the immune response from the target cell comprises the production of Type I interferon, wherein Type I interferon comprises interferon-α or interferon-β.

20. The use of any one of claims 10-19, wherein the disease is cancer.

21. The use of any one of claims 10-19, wherein the disease is an infection.

22. The use of any one of claims 10-21, further comprising:

(a) a drug for the treatment of the disease to be administered to the subject; and/or

(b) a drug for the treatment of the disease to be administered to the subject, wherein the drug is a chemotherapeutic; and/or

(c) drug for the treatment of the disease to be administered to the subject, wherein the drug is an anti-viral; and/or

(d) a drug for the treatment of the disease to be administered to the subject, wherein the drug is packaged in an intact minicell.

23. The use of any one of claims 10-22, wherein:

(a) the composition comprises fewer than about 1 contaminating parent bacterial cell per 10^7 minicells; or

(b) the composition comprises fewer than about 1 contaminating parent bacterial cell per 10^8 minicells; or

(c) the composition comprises fewer than about 1 contaminating parent bacterial cell per 10^9 minicells; or

(d) the composition comprises fewer than about 1 contaminating parent bacterial cell per 10^{10} minicells; or

(e) the composition comprises fewer than about 1 contaminating parent bacterial cell per 10^{11} minicells.

24. A composition for use in a method of treating a disease in a subject, wherein the method comprises delivering a nucleic acid adjuvant molecule or an agonist of a nucleic acid sensor to a target cell, wherein:

(a) the composition comprises an intact bacterial minicell comprising:

(i) at least one nucleic acid adjuvant molecule packaged within the minicell,

(ii) at least one plasmid comprising a segment that encodes at least one nucleic acid adjuvant molecule packaged within the minicell, and/or

(iii) at least one agonist of a nucleic acid sensor packaged within the minicell,

wherein the at least one nucleic acid adjuvant molecule comprises dsRNA greater than 30 nucleotides in length and less than 1,000 nucleotides in length, and,

wherein the nucleic acid adjuvant molecule or agonist of a nucleic acid sensor produces an immune response from a target cell; and wherein the at least one agonist of a nucleic acid sensor comprises a polynucleotide product of PNPase1, poly(I:C), poly-ICLC, imiquimod, imidazoquioline resquimod, or CpG-ODNs; and

(b) the method comprises contacting the target cell with the intact minicell, wherein the target cell engulfs the minicell.

25. The composition for use of claim 24, wherein the target cell is a:

(a) mammalian cell; or

(b) human cell; or

(c) human immune cell; or

(d) human immune cell which is a monocytic cell, a macrophage, a T cell, or a dendritic cell.

26. The composition for use of claim 24 or 25, wherein:

(a) the at least one nucleic acid adjuvant binds a receptor on the target cell; and/or

(b) the at least one nucleic acid adjuvant comprises a nucleic acid that binds to at least one of TLR3, TLR7, TLR8, TLR9, RIG-I, MDA5, AIM2, cGAS, or IFI16.

27. The composition for use of any one of claims 27-29, wherein the disease is cancer or an infection.

28. A combination medicament or a composition for use in the treatment of a disease in a subject wherein the combination medicament or composition comprises the composition according to any one of claims 1-8 and:

(a) a drug for the treatment of the disease, and/or

(b) a drug for the treatment of the disease to be administered to the subject, wherein the drug is a chemotherapeutic; and/or

(c) drug for the treatment of the disease to be administered to the subject, wherein the drug is an anti-viral; and/or

(d) a drug for the treatment of the disease to be administered to the subject, wherein the drug is packaged in an intact minicell.