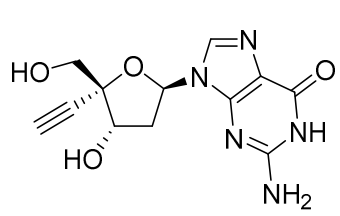
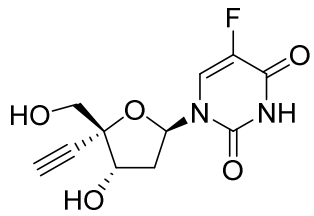
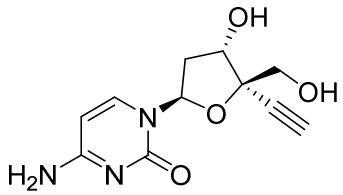
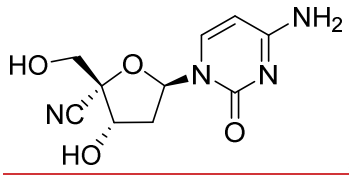
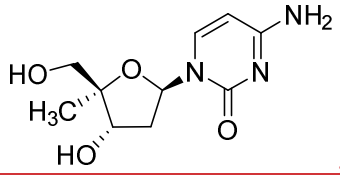
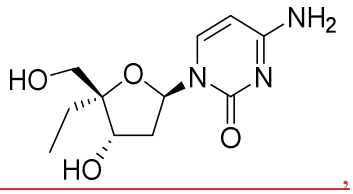
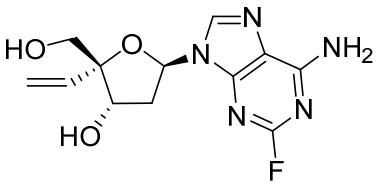
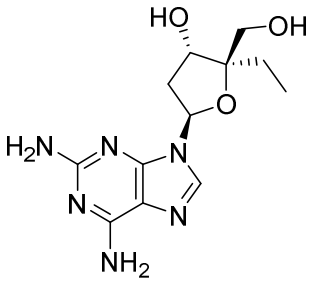
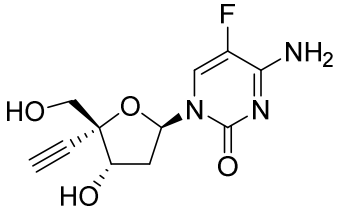
~~WHAT IS CLAIMED IS:~~

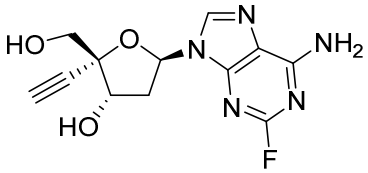
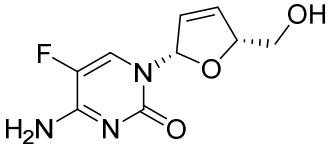
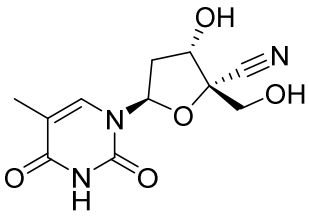
CLAIMS

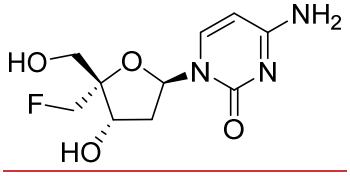
1. ~~A method~~Use of a reverse transcriptase inhibitor (RTI) in the manufacture of a medicament for treating cancer in patient in need thereof, ~~the method comprising administering a therapeutically effective amount of a reverse transcriptase inhibitor (RTI) to the patient,~~ wherein the RTI is:


, 
, 
,


, 
, 
,

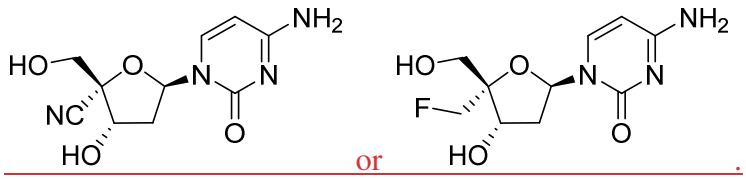

, 
, 
,


, 
, 
, or



and the RTI is to be administered according to ~~an intermittent dosing~~a continuous schedule.

2. The ~~method~~use of claim 1, wherein the RTI is ~~a nucleoside reverse transcriptase inhibitor (NRTI).~~ :



or .

3. The ~~method~~use of claim 1, wherein the ~~RTI is a non-nucleoside reverse transcriptase inhibitor (NNRTI).~~ cancer is breast cancer.

