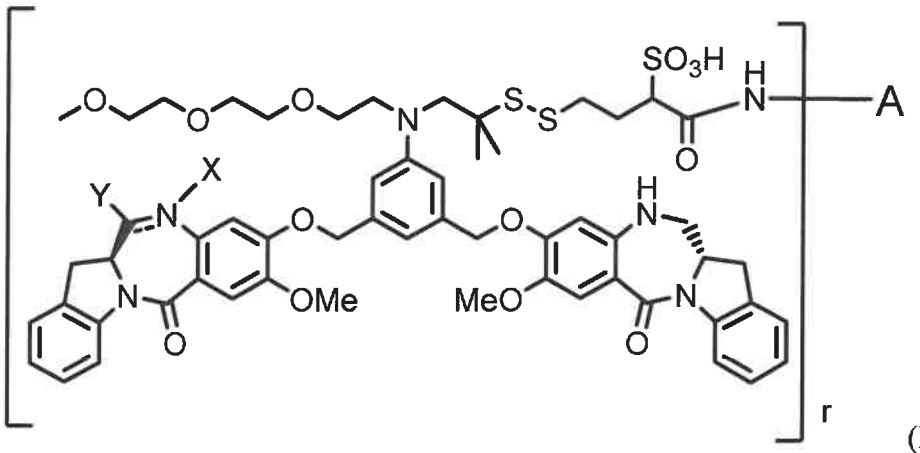
CLAIMS

1. Use of an effective amount of a poly-ADP ribose polymerase (PARP) inhibitor and an effective amount of an antibody-drug conjugate of Formula (I)



(I)

or a pharmaceutically acceptable salt thereof, wherein:

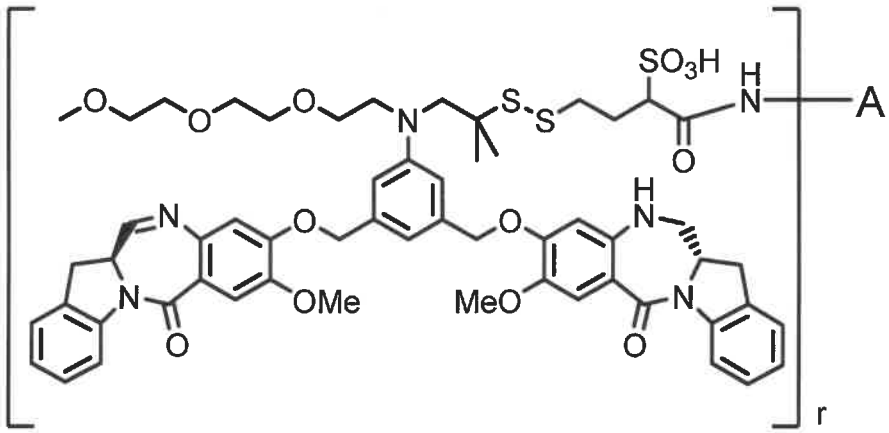
the double line == between N and C represents a single bond or a double bond, provided that when it is a double bond, X is absent and Y is hydrogen, when it is a single bond, X is hydrogen and Y is $-SO_3H$;

wherein A is the antibody or antigen-binding fragment thereof specifically binds to CD33 comprising a heavy chain variable region (VH) complementary determining region (CDR)1 sequence of SEQ ID NO:1, a VH CDR2 sequence of SEQ ID NO:2, and a VH CDR3 sequence of SEQ ID NO:3, and a light chain variable region (VL) CDR1 sequence of SEQ ID NO:4, a VL CDR2 sequence of SEQ ID NO:5, and a VL CDR3 sequence of SEQ ID NO:6 ; and

r is an integer from 1 to 10,

in the preparation of a pharmaceutical composition for the treatment of cancer in a subject.

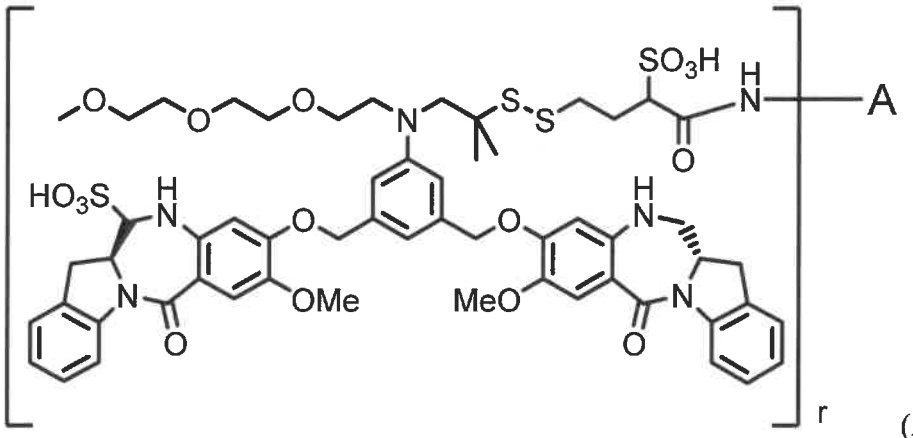
2. The use of claim 1, wherein the antibody-drug conjugate is of ADC1



(ADC1)

or a pharmaceutically acceptable salt thereof.

