CLAIMS

1. An extracellular vesicle capable of reducing CEBP/β protein or mRNA expression in a cell expressing CEBP/β, wherein the extracellular vesicle comprises an antisense oligonucleotide (ASO) which comprises a contiguous nucleotide sequence of 10 to 30 nucleotides in length that is complementary to a nucleic acid sequence within a *CEBP/β* transcript (SEQ ID NO: 11 or SEQ ID NO: 13).

2. The extracellular vesicle of claim 1, wherein the ASO is not TGGATTTAAAGGCAGGCGGC (SEQ ID NO: 90).

3. The extracellular vesicle of claim 1 or 2, which targets a cell selected from the group consisting of a macrophage, a myeloid-derived suppressor cell (MDSC), a monocyte, a basophil, a neutrophil, an eosinophil, and any combination thereof.

4. The extracellular vesicle of any one of claims 1 to 3, wherein the ASO comprises a contiguous nucleotide sequence of 10 to 30 nucleotides in length that is complementary to a nucleic acid sequence within nucleotides 1 to 518 of a *CEBP/β* transcript corresponding to a nucleotide sequence as set forth in SEQ ID NO: 13, or nucleotides 521 to 2113 of a *CEBP/β* transcript corresponding to a nucleotide sequence as set forth in SEQ ID NO: 13.

5. The extracellular vesicle of claim 4, wherein the contiguous nucleotide sequence is at least 80%, at least 85%, at least 90%, at least 95%, or 100% complementary to the nucleic acid sequence within the *CEBP/β* transcript.

6. The extracellular vesicle of any one of claims 1 to 5, wherein the ASO is capable of reducing CEBP/β protein expression in a human cell (*e.g.*, an immune cell), wherein the human cell expresses the CEBP/β protein.

7. The extracellular vesicle of claim 6, wherein the CEBP/β protein expression is reduced by at least 30%, at least 35%, at least 40%, at least 45%, at least 50%, at least 55%, at least 60%, at least 65%, at least 70%, at least 75%, at least 80%, at least 85%, at least 90%, at least 95%, or 100% compared to CEBP/β protein expression in a human cell that is not exposed to the ASO.

8. The extracellular vesicle of any one of claims 1 to 7, wherein the ASO is capable of reducing a level of *CEBP/β* mRNA in a human cell (*e.g.*, an immune cell), wherein the human cell expresses the *CEBP/β* mRNA.

9. The extracellular vesicle of claim 8, wherein the level of *CEBP/β* mRNA is reduced by at least 30%, at least 35%, at least 40%, at least 45%, at least 50%, at least 55%, at least 60%, at least 65%, at

least 70%, at least 75%, at least 80%, at least 85%, at least 90%, at least 95%, or 100% compared to the level of the *CEBP/β* mRNA in a human cell that is not exposed to the ASO.

10. The extracellular vesicle of any one of claims 1 to 9, wherein the ASO is a gapmer, a mixmer, or a totalmer.

11. The extracellular vesicle of any one of claims 1 to 10, wherein the ASO comprises one or more nucleoside analogs.

12. The extracellular vesicle of claim 11, wherein one or more of the nucleoside analogs comprises a 2'-O-alkyl-RNA; 2'-O-methyl RNA (2'-OMe); 2'-alkoxy-RNA; 2'-O-methoxyethyl-RNA (2'-MOE); 2'-amino-DNA; 2'-fluro-RNA; 2'-fluoro-DNA; arabino nucleic acid (ANA); 2'-fluoro-ANA; or bicyclic nucleoside analog.

13. The extracellular vesicle of claim 11 or 12, wherein one or more of the nucleoside analogs is a sugar modified nucleoside.

14. The extracellular vesicle of claim 13, wherein the sugar modified nucleoside is an affinity enhancing 2' sugar modified nucleoside.

15. The extracellular vesicle of any one of claims 11 to 14, wherein one or more of the nucleoside analogs comprises a nucleoside comprising a bicyclic sugar.

16. The extracellular vesicle of any one of claims 11 to 14, wherein one or more of the nucleoside analogs comprises an LNA.