4. The ~~method~~use of claim 1, wherein the ~~RTI~~cancer is ~~a LINE-1 inhibitor~~colon cancer.

~~5. The method of claim 1, wherein the RTI is censavudine, islatravir, elvucitabine, lamivudine (3TC), zidovudine (AZT), tenofovir, tenofovir disoproxil, tenofovir alafenamide, stavudine (d4T), zalcitabine (ddC), didanosine (ddI), emtricitabine (FTC), entecavir (ETV), 2',3'-dideoxyguanosine (ddG), 2′,3′-dideoxyadenosine (ddA), 2′-fluoro-2′,3′-dideoxyarabinosyladenine (F-ddA), efavirenz (EFV), nevirapine (NVP), abacavir (ABC), adefovir dipivoxil, or telbivudine.~~

5. The use of claim 1, wherein the cancer is lung cancer.

6. The ~~method~~use of claim ~~5~~1, wherein the ~~RTI~~cancer is ~~censavudine, islatravir, lamivudine, stavudine, emtricitabine, abacavir, tenofovir alafenamide, zidovudine, zalcitabine, didanosine, tenofovir disoproxil, adefovir dipivoxil, entecavir, or telbivudine~~pancreatic ductal cancer.

7. The ~~method of claim 5, wherein the RTI is lamivudine.~~

~~8. The method of claim 5, wherein the RTI is stavudine.~~

~~9. The method of claim 5, wherein the RTI is emtricitabine.~~

~~10. The method of claim 5, wherein the RTI is abacavir.~~

~~11. The method of claim 5, wherein the RTI is tenofovir alafenamide.~~

~~12. The method of claim 5, wherein the RTI is zidovudine.~~

~~13. The method of claim 5, wherein the RTI is zalcitabine.~~

~~14. The method of claim 5, wherein the RTI is didanosine.~~

~~15. The method of claim 5, wherein the RTI is tenofovir disoproxil.~~

~~16. The method of claim 5, wherein the RTI is adefovir dipivoxil.~~

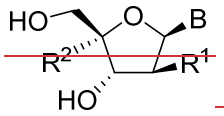
~~17. The method of claim 5, wherein the RTI is entecavir.~~

~~18. The method of claim 5, wherein the RTI is telbivudine.~~

~~19. The method of claim 5, wherein the RTI is censavudine.~~

~~20. The method of claim 5, wherein the RTI is islatravir.~~

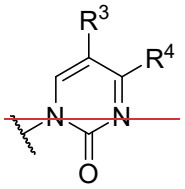
~~21. The method~~use of claim 1, wherein the ~~RTI~~cancer is ~~a compound of Formula I.~~prostate cancer.



I,

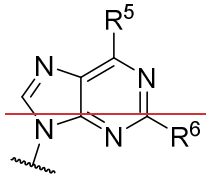
or a pharmaceutically acceptable salt or solvate thereof, or a tautomer thereof, wherein:

B is selected from the group consisting of:



B-1

and



B-2

;

R^1 is selected from the group consisting of hydrogen and -OH;

R^2 is selected from the group consisting of methyl, ethynyl, and -CN;

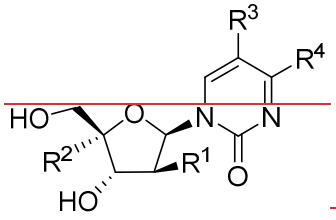
R^3 is selected from the group consisting of hydrogen, fluoro, chloro, bromo, iodo and methyl;

R^4 is selected from the group consisting of $-NH_2$ and -OH;

R^5 is selected from the group consisting of $-NH_2$ and -OH; and

R^6 is selected from the group consisting of hydrogen, fluoro, chloro, and $-NH_2$.

22. The method of claim 21, wherein the RTI is a compound of Formula II:



II,

or a pharmaceutically acceptable salt or solvate thereof, or a tautomer thereof.

~~23. The method of claim 22, wherein R^3 is hydrogen.~~

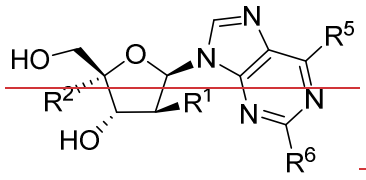
~~24. The method of claim 22, wherein R^3 is selected from the group consisting of fluoro and chloro.~~

~~25. The method of claim 22, wherein R^3 is methyl.~~

~~26. The method of any one of claims 2-5, wherein R^4 is $-NH_2$.~~

~~27. The method of any one of claims 22-25, wherein R^4 is -OH.~~

~~28. The method of claim 21, wherein the RTI is a compound is a compound of Formula III:~~



~~III,~~

~~or a pharmaceutically acceptable salt or solvate thereof, or a tautomer thereof.~~

