

CLAIMS

What is claimed is:

1. A method of treating a cancer in an individual, the method comprising administering to the individual: (a) an effective amount of a histone deacetylase inhibitor (HDACi), wherein the HDACi is characterized by an elimination half-life of less than 30 hours; and (b) an effective amount of an antiviral drug; wherein the individual is treated according to a treatment schedule, wherein the individual is not administered the HDACi for at least one dose of the treatment schedule.
2. The method of claim 1, wherein the individual is not administered the HDACi for at least one day of the treatment schedule
3. The method of claim 1 or 2, wherein the HDACi is administered orally.
4. The method of any one of claims 1 to 3, wherein the HDACi is selected from the list consisting of: vorinostat, romidepsin, mocetinostat, belinostat, pracinostat, givinostat, panobinostat, CUDC-101, CDX101, chidamide, domatinostat, and nanatinostat.
5. The method of any one of claims 1 to 4, wherein the HDACi inhibits activity of a class I histone deacetylase.
6. The method of any one of claims 1 to 5, wherein the HDACi is characterized by an elimination half-life of less than 24 hours.
7. The method of any one of claims 1 to 5, wherein the HDACi is characterized by an elimination half-life of less than 12 hours.
8. The method of any one of claims 1 to 5, wherein the HDACi is characterized by an elimination half-life of less than 4 hours.
9. The method of any one of claims 1 to 8, wherein the HDACi is nanatinostat.
10. The method of any one of claims 1 to 9, wherein the HDACi is administered at a total daily dose from about 10 milligrams to about 40 milligrams.
11. The method of claim 10, wherein the HDACi is administered at a total daily dose of about 10 milligrams.
12. The method of claim 10, wherein the HDACi is administered at a total daily dose of about 15 milligrams.
13. The method of claim 10, wherein the HDACi is administered at a total daily dose of about 20 milligrams.

14. The method of claim 10, wherein the HDACi is administered at a total daily dose of about 25 milligrams.
15. The method of claim 10, wherein the HDACi is administered at a total daily dose of about 30 milligrams.
16. The method of any one of claims 10 to 15, wherein the HDACi is administered once per day.
17. The method of any one of claims 1 to 16, wherein the cytotoxic activity of the antiviral agent is activated by a viral kinase.
18. The method of claim 17, wherein the viral kinase comprises, an Epstein-Barr virus protein kinase, an Epstein-Barr virus thymidine kinase, a human herpes virus thymidine kinase, or a human cytomegalovirus protein.
19. The method of any one of claims 1 to 18, wherein the antiviral agent is selected from the list consisting of aciclovir, ganciclovir, valaciclovir, valganciclovir, and famciclovir.
20. The method of claim 19, wherein the antiviral agent is valganciclovir.
21. The method of any one of claims 1 to 20, wherein the antiviral agent is administered at a total daily dose of 1,800 milligrams.
22. The method of any one of claims 1 to 20, wherein the antiviral agent is administered at a total daily dose of 900 milligrams.
23. The method of any one of claims 1 to 20, wherein the antiviral agent is administered at a total daily dose of 450 milligrams.
24. The method of any one of claims 1 to 23, wherein the antiviral agent is administered every day of the treatment schedule.
25. The method of any one of claims 1 to 23, wherein the antiviral agent is not administered on one or more days of the treatment schedule.
26. The method of any one of claims 1 to 25, wherein the antiviral agent is administered orally.
27. The method of any one of claims 1 to 26, wherein the individual is not administered the HDACi for at least two days of the treatment schedule.
28. The method of any one of claims 1 to 26, wherein the individual is not administered the HDACi for at least three days of the treatment schedule.
29. The method of any one of claims 1 to 26, wherein the individual is not administered the HDACi for at least four days of the treatment schedule.
30. The method of any one of claims 1 to 26, wherein the individual is not administered the HDACi for at least five days of the treatment schedule.

31. The method of any one of claims 1 to 30, wherein the treatment schedule has a duration of one week.
32. The method of any one of claims 1 to 31, wherein the treatment schedule is repeated.
33. The method of any one of claims 1 to 32, wherein the HDACi is administered with food or a caloric substance.
34. The method of any one of claims 1 to 33, wherein the cancer is a solid tissue cancer.
35. The method of claim 34, wherein the solid tissue cancer is salivary gland cancer, nasopharyngeal carcinoma, head and neck cancer, gastric cancer, a colorectal cancer, breast cancer, glioblastoma, prostate cancer, renal cancer, leiomyosarcoma, pancreatic cancer, or lung cancer.
36. The method of claim 34, wherein the solid tissue cancer is salivary gland cancer, nasopharyngeal carcinoma, head and neck cancer, gastric cancer, a colorectal cancer, or leiomyosarcoma.
37. The method of any one of claims 1 to 33, wherein the cancer is a leukemia or a lymphoma.
38. The method of claim 37, wherein the leukemia or lymphoma is a B cell leukemia or lymphoma.
39. The method of claim 37, wherein the leukemia or lymphoma is a T cell leukemia or lymphoma.
40. The method of claim 37, wherein the leukemia or lymphoma is non-Hodgkin's lymphoma.
41. The method of claim 37, wherein the leukemia or lymphoma is Hodgkin's lymphoma.
42. The method of claim 37, wherein the leukemia or lymphoma is a cytomegalovirus virus positive leukemia or lymphoma.
43. The method of claim 37, wherein the leukemia or lymphoma is an Epstein-Barr virus positive leukemia or lymphoma.
44. The method of any one of claims 1 to 43, wherein the individual is afflicted with thrombocytopenia.
45. The method of claim 44, wherein the individual has a platelet count of less than 150,000 platelets per microliter.
46. The method of claim 44, wherein the individual has a platelet count of less than 50,000 platelets per microliter.
47. The method of any one of claims 1 to 43, wherein the individual has an elevated creatinine level.