17. The extracellular vesicle of any one of claims 11 to 16, wherein one or more of the nucleotide analogs is selected from the group consisting of constrained ethyl nucleoside (cEt), 2',4'-constrained 2′-O-methoxyethyl (cMOE), α-L-LNA, β-D-LNA, 2'-O,4'-C-ethylene-bridged nucleic acids (ENA), amino-LNA, oxy-LNA, thio-LNA, and any combination thereof.

18. The extracellular vesicle of any one of claims 1 to 17, wherein the ASO comprises one or more 5'-methyl-cytosine nucleobases.

19. The extracellular vesicle of any one of claims 10 to 18, wherein the contiguous nucleotide sequence is complementary to a nucleic acid sequence within (i) a 5' untranslated region (UTR); (ii) a coding region; or (iii) a 3' UTR of the CEBP/β transcript.

20. The extracellular vesicle of any one of claims 1 to 19, wherein the contiguous nucleotide sequence is complementary to a nucleic acid sequence comprising (i) nucleotides 1 – 600 of SEQ ID NO: 13; (ii) nucleotides 100 – 600 of SEQ ID NO: 13; (iii) nucleotides 200 – 600 of SEQ ID NO: 13; (iv) nucleotides 300 – 600 of SEQ ID NO: 13; (v) 400 – 600 of SEQ ID NO: 13, (vi) nucleotides 500 – 1000 of SEQ ID NO: 13; (vii) nucleotides 900 – 1200 of SEQ ID NO: 13; (viii) nucleotides 1000 – 1300 of

SEQ ID NO: 13; (ix) nucleotides 1300 – 1500 of SEQ ID NO: 13; (x) 489 – 649 of SEQ ID NO: 13; (xi) nucleotides 594 – 728 of SEQ ID NO: 13; (xii) nucleotides 765 – 700 of SEQ ID NO: 13; (xiii) nucleotides 936 – 1076 of SEQ ID NO: 13; (xiv) nucleotides 999 – 2068 of SEQ ID NO: 13; (xv) 1203 – 1357 of SEQ ID NO: 13; (xvi) nucleotides 1355 – 1487 of SEQ ID NO: 13 (xvii) 529 – 609 of SEQ ID NO: 13; (xviii) nucleotides 634 – 688 of SEQ ID NO: 13; (xix) nucleotides 805-700 of SEQ ID NO: 13; (xx) nucleotides 976 – 1036 of SEQ ID NO: 13; (xxi) nucleotides 1039 – 2028 of SEQ ID NO: 13; (xxii) 1243 – 1317 of SEQ ID NO: 13; or (xxiii) nucleotides 1395 – 1447 of SEQ ID NO: 13.

21. The extracellular vesicle of any one of claims 1 to 20, wherein the contiguous nucleotide sequence is complementary to a nucleic acid sequence within (i) 539 – 599 of SEQ ID NO: 13; (ii) nucleotides 644 – 678 of SEQ ID NO: 13; (iii) nucleotides 815 – 690 of SEQ ID NO: 13; (iv) nucleotides 986 – 1026 of SEQ ID NO: 13; (v) nucleotides 1049 – 2018 of SEQ ID NO: 13; (vi) 1253 – 1307 of SEQ ID NO: 13; or (vii) nucleotides 1405 – 1437 of SEQ ID NO: 13.

22. The extracellular vesicle of any one of claims 1 to 21, wherein the contiguous nucleotide sequence comprises a nucleotide sequence complementary to a sequence selected from the sequences in FIG. 1.

23. The extracellular vesicle of any one of claims 14 to 22, wherein the continuous nucleotide sequence is fully complementary to a nucleotide sequence within the CEBP/β transcript.

24. The extracellular vesicle of any one of claims 13 to 23, wherein the ASO comprises a nucleotide sequence selected from SEQ ID NOs: 194-296, with one or two mismatches.

25. The extracellular vesicle of any one of claims 13 to 23, wherein the ASO comprises a nucleotide sequence selected from SEQ ID NOs: 194-296.

26. The extracellular vesicle of any one of claims 1 to 25, wherein the ASO has a design selected from the group consisting of the designs in FIG. 1, wherein the upper letter is a sugar modified nucleoside and the lower case letter is DNA.

27. The extracellular vesicle of any one of claims 1 to 26, wherein the ASO is from 14 to 20 nucleotides in length.

28. The extracellular vesicle of any one of claims 4 to 27, wherein the contiguous nucleotide sequence comprises one or more modified internucleoside linkages.

