

WHAT IS CLAIMED IS:

1. A Fc fusion protein comprising an effectorless Fc protein which comprises a Flt3 ligand (Flt3L) protein and the effectorless Fc protein, wherein the effectorless Fc protein is at least 95%, 96%, 97%, 98%, or 99% identical to residues SEQ ID NO:13, and wherein residues
5 13-17 of SEQ ID NO:13 comprise the amino acid sequence PVAGP (SEQ ID NO:20) and residue 76 of SEQ ID NO:13 is a glycine.
2. The Fc fusion protein of claim 1, wherein the Flt3L protein does not comprise the amino acid sequence of PWSPRPLEATAPTAPQPP (SEQ ID NO:48), WSPRPLEATAPTAPQPP (SEQ ID NO:49), SPRPLEATAPTAPQPP (SEQ ID NO:50),
10 PRPLEATAPTAPQPP (SEQ ID NO:51), RPLEATAPTAPQPP (SEQ ID NO:52), or PLEATAPTAPQPP (SEQ ID NO:53).
3. The Fc fusion protein of claim 1 or 2, wherein the Flt3L comprises a protein comprising an amino acid sequence which is at least 95%, 96%, 97%, 98% or 99% identical to SEQ ID NO:22.
- 15 4. The Fc fusion protein of any one of claims 1 to 3, wherein the Flt3L comprises a protein comprising the amino acid sequence of SEQ ID NO:22.
5. The Fc fusion protein of any one of claims 1 to 4, wherein the Flt3L comprises a protein which is at least about 90% identical to a protein comprising amino acids 27-167, 27-168, 27-169, 27-170, 27-171, 27-172, 27-173, 27-174, 27-175, 27-176, 27-177, 27-178, 27-
20 179, 27-180, 27-181, 27-182, 27-183, 27-184, or 27-185 of SEQ ID NO:21.
6. The Fc fusion protein of any one of claims 1 to 5, wherein the N-terminus of the effectorless Fc protein is linked to the C-terminus of the Flt3L protein via a peptide bond.
7. The Fc fusion protein of any one of claims 1 to 6, wherein the fusion protein comprises an amino acid sequence which is at least 95%, 96%, 97%, 98%, 99%, or 100% identical to
25 SEQ ID NO:26 and wherein the fusion protein comprises an amino acid sequence identical to SEQ ID NO:13.
8. The Fc fusion protein of any one of claims 1 to 7, wherein the Fc fusion protein has an Fc effector function which is attenuated relative to the Fc effector function of a wildtype IgG1 Fc region which comprises SEQ ID NO:12.
- 30 9. The Fc fusion protein of any one of claims 1 to 8, wherein the the Fc-effectorless Flt3L-Fc fusion protein activates antibody-dependent cellular phagocytosis (ADCP) in an in vitro assay at an activity level which is nor more than 20%, 25%, 30%, 35%, 40%, 45%, 50%, 55%, 60%, 65%, 70%, 75%, 80%, 85%, 90%, 95%, or 99% of the activity level by a Flt3L-Fc fusion protein comprising wildtype Flt3L fused to wildtype IgG1 Fc (SEQ ID NO:12) in the in
35 vitro assay.

10. An isolated nucleic acid encoding the Fc fusion protein of any one of claims 1 to 9.
11. The isolated nucleic acid according to claim 10, wherein the isolated nucleic acid further encodes a signal sequence at the N-terminal end of the Fc fusion protein.
12. An isolated nucleic acid encoding the Flt3L-Fc fusion protein, wherein the Flt3L-Fc fusion protein comprises SEQ ID NO:45.
13. A host cell comprising the nucleic acid according to any one of claims 10-12.
14. A method of producing the Fc fusion protein comprising culturing the host cell of claim 13.
15. The method of claim 14, wherein the host cell is a eukaryotic cell or a prokaryotic cell.
16. The method of claim 14 or 15, wherein the host cell is *E. coli*.
17. The method of claim 14 or 15, wherein the host cell is a CHO cell.
18. A pharmaceutical formulation comprising the Fc fusion protein of any one of claims 1-8 and a pharmaceutically acceptable carrier.
19. The pharmaceutical formulation of claim 18, further comprising a second therapeutic agent.
20. The pharmaceutical formulation of claim 18 or 19, wherein the second therapeutic agent is an adjuvant, a dendritic maturation factor, and/or a checkpoint inhibitor.
21. Use of the Flt3L-Fc fusion protein of any one of claims 1-9 in the manufacture of a medicament ~~A method~~ for expanding the number of dendritic cells (DCs) in a subject, ~~comprising administering to the subject the Flt3L-Fc fusion protein of any one of claims 1-9.~~
22. The ~~method-use~~ of claim 21, wherein the Flt3L-Fc fusion protein is to be administered ~~comprising administering~~ to the subject at a dose of about 0.1 mg/kg to 50 mg/kg ~~of the Flt3L-Fc fusion protein.~~
23. Use of the Flt3L-Fc fusion protein of any one of claims 1 to 9 or the pharmaceutical formulation of any one of claims 18 to 20, in the manufacture of a medicament ~~A method~~ for treating a cancer, ~~comprising administering to a subject in need thereof the Flt3L-Fc fusion protein of any one of claims 1 to 9 or the pharmaceutical formulation of any one of claims 18 to 20.~~
24. The ~~method-use~~ of claim 23, wherein the Flt3L-Fc fusion protein is to be administered ~~comprising administering~~ to the subject at a dose of about 0.1 mg/kg to 50 mg/kg ~~of the Flt3L-Fc fusion protein.~~
25. The ~~method-use~~ of claim 23 or 24, wherein the medicament is to be administered ~~further comprising administering to the subject with~~ a second therapeutic agent.
26. The ~~method-use~~ of claim 25, wherein the second therapeutic agent is an adjuvant, a dendritic maturation factor, and/or a checkpoint inhibitor.