48. The method of claim 47, wherein the elevated creatinine level exceeds 1.1 mg/dL for a woman or 1.3 mg/dL for a man.
49. The method of any one of claims 1 to 48, wherein the individual is selected for treatment according to the treatment schedule based on the presence of thrombocytopenia.
50. The method of claim 48, wherein the individual is selected based on a platelet count of less than 50,000 per microliter.
51. The method of any one of claims 1 to 48, wherein the individual is selected for treatment according to the treatment schedule based on the presence of an elevated creatinine level.
52. The method of claim 51, wherein the elevated creatinine level exceeds 1.1 mg/dL for a woman and 1.3 mg/dL for a man.
53. A method of treating an Epstein-Barr associated lymphoma in an individual, the method comprising administering to the individual: (a) an effective amount of nanatinostat; and (b) an effective amount of valganciclovir; wherein the individual is treated according to a treatment schedule, wherein the individual is not administered the nanatinostat for at least three days of the treatment schedule.
54. The method of claim 53, wherein the individual is not administered the nanatinostat for at least four days of the treatment schedule.
55. The method of claim 53, wherein the individual is not administered the nanatinostat for at least five days of the treatment schedule.
56. A kit comprising:
 - a) an HDACi; and
 - b) an antiviral agent;wherein the kit comprises a plurality of oral dosage forms, wherein the oral dosage forms comprising the HDACi and the antiviral agent are co-packaged or co-formulated into a single oral dosage form, wherein at least one of the plurality of oral dosage forms comprises the antiviral agent and does not comprise the HDACi.
57. The kit of claim 56, wherein the kit comprises a plurality of oral dosage forms, wherein the oral dosage forms comprising the HDACi and the antiviral agent are co-packaged.
58. The kit of claim 56, wherein the kit comprises a plurality of oral dosage forms, wherein the oral dosage forms comprising the HDACi and the antiviral agent are co-formulated.
59. The kit of any one of claims 56 to 58, wherein the plurality of oral dosage forms are a pill, capsule, tablet, or gel cap.

60. The kit of any one of claims 56 to 59, wherein the HDACi is selected from the list consisting of: vorinostat, romidepsin, mocetinostat, belinostat, pracinostat, givinostat, panobinostat, CUDC-101, chidamide, domatinostat, and nanatinostat.
61. The kit of any one of claims 56 to 60, wherein the HDACi inhibits activity of a class I histone deacetylase.
62. The kit of any one of claims 56 to 61, wherein the HDACi is characterized by an elimination half-life of less than 24 hours.
63. The kit of any one of claims 56 to 61, wherein the HDACi is characterized by an elimination half-life of less than 12 hours.
64. The kit of any one of claims 56 to 61, wherein the HDACi is characterized by an elimination half-life of less than 4 hours.
65. The kit of any one of claims 56 to 64, wherein the HDACi is nanatinostat.
66. The kit of any one of claims 56 to 65, wherein the cytotoxic activity of the antiviral agent is activated by a viral kinase.
67. The kit of claim 66, wherein the viral kinase comprises, an Epstein-Barr virus protein kinase, an Epstein-Barr virus thymidine kinase, a human herpes virus thymidine kinase, or a human cytomegalovirus protein.
68. The kit of any one of claims 56 to 67, wherein the antiviral agent is selected from the list consisting of aciclovir, ganciclovir, valaciclovir, valganciclovir, and famciclovir.
69. The kit of claim 67, wherein the antiviral agent is valganciclovir.
70. The kit of any one of claims 56 to 69, wherein the plurality of oral dosage forms comprises about 1,800 mg of valganciclovir.
71. The kit of any one of claims 56 to 69, wherein the plurality of oral dosage forms comprises about 900 mg of valganciclovir.
72. The kit of any one of claims 56 to 70, wherein the plurality of oral dosage forms comprises about 450 mg of valganciclovir.
73. The kit of any one of claims 56 to 71, wherein the plurality of oral dosage forms comprises about 20 mg of nanatinostat.
74. The kit of any one of claims 56 to 71, wherein the plurality of oral dosage forms comprises about 15 mg of nanatinostat.
75. The kit of any one of claims 56 to 71, wherein the plurality of oral dosage forms comprises about 10 mg of nanatinostat.
76. The kit of any one of claims 56 to 75, wherein the plurality comprises seven or a multiple thereof.

77. The kit of claim 76, wherein at least one of the plurality of oral dosage forms comprises the antiviral agent and does not comprise the HDACi.
78. The kit of claim 76, wherein at least one of the plurality of oral dosage forms comprises the HDACi and does not comprise the antiviral agent.
79. The kit of claim 76, wherein two of the plurality of oral dosage forms comprises the antiviral agent and does not comprise the HDACi.
80. The kit of claim 76, wherein three of the plurality of oral dosage forms comprises the antiviral agent and does not comprise the HDACi.
81. The kit of claim 76, wherein four of the plurality of oral dosage forms comprises the antiviral agent and does not comprise the HDACi.
82. The kit of claim 76, wherein five of the plurality of oral dosage forms comprises the antiviral agent and does not comprise the HDACi.
83. The kit of any one of claims 56 to 82, wherein the HDACi comprises nanatinostat and the antiviral agent comprise valganciclovir.