29. The extracellular vesicle of claim 28, wherein the one or more modified internucleoside linkages is a phosphorothioate linkage.

30. The extracellular vesicle of claim 28 or 29, wherein at least 75%, at least 80%, at least 85%, at least 90%, at least 95%, or 100% of internucleoside linkages are modified.

31. The extracellular vesicle of claim 30, wherein each of the internucleoside linkages in the ASO is a phosphorothioate linkage.

32. The extracellular vesicle of any one of claims 1 to 31, wherein the ASO is covalently attached to at least one non-nucleotide or non-polynucleotide moiety.

33. The extracellular vesicle of claim 32, wherein the non-nucleotide or non-polynucleotide moiety comprises a protein, a fatty acid chain, a sugar residue, a glycoprotein, a polymer, or any combinations thereof.

34. The extracellular vesicle of any one of claims 1 to 33, which further comprises an anchoring moiety.

35. The extracellular vesicle of claim 34, wherein the ASO is linked to the anchoring moiety.

36. The extracellular vesicle of any one of claims 1 to 35, further comprising an exogenous targeting moiety.

37. The extracellular vesicle of claim 36, wherein the exogenous targeting moiety comprises a peptide, an antibody or an antigen-binding fragment thereof, a chemical compound, an RNA aptamer, or any combination thereof.

38. The extracellular vesicle of claim 36 or 37, wherein the exogenous targeting moiety comprises a peptide.

39. The extracellular vesicle of any one of claims 36 to 38, wherein the exogenous targeting moiety comprises a microprotein, a designed ankyrin repeat protein (darpin), an anticalin, an adnectin, an aptamer, a peptide mimetic molecule, a natural ligand for a receptor, a camelid nanobody, or any combination thereof.

40. The extracellular vesicle of any one of claims 36 to 39, wherein the exogenous targeting moiety comprises a full-length antibody, a single domain antibody, a heavy chain only antibody (VHH), a single chain antibody, a shark heavy chain only antibody (VNAR), an scFv, a Fv, a Fab, a Fab', a F(ab')2, or any combination thereof.

41. The extracellular vesicle of claim 40, wherein the antibody is a single chain antibody.

42. The extracellular vesicle of any one of claims 36 to 41, wherein the exogenous targeting moiety targets the exosome to the liver, heart, lungs, brain, kidneys, central nervous system, peripheral nervous system, muscle, bone, joint, skin, intestine, bladder, pancreas, lymph nodes, spleen, blood, bone marrow, or any combination thereof.

43. The extracellular vesicle of any one of claims 36 to 42, wherein the exogenous targeting moiety targets the exosome to a tumor cell, dendritic cell, T cell, B cell, macrophage, neuron, hepatocyte, Kupffer

cell, myeloid-lineage cell (*e.g.*, a neutrophils, monocytes, macrophages, hematopoietic stem cell, an MDSC (*e.g.*, a monocytic MDSC or a granulocytic MDSC)), or any combination thereof.

44. The extracellular vesicle of any one of claims 36 to 43, wherein the EV comprises a scaffold moiety linking the exogenous targeting moiety to the EV.

45. The extracellular vesicle of any one of claims 36 to 44, wherein the anchoring moiety and/or the scaffold moiety is a Scaffold X, wherein the scaffold moiety refers to a molecule that can be used to anchor a payload or any other compound of interest to the extracellular vesicle, either on the luminal surface or on the exterior surface of the extracellular vesicle, and wherein Scaffold X is an exosome protein that has been identified on the surface of exosomes.

46. The extracellular vesicle of any one of claims 36 to 44, wherein the anchoring moiety and/or the scaffold moiety is a Scaffold Y, wherein the scaffold moiety refers to a molecule that can be used to anchor a payload or any other compound of interest to the extracellular vesicle, either on the luminal surface or on the exterior surface of the extracellular vesicle, and wherein Scaffold Y is an exosome protein that has been identified within the lumen of exosomes.

47. The extracellular vesicle of claim 45, wherein the Scaffold X is a scaffold protein that is capable of anchoring the ASO on the luminal surface of the EV and/or on the exterior surface of the EV.

