WHAT IS CLAIMED IS:

~~1.~~ 1. An invention not claimed in any divisional application.~~A method of treating a chemotherapy induced neutropenia, comprising co-administering plinabulin and one or more G-CSF drugs.~~

~~2. A method of stimulating neutrophil survival, comprising co-administering plinabulin and one or more G-CSF drugs.~~

~~3. The method of claim 1 or 2, wherein the G-CSF drug is pegfilgrastim.~~

~~4. The method of claim 1 or 2, wherein the G-CSF drug is selected from Neupogen®, Tevagrastim®, Biograstim®, Ratiograstim®, Zarxio®, Filgrastim Hexal®, Neulasta®, Granocyte®, Neutrogin®, Neu-up®, Rolontis®, Aiduo (mecapegfilgrastim, Hengrui), and Fulphila®.~~

~~5. The method of any one of claims 1-4, wherein the total dosage of the G-CSF drug used in a 21-day cycle is in the range of about 0.1 mg to about 20 mg.~~

~~6. The method of claim 5, wherein the total dosage of the G-CSF drug used in a 21-day cycle is less than about 6 mg.~~

~~7. The method of claim 5, wherein the total dosage of the G-CSF drug used in a 21-day cycle is about 1.5 mg.~~

~~8. The method of claim 5, wherein the total dosage of the G-CSF drug in a 21-day cycle is about 3mg.~~

~~9. The method of claim 5, wherein the total dosage of the G-CSF drug in a 21-day cycle is about 6 mg.~~

~~10. The method of any one of claims1-9, wherein the G-CSF drug is administered in a single dose in a 21-day cycle.~~

~~11. The method of any one of claims 1-9, wherein the G-CSF drug is administered in two or more doses in a 21-day cycle.~~

~~12. The method of any one of claims 1-11, wherein the G-CSF drug is administered using an on-body injector.~~

~~13. The method of any one of claims 1-12, wherein the G-CSF drug is administered subcutaneously.~~

~~14. The method of any one of claims 1-13, comprising administering the G-CSF drug at least 24 hours after the administration of the chemotherapy.~~

15. The method of any one of claims 1-13, comprising administering the G-CSF drug within 24 hours after the administration of the chemotherapy.

16. The method of any one of claims 1-13, comprising administering the G-CSF drug when the patient has an absolute neutrophil count that is lower than about 1.5×10^9/L.

17. The method of any one of claims 1-13, comprising administering two or more doses of the G-CSF drug wherein a fist dose of the G-CSF drug is administered between about 24 hours and 48 hours after the administration of the chemotherapy.

18. The method of any one of claims 1-17, comprising administering plinabulin within 24 hours after the administration of the chemotherapy.

19. The method of any one of claims 1-18, comprising administering plinabulin within 2 hours after the administration of the chemotherapy.

20. The method of any one of claims 1-19, comprising administering plinabulin within 1 hour after the administration of the chemotherapy.

21. The method of any one of claims 1-20, comprising administering a single dose of plinabulin in a 21-day treatment cycle.

22. The method of any one of claims 1-21, comprising administering plinabulin at a total dosage in the range of about 1 mg/m^2 to about 50 mg/m^2 in a 21-day cycle.

23. The method of any one of claims 1-22, comprising administering plinabulin at a total dosage less than or equal to 40 mg/m^2 in a 21-day cycle.

24. The method of any one of claims 1-23, comprising administering plinabulin at a total dosage of about 10 mg/m^2 in a 21-day cycle.

25. The method of any one of claims 1-23, comprising administering plinabulin at a total dosage of about 20 mg/m^2 in a 21-day cycle.

26. The method of any one of claims 1-23, comprising administering plinabulin at a total dosage of about 30 mg/m^2 in a 21-day cycle.

27. The method of any one of claims 1-23, comprising administering plinabulin at a total amount in the range of about 10 mg to about 60 mg in a 21-day cycle.

28. The method of any one of claims 1-23, comprising administering plinabulin at a total amount of about 40 mg in a 21-day cycle.

29. The method of any one of claims 1-27, wherein the chemotherapy comprises administering docetaxel and no other chemotherapeutic agent.

30. The method of any one of claims 1-27, wherein the chemotherapy comprises administering docetaxel, doxorubicin and cyclophosphamide (TAC); docetaxel and cyclophosphamide (TC); doxorubicin and cyclophosphamide (AC); docetaxel and doxorubicin (TA); docetaxel; doxorubicin; or cyclophosphamide.

31. The method of any one of claims 1-27, wherein the chemotherapy does not comprise docetaxel.

32. The method of any one of claims 1-31, wherein the patient has an advanced or metastatic breast cancer, early breast cancer, non-small cell lung cancer, refractory metastatic prostate cancer.

33. The method of any one of claims 1-31, wherein the patient has head and neck cancer, lung cancer, stomach cancer, colon cancer, pancreatic cancer, prostate cancer, breast cancer, kidney cancer, bladder cancer, ovary cancer, cervical cancer, melanoma, glioblastoma, myeloid leukemia, myeloma, lymphoma, or leukemia.

34. The method of any one of claims 1-33, wherein the plinabulin is administered less than 1 hour after the administration of the chemotherapy.

35. The method of any one of claims 1-34, wherein the plinabulin is administered about 30 mins after the administration of the chemotherapy.

36. The method of any one of claims 1-35, wherein the neutropenia is a grade 3 or 4 neutropenia.

37. The method of any one of claims 1-36, wherein the neutropenia is a grade 4 neutropenia.

38. The method of any one of claims 1-37, comprising reducing an incidence of grade 3 or 4 neutropenia by at least 5%.

39. The method of any one of claims 1-38, comprising reducing a duration of grade 3 or 4 neutropenia by at least about 2 times.

