AMENDED CLAIMS
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1. A method for treating a brain tumor in a subject, comprising administering systemically a therapeutically effective amount of a composition comprised of a plurality of intact, bacterially derived minicells, wherein:

(A) each minicell of said plurality (i) comprises an antibody that specifically recognizes a tumor cell antigen and (ii) encompasses an anti-neoplastic agent; and

(B) the brain tumor has blood vessels with fenestrations in their walls through which the minicells can extravasate passively.

2. The method of claim 1, wherein said anti-neoplastic agent is a radionuclide.

3. The method of claim 2, wherein the radionuclide is selected from yttrium-90, technetium-99m, iodine-123, iodine-131, rubidium-82, thallium-201, gallium-67, fluorine-18, xenon-133, and indium-111.

4. The method of claim 2, wherein the radionuclide is attached to a protein or a carbohydrate on the surface of said minicells.

5. The method of claim 4, wherein the radionuclide is attached to a bispecific antibody that is associated with the surface of the minicells.

6. The method of any one of claims 2-5, wherein said composition contains about 30 Gy to about 100 Gy radioactivity.

7. The method of claim 1, wherein said anti-neoplastic agent is a chemotherapy drug.

8. The method of claim 7, wherein said chemotherapy drug has a molecular weight of more than about 400 Daltons.

9. The method of claim 7 or 8, wherein said chemotherapy drug has a LD_{50} that is lower than the ED_{50} of said chemotherapy drug for a targeted cancer.

10. The method of any one of claims 7-9, wherein said composition contains at most about 1 mg of said chemotherapy drug.

11. The method of claim 1, wherein said anti-neoplastic agent is a functional nucleic acid or a polynucleotide encoding a functional nucleic acid.

12. The method of claim 11, wherein said functional nucleic acid inhibits a gene that promotes tumor cell proliferation, angiogenesis or resistance to chemotherapy and/or that inhibits apoptosis or cell cycle arrest.

13. The method of claim 11, wherein said functional nucleic acid is selected from siRNA, miRNA, shRNA, lincRNA, antisense RNA, or ribozyme.

14. The method of claim 1, wherein said anti-neoplastic agent is a polynucleotide encoding a gene that promotes apoptosis.

15. The method of any one of claim 1-14, wherein each minicell of said plurality comprises a ligand having a specificity to a non-phagocytic mammalian cell surface receptor.

16. The method of claim 15, wherein said receptor is a tumor cell antigen.

17. The method of any one of claims 1-16, wherein said plurality includes at least about 10^8 minicells.

18. The method of claim 17, wherein said plurality includes at least about 10^{10} minicells.

19. The method of any one of claims 1-18, wherein said composition contains less than about 10 EU free endotoxin.

20. The method of any one of claims 1-19, wherein said composition contains at most 1 parent bacterial cell per 10^8 minicells.

21. The method of anyone of claims 1-20, wherein said brain tumor is selected from the group consisting of glioblastoma, astrocytic tumor, oligodendroglial tumor, ependymoma, craniopharyngioma, pituitary tumor, primary lymphoma of the brain, pineal gland tumor, primary germ cell tumor of the brain, and combinations thereof.

22. The method of claim 21, wherein said brain tumor is metastatic brain tumor.

23. Use of a composition for manufacture of a medicament for the treatment of a brain tumor, wherein the composition comprises a plurality of intact, bacterially derived minicells and wherein

(A) each minicell of said plurality (i) comprises an antibody that specifically recognizes a tumor cell antigen and (ii) encompasses an anti-neoplastic agent, and

(B) the brain tumor has blood vessels with fenestrations in their walls through which the minicells can extravasate passively.

24. The use of claim 23, wherein said composition contains at most about 1 mg of a chemotherapy drug as said anti-neoplastic agent.

25. The use of claim 23, wherein said anti-neoplastic agent is a functional nucleic acid or a polynucleotide encoding a functional nucleic acid.

26. The use of claim 25, wherein said functional nucleic acid inhibits a gene that promotes tumor cell proliferation, angiogenesis or resistance to chemotherapy and/or that inhibits apoptosis or cell cycle arrest.