48. The extracellular vesicle of claim 45 or 47, wherein the Scaffold X is selected from the group consisting of prostaglandin F2 receptor negative regulator (the PTGFRN protein); basigin (the BSG protein); immunoglobulin superfamily member 2 (the IGSF2 protein); immunoglobulin superfamily member 3 (the IGSF3 protein); immunoglobulin superfamily member 8 (the IGSF8 protein); integrin beta-1 (the ITGB1 protein); integrin alpha-4 (the ITGA4 protein); 4F2 cell-surface antigen heavy chain (the SLC3A2 protein); a class of ATP transporter proteins (the ATP1A1, ATP1A2, ATP1A3, ATP1A4, ATP1B3, ATP2B1, ATP2B2, ATP2B3, ATP2B4 proteins); a functional fragment thereof; and any combination thereof.

49. The extracellular vesicle of any one of claims 34 to 48, wherein the anchoring moiety and/or the scaffold moiety is PTGFRN protein or a functional fragment thereof.

50. The extracellular vesicle of any one of claims 34 to 49, wherein the anchoring moiety and/or the scaffold moiety comprises an amino acid sequence as set forth in SEQ ID NO: 302.

51. The extracellular vesicle of any one of claims 34 to 50, wherein the anchoring moiety and/or the scaffold moiety comprises an amino acid sequence at least 50%, at least 60%, at least 70%, at least 80%, at least 85%, at least 90%, at least 95%, at least 96%, at least 97%, at least 98%, at least 99%, or about 100% identical to SEQ ID NO: 301.

52. The extracellular vesicle of claim 46, wherein the Scaffold Y is a scaffold protein that is capable of anchoring the ASO on the luminal surface of the EV and/or on the exterior surface of the EV.

53. The extracellular vesicle of claim 46 or 52, wherein the Scaffold Y is selected from the group consisting of myristoylated alanine rich Protein Kinase C substrate (the MARCKS protein), myristoylated alanine rich Protein Kinase C substrate like 1 (the MARCKSL1 protein), brain acid soluble protein 1 (the BASP1 protein), a functional fragment thereof, and any combination thereof.

54. The extracellular vesicle of any one of claims 46, 52, and 53, wherein the Scaffold Y is a BASP1 protein or a functional fragment thereof.

55. The extracellular vesicle of any one of claims 46 and 52 to 54, wherein the Scaffold Y comprises an N terminus domain (ND) and an effector domain (ED), wherein the ND and/or the ED are associated with the luminal surface of the EV.

56. The extracellular vesicle of claim 55, wherein the ND is associated with the luminal surface of the exosome via myristoylation.

57. The extracellular vesicle of claim 55 or 56, wherein the ED is associated with the luminal surface of the exosome by an ionic interaction.

58. The extracellular vesicle of any one of claims 55 to 56, wherein the ED comprises (i) a basic amino acid or (ii) two or more basic amino acids in sequence, wherein the basic amino acid is selected from the group consisting of Lys, Arg, His, and any combination thereof.

59. The extracellular vesicle of claim 58, wherein the basic amino acid is (Lys)n, wherein n is an integer between 1 and 10.

60. The extracellular vesicle of any one of claims 55 to 59, wherein the ED comprises Lys (K), KK, KKK, KKKK (SEQ ID NO: 405), KKKKK (SEQ ID NO: 406), Arg (R), RR, RRR, RRRR (SEQ ID NO: 407); RRRRR (SEQ ID NO: 408), KR, RK, KKR, KRK, RKK, KRR, RRK, (K/R)(K/R)(K/R)(K/R) (SEQ ID NO: 409), (K/R)(K/R)(K/R)(K/R)(K/R) (SEQ ID NO: 410), or any combination thereof.

61. The extracellular vesicle of any one of claims 55 to 60, wherein the ND comprises the amino acid sequence as set forth in G:X2:X3:X4:X5:X6, wherein G represents Gly; wherein ":" represents a peptide bond, wherein each of the X2 to the X6 is independently an amino acid, and wherein the X6 comprises a basic amino acid.