40. A kit comprising a chemotherapeutic agent, about 1 mg to about 80 mg of plinabulin, and about 0.1 mg to about 20 mg of G-CSF, wherein the chemotherapy, G-CSF, and the plinabulin are provided in separate sterile containers.

41. The kit of claim 40, wherein the amount of plinabulin is less than 50 mg.

42. The kit of claim 40, wherein the amount of plinabulin is about 10 mg.

43. The kit of claim 40, wherein the amount of plinabulin is about 20 mg.

~~44. The kit of claim 40, wherein the amount of plinabulin is about 30 mg.~~

~~45. The kit of claim 40, wherein the amount of plinabulin is about 40 mg.~~

~~46. The kit container of any one of claims 40-45, wherein the amount of G-CSF is less than 10 mg.~~

~~47. The kit of any one of claims 40-46, wherein the amount of G-CSF is about 6 mg.~~

~~48. The kit of any one of claims 40-46, wherein the amount of G-CSF is about 3 mg.~~

~~49. The kit of any one of claims 40-46, wherein the amount of G-CSF is about 1.5 mg.~~

~~50. A method of reducing bone pain induced by a G-CSF drug, comprising administering an effective amount of plinabulin.~~

~~51. A method of alleviating immune suppression effect induced by a G-CSF drug, comprising administering an effective amount of plinabulin.~~

~~52. A method of treating a chemotherapy induced neutropenia or stimulating neutrophil survival, comprising one or more cycles of a chemotherapy regimen, each cycle of the chemotherapy regimen independently comprising:~~

~~administering one or more chemotherapeutic agents on day 1,~~

~~administering plinabulin on day 1, and~~

~~administering one or more G-CSF drugs on day 2,~~

~~wherein the plinabulin is administered within 12 hours, within 4 hours, within 2 hours, or within 1 hour after the administration of the one or more chemotherapeutic agents.~~

~~53. The method of claim 52, wherein the one or more G-CSF drugs are administered within 24 hours after the administration of the plinabulin.~~

~~54. The method of claim 52, comprising two to four cycles of the chemotherapy regimen.~~

~~55. The method of claim 52, wherein each cycle of the chemotherapy regimen independently lasts up to 30 days.~~

~~56. The method of claim 55, wherein each cycle of the chemotherapy regimen lasts 21 days.~~

~~57. The method of claim 52, wherein the one or more chemotherapeutic agents are selected, independently in each cycle of the chemotherapy regimen, from the group consisting of: docetaxel, doxorubicin, and cyclophosphamide.~~

~~58. The method of claim 56, wherein the plinabulin is administered, independently in each cycle of the chemotherapy regimen, in a single or multiple doses of up to about 40 mg/m^2 about 10 to 50 minutes, or about 20 to 40 minutes after the administration of the one or more chemotherapeutic agents.~~

~~59. The method of claim 56, wherein the plinabulin is administered, independently in each cycle of the chemotherapy regimen, in a single dose of about 5 mg/m^2, about 10 mg/m^2, or about 20 mg/m^2 about 25 to 35 minutes, or about 28 to 32 minutes, or about 30 minutes after the administration of the one or more chemotherapeutic agents.~~

~~60. The method of claim 52, wherein the one or more G-CSF drugs are selected, independently in each cycle of the chemotherapy regimen, from the group consisting of: Neupogen®, Tevagrastim®, Biograstim®, Ratiograstim®, Zarxio®, Filgrastim Hexal®, Neulasta®, Granocyte®, Neutrogin®, Neu-up®, Rolontis®, Aiduo (mecapegfilgrastim, Hengrui), and Fulphila®.~~

~~61. The method of claim 52, wherein the one or more G-CSF drugs is pegfilgrastim.~~

~~62. The method of claim 52, wherein the one or more G-CSF drugs are administered, independently in each cycle of the chemotherapy regimen, in a single or multiple doses of up to about 6 mg at least about 24 hours after the administration of the one or more chemotherapeutic agents.~~

~~63. The method of claim 52, wherein the one or more G-CSF drugs are administered, independently in each cycle of the chemotherapy regimen, in a single or multiple doses of up to about 6 mg about 20 to about 50 hours after the administration of plinabulin.~~

~~64. The method of claim 52, wherein the one or more G-CSF drugs are administered, independently in each cycle of the chemotherapy regimen, in a single dose of about 1.5 mg, about 3.0 mg, or about 6 mg about 20 to about 30 hours after the administration of plinabulin.~~

~~65. Plinabulin for use in combination with one or more G-CSF drugs for treating a chemotherapy induced neutropenia.~~

~~66. Plinabulin for use in combination with one or more G-CSF drugs for stimulating neutrophil survival.~~

~~67. Plinaublin for use in reducing bone pain induced by a G-CSF drug.~~

~~68. Plinaublin for use in alleviating an immune suppression effect induced by a G-CSF drug.~~

~~69. Plinabulin for use in combination with one or more G-CSF drugs for treating a chemotherapy induced neutropenia or stimulating neutrophil survival in one or more cycles of a chemotherapy regimen, each cycle of the chemotherapy regimen independently comprising:~~

~~administering one or more chemotherapeutic agents on day 1,~~

~~administering plinabulin on day 1, and~~

~~administering one or more G-CSF drugs on day 2,~~

~~wherein the plinabulin is administered within 12 hours, within 4 hours, within 2 hours, or within 1 hour after the administration of the one or more chemotherapeutic agents.~~