27. The use of claim 23, wherein said anti-neoplastic agent is a polynucleotide encoding a gene that promotes apoptosis.

28. The use of claim 23, wherein said anti-neoplastic agent is a radionuclide.

29. The use of claim 23, wherein said plurality includes at least about 10^{10} minicells.

30. The use of claim 23, wherein said composition contains less than about 10 EU free endotoxin.

31. The use of claim 23, wherein each minicell of said plurality comprises a ligand having a specificity to a non-phagocytic mammalian cell surface receptor.

32. The use of claim 23, wherein said brain tumor is selected from the group consisting of glioblastoma, astrocytic tumor, oligodendroglial tumor, ependymoma, craniopharyngioma, pituitary tumor, primary lymphoma of the brain, pineal gland tumor, primary germ cell tumor of the brain, and combinations thereof.

33. The use of claim 32, wherein said brain tumor is metastatic brain tumor.

34. The use of claim 23, wherein said anti-neoplastic agent is a chemotherapy drug that has a molecular weight of more than about 400 Daltons.

35. The use of claim 34, wherein said chemotherapy drug has a LD_{50} that is lower than the ED_{50} of said chemotherapy drug for a targeted cancer.

WHAT IS CLAIMED IS:

1. Use of a composition for manufacture of a medicament for the treatment of a brain tumor, wherein the composition comprises a plurality of intact, bacterially derived minicells and wherein

(A) each minicell of said plurality (i) comprises an antibody that specifically recognizes a tumor cell antigen and (ii) encompasses an anti-neoplastic agent, and

(B) the brain tumor has blood vessels with fenestrations in their walls through which the minicells can extravasate passively.

2. The use of claim 1, wherein said composition contains at most about 1 mg of a chemotherapy drug as said anti-neoplastic agent.

3. The use of claim 1, wherein said anti-neoplastic agent is a functional nucleic acid or a polynucleotide encoding a functional nucleic acid.

4. The use of claim 3, wherein said functional nucleic acid inhibits a gene that promotes tumor cell proliferation, angiogenesis or resistance to chemotherapy and/or that inhibits apoptosis or cell cycle arrest.

5. The use of claim 3, wherein said functional nucleic acid is selected from siRNA, miRNA, shRNA, lincRNA, antisense RNA, or ribozyme.

6. The use of claim 1, wherein said anti-neoplastic agent is a polynucleotide encoding a gene that promotes apoptosis.

7. The use of claim 1, wherein said anti-neoplastic agent is a radionuclide.

8. The use of claim 7, wherein the radionuclide is selected from yttrium-90, technetium-99m, iodine-123, iodine-131, rubidium-82, thallium-201, gallium-67, fluorine-18, xenon-133, and indium-111.

9. The use of claim 7, wherein the radionuclide is attached to a protein or a carbohydrate on the surface of said minicells.

10. The use of claim 9, wherein the radionuclide is attached to a bispecific antibody that is associated with the surface of the minicells.

11. The use of any one of claims 7-10, wherein said composition contains about 30 Gy to about 100 Gy radioactivity.

12. The use of any one of claims 1- 11, wherein said plurality includes at least about 10^8 minicells.

13. The use of claim 12, wherein said plurality includes at least about 10^{10} minicells.

14. The use of claim 1-13, wherein said composition contains less than about 10 EU free endotoxin.

15. The use of any one of claims 1- 14, wherein said composition contains at most 1 parent bacterial cell per 10^8 minicells.

16. The use of claim 1-15, wherein each minicell of said plurality comprises a ligand having a specificity to a non-phagocytic mammalian cell surface receptor.

17. The use of claim 16, wherein said receptor is a tumor cell antigen.

18. The use of claim 1-17, wherein said brain tumor is selected from the group consisting of glioblastoma, astrocytic tumor, oligodendroglial tumor, ependymoma, craniopharyngioma, pituitary tumor, primary lymphoma of the brain, pineal gland tumor, primary germ cell tumor of the brain, and combinations thereof.

19. The use of claim 18, wherein said brain tumor is metastatic brain tumor.

20. The use of claim 1, wherein said anti-neoplastic agent is a chemotherapy drug.

21. The use of claim 1, wherein said anti-neoplastic agent is a chemotherapy drug that has a molecular weight of more than about 400 Daltons.

22. The use of claim 20 or 21, wherein said chemotherapy drug has a LD_{50} that is lower than the ED_{50} of said chemotherapy drug for a targeted cancer.