62. The extracellular vesicle of claim 61, wherein:

(i) the X2 is selected from the group consisting of Pro, Gly, Ala, and Ser;

(ii) the X4 is selected from the group consisting of Pro, Gly, Ala, Ser, Val, Ile, Leu, Phe, Trp, Tyr, Gln and Met;

(iii) the X5 is selected from the group consisting of Pro, Gly, Ala, and Ser;

(iv) the X6 is selected from the group consisting of Lys, Arg, and His; or

(v) any combination of (i)-(iv).

63. The extracellular vesicle of any one of claims 55 to 62, wherein the ND comprises the amino acid sequence of G:X2:X3:X4:X5:X6, wherein

(i) G represents Gly;

(ii) ":" represents a peptide bond;

(iii) the X2 is an amino acid selected from the group consisting of Pro, Gly, Ala, and Ser;

(iv) the X3 is an amino acid;

(v) the X4 is an amino acid selected from the group consisting of Pro, Gly, Ala, Ser, Val, Ile, Leu, Phe, Trp, Tyr, Gln and Met;

(vi) the X5 is an amino acid selected from the group consisting of Pro, Gly, Ala, and Ser; and

(vii) the X6 is an amino acid selected from the group consisting of Lys, Arg, and His.

64. The extracellular vesicle of any one of claims 61 to 63, wherein the X3 is selected from the group consisting of Asn, Gln, Ser, Thr, Asp, Glu, Lys, His, and Arg.

65. The extracellular vesicle of any one of claims 55 to 64, wherein the ND and the ED are joined by a linker.

66. The extracellular vesicle of claim 65, wherein the linker comprises one or more amino acids.

67. The method of any one of claims 55 to 66, wherein the ND comprises an amino acid sequence selected from the group consisting of (i) GGKLSKK (SEQ ID NO: 411), (ii) GAKLSKK (SEQ ID NO: 412), (iii) GGKQSKK (SEQ ID NO: 413), (iv) GGKLAKK (SEQ ID NO: 414), (v) GGKLSK (SEQ ID NO: 415), or (vi) any combination thereof.

68. The extracellular vesicle of claim 67, wherein the ND comprises an amino acid sequence selected from the group consisting of (i) GGKLSKKK (SEQ ID NO: 438), (ii) GGKLSKKS (SEQ ID NO: 439), (iii) GAKLSKKK (SEQ ID NO: 440), (iv) GAKLSKKS (SEQ ID NO: 441), (v) GGKQSKKK (SEQ ID NO: 442), (vi) GGKQSKKS (SEQ ID NO: 443), (vii) GGKLAKKK (SEQ ID NO: 444), (viii) GGKLAKKS (SEQ ID NO: 445), and (ix) any combination thereof.

69. The extracellular vesicle of any one of claims 55 to 68, wherein the ND comprises the amino acid sequence GGKLSKK (SEQ ID NO: 411).

70. The extracellular vesicle of any one of claims 46 and 52 to 69, wherein the Scaffold Y is at least 8, at least 9, at least 10, at least 11, at least 12, at least 13, at least 14, at least 15, at least 16, at least 17, at least 18, at least 19, at least 20, at least 21, at least 22, at least 23, at least 24, at least 25, at least 30, at least 35, at least 40, at least 45, at least abot 50, at least 55, at least 60, at least 65, at least 70, at least 75, at least 80, at least 85, at least 90, at least 95, at least 100, at least 105, at least 110, at least 120, at least 130, at least 140, at least 150, at least 160, at least 170, at least 180, at least 190, or at least 200 amino acids in length.

71. The extracellular vesicle of claims 46 and 52 to 70, wherein the Scaffold Y comprises (i) GGKLSKKKKGYNVN (SEQ ID NO: 446), (ii) GAKLSKKKKGYNVN (SEQ ID NO: 447), (iii) GGKQSKKKKGYNVN (SEQ ID NO: 448), (iv) GGKLAKKKKGYNVN (SEQ ID NO: 449), (v) GGKLSKKKKGYSGG (SEQ ID NO: 450), (vi) GGKLSKKKKGSGGS (SEQ ID NO: 451), (vii) GGKLSKKKKSGGSG (SEQ ID NO: 452), (viii) GGKLSKKKSGGSGG (SEQ ID NO: 453), (ix) GGKLSKKSGGSGGS (SEQ ID NO: 454), (x) GGKLSKSGGSGGSV (SEQ ID NO: 455), or (xi) GAKKSKKRFSFKKS (SEQ ID NO: 456).

