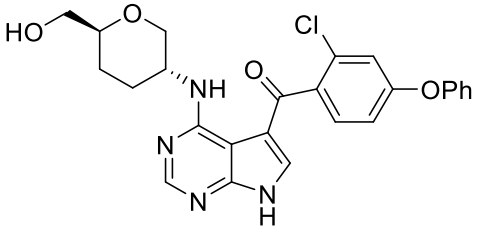
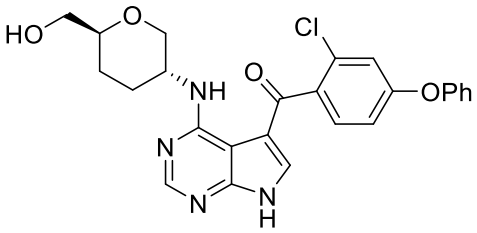
[0018a] A first aspect of the application relates to use of a compound of Formula (I):



(I),

or pharmaceutically acceptable salt, tautomer, solvate, or polymorph thereof, in the manufacture of a medicament for treating cancer in a subject, wherein a mutant BTK has been detected in a sample from the subject.

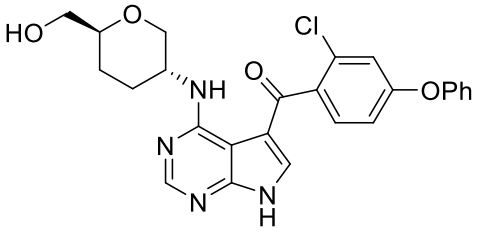
[0018b] Another aspect of the application relates to a compound of Formula (I):



(I),

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

[0018c] Another aspect of the application relates to a compound of Formula (I):



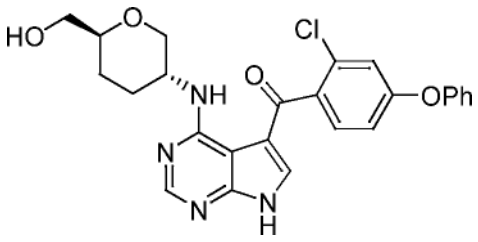
(I),

or pharmaceutically acceptable salt, tautomer, solvate, or polymorph thereof, for use in treating cancer in a subject, wherein a mutant BTK has been detected in a sample from the subject.

[0019] The application relates to the use of a pharmaceutical composition comprising the compound of Formula (I) or a pharmaceutically acceptable salt, tautomer, prodrug, solvate, metabolite, polymorph, analog or derivative thereof, and a pharmaceutically acceptable diluent, excipient or carrier in the manufacture of a medicament for treating a BTK-

CLAIMED:

1. Use of a compound of Formula (I):



(I),

or a pharmaceutically acceptable salt, tautomer, solvate, or polymorph thereof, in the manufacture of a medicament for treating cancer in a subject,

wherein a mutant BTK has been detected in a sample from the subject.

2. The use of claim 1, wherein the mutant BTK comprises a drug-resistant mutation.

3. The use of claim 2, wherein the drug-resistant mutation is a mutation at amino acid 481.

4. The use of claim 2, wherein the drug-resistant mutation is C481S.

5. The use of any one of the preceding claims, wherein the cancer is resistant to a BTK inhibitor.

6. The use of claim 5, wherein the BTK inhibitor is ibrutinib.

7. The use of any one of the preceding claims, wherein the cancer is selected from a cancer of the breast, ovary, cervix, prostate, testis, esophagus, larynx, stomach, skin, lung, bone, pancreas, colon, thyroid, biliary passage, hairy cells, buccal cavity, naso-pharyngeal, lip, tongue, mouth, large intestine, small intestine, colon-rectum, rectum, brain and central nervous system, bronchus, liver, intrahepatic bile duct, urinary bladder, uterine corpus, kidney, renal pelvis, oral cavity, pharynx, glioblastoma, neuroblastoma, keratoacanthoma, epidermoid carcinoma, large cell carcinoma, non-small cell lung carcinoma (NSCLC), small cell carcinoma, lung adenocarcinoma,

adenoma, adenocarcinoma, follicular carcinoma, undifferentiated carcinoma, papillary carcinoma, seminoma, melanoma, sarcoma, bladder carcinoma, liver carcinoma, kidney carcinoma, myeloid disorders, lymphoma, Hodgkin's leukemia, hepatocellular cancer, glioma, endometrial cancer, multiple myeloma, acute myelogenous leukemia, chronic myelogenous leukemia, lymphocytic leukemia, chronic lymphoid leukemia (CLL), myeloid leukemia, non-Hodgkin lymphoma, and villous colon adenoma.

8. The use of any one of the preceding claims, wherein the cancer is chronic lymphoid leukemia.

9. The use of any one of claims 1 to 7, wherein the cancer is lymphoma.

10. The use of claim 9, wherein the lymphoma is non-Hodgkin lymphoma.

11. The use of claim 9, wherein the lymphoma is B-cell lymphoma.

12. The use of claim 9, wherein the lymphoma is anaplastic large cell lymphoma, central nervous system (CNS) lymphoma, or Waldenstrom macroglobulinemia.

13. The use of any one of claims 1 to 7, wherein the cancer is myeloid disorders or myeloid leukemia.

14. The use of any one of claims 1 to 7, wherein the cancer is acute myelogenous leukemia.

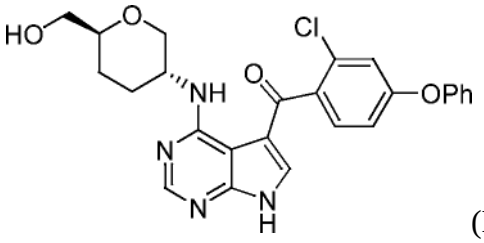
15. The use of any one of claims 1 to 7, wherein the cancer is multiple myeloma.

16. The use of any one of claims 1 to 7, wherein the cancer is lymphocytic leukemia.

17. The use of any one of claims 1 to 7, wherein the cancer is sarcoma or brain tumor.

18. The use of any one of the preceding claims, wherein the sample is a tissue or biopsy from the subject.

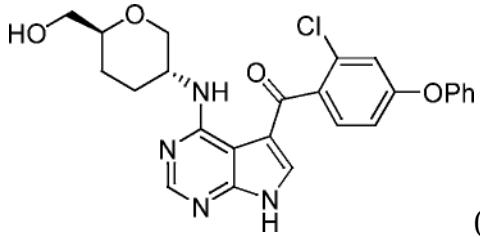
19. A compound of Formula (I):



(I),

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

20. A compound of Formula (I):



(I),

or a pharmaceutically acceptable salt, tautomer, solvate, or polymorph thereof, for use in treating cancer in a subject, wherein a mutant BTK has been detected in a sample from the subject.

21. The compound for use of claim 20, wherein the mutant BTK comprises a drug-resistant mutation.