27. The ~~method-use~~ of any one of claims 21 to 26, wherein the medicament is to be administered with method-comprises-administering a DC maturation factor.
28. The ~~method-use~~ of claim 27, wherein the DC maturation factor is selected from polyIC, polyICLC, DC40, radiation therapy, and chemotherapy.
- 5 29. The ~~method-use~~ of any one of claims 21 to 28, wherein the medicament is to be administered with comprising-administering an immune checkpoint inhibitor.
30. The ~~method-use~~ of claim 29, wherein the checkpoint inhibitor is to be administered before, simultaneously with, or after administration of the Fc-effectorless Flt3L-Fc fusion protein.
- 10 31. The ~~method-use~~ of claim 29 or 30, wherein the immune checkpoint inhibitor is selected from the group consisting of pembrolizumab, nivolumab, pidilizumab, BMS 936559, atezolizumab, and avelumab.
32. The ~~method-use~~ of any one of claims ~~21-23~~ to 31, wherein the cancer is selected from the group consisting of non small cell lung cancer (NSCLC), small cell lung cancer (SCLC),
15 melanoma, Pancreatic ductal adenocarcinoma, (PDAC), triple negative breast cancer (TNBC), non-Hodgkin lymphoma (NHL), colorectal cancer (CRC), breast cancer, bladder cancer, kidney cancer, or a combination thereof.
33. The ~~method-use~~ of any one of claims 21-32, wherein the subject was previously treated with a checkpoint inhibitor.
- 20 34. The ~~method-use~~ of claim 33, wherein the subject did not respond to the checkpoint inhibitor therapy and/or did not respond to the checkpoint inhibitor therapy for longer than 3 months, 4 months, 5 months, 6 months, 7 months, 8 months, 9 months, 10 months, 1 year, 1.5 years, or 2 years after receiving a last dose of checkpoint immunotherapy.
35. The ~~method-use~~ of any one of claims ~~21-23~~-34, wherein the cancer in the subject has
25 been characterized as comprising an immune desert tumor.
- ~~36.—An effectorless Fc protein, comprising an amino acid sequence which is at least 95%, 96%, 97%, 98%, or 99% identical to residues SEQ ID NO:13, wherein residues 13-17 of SEQ ID NO:13 comprise the amino acid sequence PVAGP (SEQ ID NO:20) or residue 76 of SEQ ID NO:13 is a glycine.~~
- 30 ~~37.—The effectorless Fc protein of claim 36, wherein residues 13-17 of SEQ ID NO:13 comprise the amino acid sequence PVAGP (SEQ ID NO:20) and residue 76 of SEQ ID NO:13 is a glycine.~~
- ~~38.—The effectorless Fc protein of claim 36 or 37, which comprises an amino acid sequence identical to SEQ ID NO:13.~~

39. — ~~An effectorless Fc protein which comprises an amino acid sequence identical to SEQ ID NO: 2, 4, 5, 6, 13, or 15.~~
40. — ~~The effectorless Fc protein according to any one of claim 36 to 39, wherein the Fc protein is attenuated relative to a wildtype IgG1 Fc region which comprises SEQ ID NO: 12.~~
- 5 41. — ~~An antibody which comprises the effectorless Fc protein of any one of claims 1-9.~~
42. — ~~The antibody of claim 40, which comprises a heavy chain variable domain and a light chain variable domain.~~
43. — ~~The antibody of claim 41 or 42, wherein the antibody is a monoclonal antibody.~~
44. — ~~The antibody of claim 41 or 42, wherein the antibody is a human antibody, a~~
- 10 ~~humanized antibody, or a chimeric antibody.~~
45. — ~~The antibody of claim 41 or 42, wherein the antibody is a bispecific or multispecific antibody.~~