72. The extracellular vesicle of claims 46 and 52 to 71, wherein the Scaffold Y consists of (i) GGKLSKKKKGYNVN (SEQ ID NO: 446), (ii) GAKLSKKKKGYNVN (SEQ ID NO: 447), (iii) GGKQSKKKKGYNVN (SEQ ID NO: 448), (iv) GGKLAKKKKGYNVN (SEQ ID NO: 449), (v) GGKLSKKKKGYSGG (SEQ ID NO: 450), (vi) GGKLSKKKKGSGGS (SEQ ID NO: 451), (vii) GGKLSKKKKSGGSG (SEQ ID NO: 452), (viii) GGKLSKKKSGGSGG (SEQ ID NO: 453), (ix) GGKLSKKSGGSGGS (SEQ ID NO: 454), (x) GGKLSKSGGSGGSV (SEQ ID NO: 455), or (xi) GAKKSKKRFSFKKS (SEQ ID NO: 456).

73. The extracellular vesicle of claim 46 and 62 to 72, wherein the Scaffold Y does not comprise Met at the N terminus.

74. The extracellular vesicle of any one of claims 46 and 52 to 73, wherein the Scaffold Y comprises a myristoylated amino acid residue at the N terminus of the scaffold protein.

75. The extracellular vesicle of claim 74, wherein the amino acid residue at the N terminus of the Scaffold Y is Gly.

76. The extracellular vesicle of any one of claims 34 to 75, wherein the ASO is linked to the anchoring moiety and/or the scaffold moiety on the exterior surface of the EV.

77. The extracellular vesicle of any one of claims 34 to 76, wherein the ASO is linked to the anchoring moiety and/or the scaffold moiety on the luminal surface of the EV.

78. The extracellular vesicle of any one of claims 34 to 77, wherein the anchoring moiety comprises sterol, GM1, a lipid, a vitamin, a small molecule, a peptide, or a combination thereof.

79. The extracellular vesicle of any one of claims 34 to 77, wherein the anchoring moiety comprises cholesterol.

80. The extracellular vesicle of any one of claims 34 to 77, wherein the anchoring moiety comprises a phospholipid, a lysophospholipid, a fatty acid, a vitamin (e.g., vitamin D and/or vitamin E), or any combination thereof.

81. The extracellular vesicle of any one of claims 34 to 80, wherein the ASO is linked to the anchoring moiety and/or the scaffold moiety by a linker.

82. The extracellular vesicle of any one of claims 1 to 81, wherein the ASO is linked to the EV by a linker.

83. The extracellular vesicle of claim 81 or 82, wherein the linker is a polypeptide.

84. The extracellular vesicle of claim 81 or 82, wherein the linker is a non-polypeptide moiety.

85. The extracellular vesicle of claim 81 or 82, wherein the linker comprise ethylene glycol.

86. The extracellular vesicle of claim 85, wherein the linker comprises HEG, TEG, PEG, or any combination thereof.

87. The extracellular vesicle of claim 81 or 82, wherein the linker comprises acrylic phosphoramidite (e.g,. ACRYDITE™), adenylation, azide (NHS Ester), digoxigenin (NHS Ester), cholesterol-TEG, I-LINKER™, an amino modifier (e.g., amino modifier C6, amino modifier C12, amino modifier C6 dT, or Uni-Link™ amino modifier), alkyne, 5' Hexynyl, 5-Octadiynyl dU, biotinylation (e.g., biotin, biotin (Azide), biotin dT, biotin-TEG, dual biotin, PC biotin, or desthiobiotin), thiol modification (thiol modifier C3 S-S, dithiol or thiol modifier C6 S-S), or any combination thereof.

88. The extracellular vesicle of any one of claims 81 to 87, wherein the linker is a cleavable linker.

89. The extracellular vesicle of claim 88, wherein the linker comprises valine-alanine-p-aminobenzylcarbamate or valine-citrulline-p-aminobenzylcarbamate.

90. The extracellular vesicle of any one of claims 81 to 89, wherein the linker comprises (i) a maleimide moiety and (ii) valine-alanine-p-aminobenzylcarbamate or valine-citrulline-p-aminobenzylcarbamate.