~~29. The method of claim 28, wherein R^5 is $-NH_2$.~~

~~30. The method of claim 28, wherein R^5 is -OH.~~

~~31. The method of any one of claims 28-30, wherein R^6 is hydrogen.~~

~~32. The method of any one of claims 28-30, wherein R^6 is chloro.~~

~~33. The method of any one of claims 28-30, wherein R^6 is fluoro.~~

~~34. The method of any one of claims 28-30, wherein R^6 is $-NH_2$.~~

~~35. The method of any one of claims 21-34, wherein R^1 is hydrogen.~~

~~36. The method of any one of claims 21-34, wherein R^1 is -OH.~~

~~37. The method of any one of claims 21-36, wherein R^2 is methyl.~~

~~38. The method of any one of claims 21-36, wherein R^2 is ethynyl.~~

~~39. The method of any one of claims 21-36, wherein R^2 is -CN.~~

~~40. The method~~

8. The use of claim 1, wherein the ~~RTI is a compound of Table 3, or a pharmaceutically acceptable salt or solvate thereof, or a tautomer thereof~~cancer is ovarian cancer.

~~41~~

9. The ~~method~~use of claim 1, wherein the ~~RTI is a compound of Table 4, or a pharmaceutically acceptable salt or solvate thereof, or a tautomer thereof~~cancer is head and neck cancer.

~~42~~10. The ~~method~~use of any one of claims 1-~~41, wherein the cancer is breast cancer, colon cancer, lung cancer, pancreatic ductal cancer, prostate cancer, ovarian cancer, or head and neck cancer.~~

~~43. The method of claim 42, wherein the cancer is breast cancer.~~

~~44. The method of claim 42, wherein the cancer is colon cancer.~~

~~45. The method of claim 42, wherein the cancer is lung cancer.~~

~~46. The method of claim 42, wherein the cancer is pancreatic ductal cancer.~~

~~47. The method of claim 42, wherein the cancer is prostate cancer.~~

~~48. The method of claim 47, wherein the prostate cancer is high-risk localized prostate cancer.~~

~~49. The method of claim 42, wherein the cancer is ovarian cancer.~~

~~50. The method of claim 42, wherein the cancer is head and neck cancer.~~

~~51. The method of any one of claims 1-41, wherein the patient has prostate cancer and the RTI is administered as an adjuvant therapy.~~

~~52. The method of any one of claims 1-41, wherein the patient has prostate cancer and the RTI is administered as a neoadjuvant therapy.~~

~~53. The method of any one of claims 1-52~~9, further comprising administering a therapeutically effective amount of at least one second therapeutic agent useful for treating the cancer.

~~54~~11. The ~~method~~use of claim ~~53~~10 for ~~the treatment of~~treating breast cancer, wherein the at least one second therapeutic agent is ~~Soltamox® (~~tamoxifen~~), Arimidex® (~~, anastrozole~~), Femara® (~~, letrozole~~), Aromasin® (~~, exemestane~~), Herceptin® (~~, trastuzumab~~), Abraxane® (~~, paclitaxel~~), Cytoxan® (~~, cyclophosphamide~~), Taxol® (paclitaxel), Afinitor® (~~, everolimus~~), Taxotere® (~~, docetaxel~~), Xeloda® (~~, capecitabine~~), Trexall® (~~, methotrexate~~), Faslodex (~~, fulvestrant~~), Adriamycin® (~~, doxorubicin~~), Perjeta® (~~, pertuzumab~~), Gemzar (~~, gemcitabine~~), Tykerb® (~~, lapatinib~~), Adrucil® (~~, fluorouracil~~), Ibrance® (~~, palbociclib~~), Verzenio® (~~, abemaciclib~~), Fareston® (~~, toremifene~~), Halaven® (~~, eribulin~~), Menest, Kadcyla® (~~, ado-trastuzumab emtransine~~), Androxy® (~~, fluoxymesterone~~), Avastin® (~~, bevacizumab~~),~~,~~ esterified estrogens, ~~Herzuma® (trastuzumab), Ixempra® (~~ixabepilone~~), Kanjinti® (trastuzumab), Kisqali® (~~, ribociclib~~), Ogivri® (trastuzumab), Ontruzant® (trastuzumab), Tepadina® (~~, thiotepa~~), Trazimera® (trastuzumab), Velban® (~~, vinblastine~~), Piqray® (~~, alpelisib~~), Tecentriq® (~~, atezolizumab~~), Enhertu® (~~, fam-trastuzumab deruxtecan~~), Herceptin, Hylecta™ (~~, hyaluronidase/trastuzumab~~), Infugem® (gemcitabine), Kisqali® Femara® Co-Pack (~~, ribociclib and /~~letrozole~~), Talzenna® (~~, talazoparib~~), Trodelvy® (~~, sacituzumab~~) or ~~Tukysa™ (~~tukatinib~~).~~.

~~55~~12. The ~~method~~use of claim ~~53~~10 for ~~the treatment of~~treating colon cancer, wherein the at least one second therapeutic agent is ~~Xeloda® (~~capecitabine~~), Eloxatin® (~~, oxaliplatin~~),~~, fluorouracil, ~~Avastin® (~~bevacizumab~~),~~, leucovorin, ~~Camptosar® (~~irinotecan~~), Stivarga® (~~, regorafenib~~), Erbitux® (~~, cetuximab~~), Vectibix® (~~, panitumumab~~), Lonsurf® (~~, tipiracil/trifluridine~~), Zaltrap® (~~, ziv-aflibercept~~), Betaseron® (~~, interferon beta-1b~~), Fusilev®

~~(levoleucovorin), Wellcocorin® (~~, ~~methotrexate~~), ~~Keytruda® (~~, pembrolizumab~~), Mvasi® (~~, bevacizumab-awwb~~), Cyramza® (~~, ramucirumab~~), Yervoy® (~~, ipilmumab~~), Opdivo® (~~, nivolumab~~), Braftovi® (~~, encorafenib~~), Khapzory® (~~, levoleucovorin~~) or ~~Zirabev® (~~bevacizumab-bvzr~~).~~.

~~56~~13. The ~~method~~use of claim ~~53~~10 for ~~the treatment of~~treating lung cancer, wherein the at least one second therapeutic agent is ~~Etopophos® (~~etoposide~~), Hycamtin® (~~, topotecan~~), VePesid® (etoposide), Toposar® (etoposide), Opdivo® (~~, nivolumab~~), Keytruda® (~~, pembrolizumab~~), Tecentriq® (~~, atezolizumab~~), Imfinizi® (~~, durvalumab~~),~~, methotrexate, cyclophosphamide, ~~Carboplatin, Cisplatin~~carboplatin, cisplatin, docetaxel, ~~Gemcitabine, Irinotecan, Paclitaxel, Pemetrexed, Vinblastine, or Vinorelbine~~gemcitabine, irinotecan, paclitaxel, pemetrexed, vinblastine, or vinorelbine.

~~57~~14. The ~~method~~use of claim ~~53~~10 for ~~the treatment of~~treating pancreatic ductal cancer, wherein the at least one second therapeutic agent is ~~Gemzar® (Gemcitabine),~~gemcitabine, fluorouracil, ~~Afinitor® (~~everolimus~~), Tarceva® (~~, erlotinib~~), Abraxane® (~~, paclitaxel~~),~~, capecitabine, ~~Sutent® (~~sunitinib~~),~~, pancreatin, methotrexate, ~~Zanosar® (~~streptozocin~~), Mutamycin® (~~, mitomycin~~), Onivyde® (~~, irinotecan~~),~~, bevacizumab, cetuximab~~, Infugem® (gemcitabine)~~ or ~~Lynparza® (~~olaparib~~).~~.

~~58~~15. The ~~method~~use of claim ~~53~~10 for ~~the treatment of~~treating head and neck cancer, wherein the at least one second therapeutic agent is ~~Erbituz® (~~cetuximab~~), Taxotere® (~~, docetaxel~~), Trexall® (~~, methotrexate~~), Keytruda® (~~, pembrolizumab~~)~~ or ~~Opdivo® (~~nivolumab~~).~~.

~~59~~16. The ~~method~~use of claim ~~53~~10 for ~~the treatment of~~treating prostate cancer, wherein the at least one second therapeutic agent is ~~Suprefact® (~~buserelin~~), Firmagon® (~~, degarelix~~), Zoladex® (~~, goserelin~~), Vantas® (~~, histrelin~~), Eligard® (~~, leuprolide~~), Orgovyx® (~~, relugolix~~), Trelstar® (~~, triptorelin~~), Casodex® (~~, bicalutamide~~), Eulexin® (~~, flutamide~~), Nilandron® (~~, nilutamide~~), Zytiga® (~~, biraterone acetate~~), Erleada® (~~, apalutamide~~),~~ or ~~Xtandi® (~~enzalutamide~~).~~.

~~60~~17. The ~~method~~use of claim ~~53, wherein the at least one second therapeutic agent is a STING agonist.~~

~~61. The method of any one of claims~~ 1~~-60~~, wherein the patient is (a) not infected with the HIV virus, (b) not suspected of being infected with the HIV virus, (c) not being treated for the HIV virus, and/or (d) not being treated to prevent the HIV virus.

~~62~~18. A kit for carrying out the ~~method~~use of ~~any one claims~~claim 1~~-61~~, the kit comprising (i) ~~a~~the RTI; and (ii) and instructions for administering the ~~RTI~~compound to a patient having cancer.

~~63. The kit of claim 62 further comprising at least one second therapeutic agent.~~