91. The extracellular vesicle of any one of claims 1 to 90, wherein the EV is an exosome.

92. A pharmaceutical composition comprising the extracellular vesicle of any one of claims 1 to 91 and a pharmaceutically acceptable diluent, carrier, salt, or adjuvant.

93. The pharmaceutical composition of claim 92, wherein the pharmaceutically acceptable salt comprises a sodium salt, a potassium salt, an ammonium salt, or any combination thereof.

94. The pharmaceutical composition of claim 92 or 93, which further comprises at least one additional therapeutic agent.

95. The pharmaceutical composition of claim 94, wherein the additional therapeutic agent is an CEBP/β antagonist.

96. The pharmaceutical composition of claim 95, wherein the CEBP/β antagonist is a chemical compound, an siRNA, an shRNA, an antisense oligonucleotide, a protein, or any combination thereof.

97. The pharmaceutical composition of claim 95 or 96, wherein the CEBP/β antagonist is an anti-CEBP/β antibody, or a fragment thereof.

98. The pharmaceutical composition of claim 95 or 96, wherein the CEBP/β antagonist comprises an antisense oligonucleotide (ASO).

99. A kit comprising the extracellular vesicle of any one of claims 1 to 91 or the pharmaceutical composition of any one of claims 92 to 98, and instructions for use.

100. A diagnostic kit comprising the extracellular vesicle of any one of claims 1 to 91 or the pharmaceutical composition of any one of claims 92 to 98, and instructions for use.

101. Use of the extracellular vesicle of any one of the claims 1 to 91 or the pharmaceutical composition in any one of the claims 92 to 98 in the manufacture of a medicament for use in a method of inhibiting or reducing CEBP/β protein expression in a cell, wherein the medicament is to be administered and wherein the CEBP/β protein expression in the cell is inhibited or reduced after the administration.

102. Use of the extracellular vescible of any one of claims 1 to 91 or the pharmaceutical composition of any one of the claims 92 to 98 for the medicament for the treatment of a cancer in a subject thereof, wherein an effective amount of extracellular vesicle is to be administered to the subject, wherein the the cancer is associated with increased expression of a CEBP/β protein.

103. Use of the extracellular vesicle of any one of claims 1 to 91 or the pharmaceutical composition of any one of claims 92 to 98 in the manufacture of a medicament for the treatment of a cancer in a subject in need thereof, wherein the cancer is associated with increased expression of a CEBP/β protein.

104. The extracellular vesicle of any one of claims 1 to 91 or the pharmaceutical composition of any one of claims 92 to 98 for use in the treatment of a cancer in a subject in need thereof, wherein the cancer is associated with increased expression of a CEBP/β protein.

105. Use of the extracellular vescible of any one of claims 1 to 91 or the pharmaceutical composition of any one of the claims 92 to 98 for the medicament for the treatment of a disease or disorder in a subject in need thereof, wherein an effective amount of extracellular vesicle is to be administered to the subject,

wherein the disease or disorder is selected from a fibrosis, an inflammation, a neurodegenerative disease, a metabolic disorder, and any combination thereof.

106. Use of the extracellular vesicle of any one of claims 1 to 91 or the pharmaceutical composition of any one of claims 92 to 98 in the manufacture of a medicament for the treatment of a disease or disorder in a subject in need thereof, wherein the disease or disorder is selected from a fibrosis, an inflammation, a neurodegenerative disease, a metabolic disorder, and any combination thereof.

107. The extracellular vesicle of any one of claims 1 to 91 or the pharmaceutical composition of any one of claims 92 to 98 for use in the treatment of a disease or disorder in a subject in need thereof, wherein the disease or disorder is selected from a fibrosis, an inflammation, a neurodegenerative disease, a metabolic disorder, and any combination thereof.

108. The use of any one of claims 101 to 106, wherein the ASO inhibits or reduces expression of *CEBP/β* mRNA in the cell after the administration.

109. The use of claim 108, wherein a level of *CEBP/β* mRNA is reduced by at least 20%, at least 30%, at least 40%, at least 50%, at least 60%, at least 70%, at least 80%, at least 90%, or 100% after the administration compared to the level of *CEBP/β* mRNA in a cell not exposed to the ASO.

110. The use of any one of claims 101 to 106, wherein the expression of CEBP/β proteinis reduced by at least 60%, at least 70%, at least 75%, at least 80%, at least 85%, at least 90%, at least 95%, at least 96%, at least 97%, at least 98%, at least 99%, or 100% after the administration compared to the expression of CEBP/β protein in a cell not exposed to the ASO.

111. The use of any one of claims 101 to 106, wherein the extracellular vesicle, the ASO, the conjugate, or the pharmaceutical composition is to be administered intracardially, orally, parenterally, intrathecally, intra-cerebroventricularly, pulmorarily, topically, or intraventricularly.

112. The use of any one of claims 102 to 104, wherein the cancer is selected from the group consisting of fibrosarcoma, myxosarcoma, liposarcoma, chondrosarcoma, osteogenic sarcoma, chordoma, angiosarcoma, endotheliosarcoma, lymphangiosarcoma, lymphangioendotheliosarcoma, synovioma, mesothelioma, Ewing's tumor, leiomyosarcoma, rhabdomyosarcoma, colon carcinoma, pancreatic cancer, breast cancer, ovarian cancer, prostate cancer, squamous cell cancer, squamous cell cancer of the head and neck cancer, colorectal cancer, lymphoma, leukemia, liver cancer, glioblastoma, melanoma, myeloma basal cell cancer, adenocarcinoma, sweat gland cancer, sebaceous gland cancer, papillary cancer, papillary adenocarcinomas, cystadenocarcinoma, medullary cancer, bronchogenic cancer, renal cell cancer, hepatoma, bile duct cancer, choriocarcinoma, seminoma, embryonal cancer, Wilms' tumor, cervical cancer, testicular cancer, lung cancer, small cell lung cancer, bladder cancer, epithelial cancer, glioma, glioblastoma, astrocytoma, medulloblastoma, craniopharyngioma, ependymoma, pinealoma, hemangioblastoma, acoustic neuroma, oligodendroglioma, meningioma, melanoma, neuroblastoma,

retinoblastoma, follicular lymphoma, Hodgkin's lymphoma, B cell lymphoma, and any combination thereof.

113. The use of any one of claims 105 to 106, wherein the disease or disorder comprises a fibrosis.

114. The use of any one of claims 105 to 106, wherein the disease or disorder comprises a fibrosis selected from the group consisting of liver fibrosis (NASH), cirrhosis, pulmonary fibrosis, cystic fibrosis, chronic ulcerative colitis/IBD, bladder fibrosis, kidney fibrosis, CAPS (Muckle-Wells syndrome), atrial fibrosis, endomyocardial fibrosis, old myocardial infarction, glial scar, arterial stiffness, arthrofibrosis, Crohn's disase, Dupuytren's contracture, keloid fibrosis, mediastinal fibrosis, myelofibrosis, Peyronie's disease, nephrogenic systemic fibrosis, progressive massive fibrosis, retroperitoneal fibrosis, scleroderma/systemic sclerosis, adhesive capsulitis, and any combination thereof.

115. Use of the extracellular vesicle of any one of the claims 1 to 91 or the pharmaceutical composition in any one of the claims 92 to 98 in the manufacture of a medicament for use in a method of activating meningeal macrophages in a subject in need thereof, wherein the extracellular vesicle is to be administered to the subject.

116. Use of the extracellular vesicle of any one of the claims 1 to 91 or the pharmaceutical composition in any one of the claims 92 to 98 in the manufacture of a medicament for use in a method of treating a cancer of the central nervous system in a subject in need thereof, wherein an effective amount of extracellular vesicle is to be administered to the subject.

117. Use of the extracellular vesicle of any one of the claims 1 to 91 or the pharmaceutical composition in any one of the claims 92 to 98 in the manufacture of a medicament for use in a method of inducing M1 polarization of meningeal macrophages in a subject in need thereof, wherein an effective amount of the extracellular vesicle is to be administered to the subject.

118. Use of the extracellular vesicle of any one of the claims 1 to 91 or the pharmaceutical composition in any one of the claims 92 to 98 in the manufacture of a medicament for use in a method of inducing meningeal macrophage infiltration of a tumor in a subject in need thereof, wherein an effective amount of extracellular vesicle is to be administered to the subject.