3. The use of claim 1, wherein the antibody-drug conjugate is of ADC2



(ADC2)

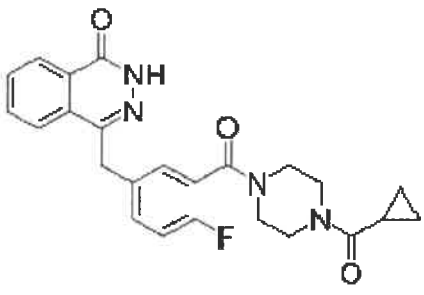
or a pharmaceutically acceptable salt thereof.

4. The use of any one of claims 1-3, wherein the pharmaceutically acceptable salt is a sodium or potassium salt.

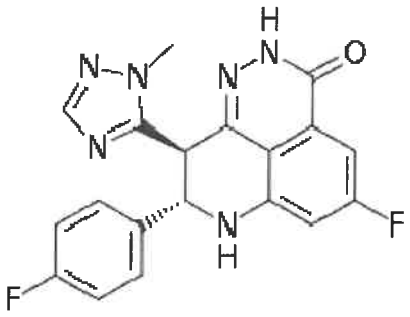
5. The use of any one of claims 1-4, wherein the PARP inhibitor is a PARP-1 inhibitor.

6. The use of any one of claims 1-4, wherein the PARP inhibitor is PARP-2 inhibitor.

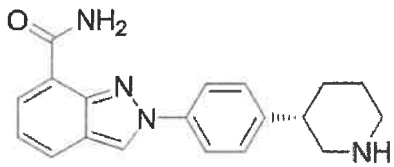
7. The use of any one of claims 1-6, wherein the PARP inhibitor is selected from the group consisting of



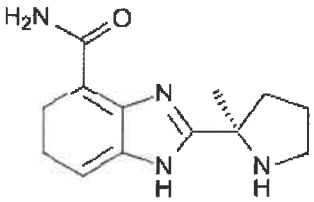
(olaparib);



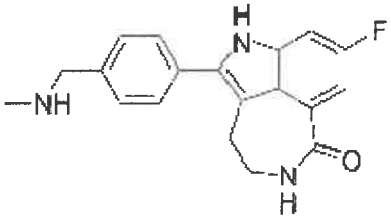
(talazoparib);



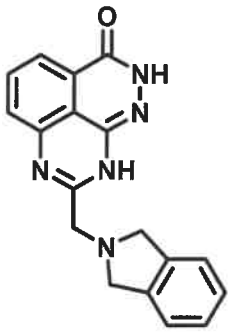
(niraparib);



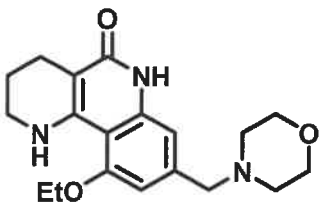
(veliparib);



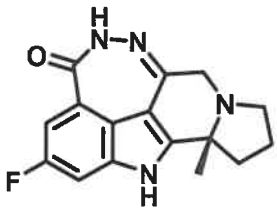
(rucaparib);



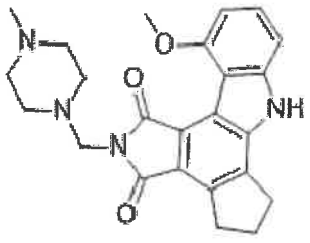
(E7449);



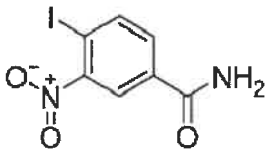
(JPI-289);



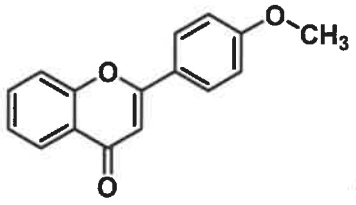
(BGB-290);



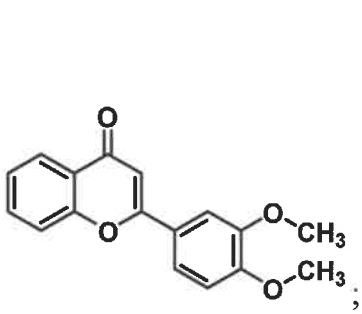
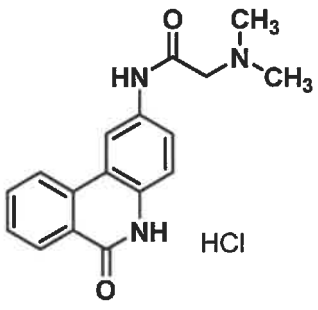
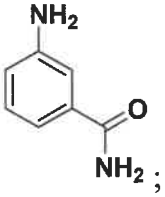
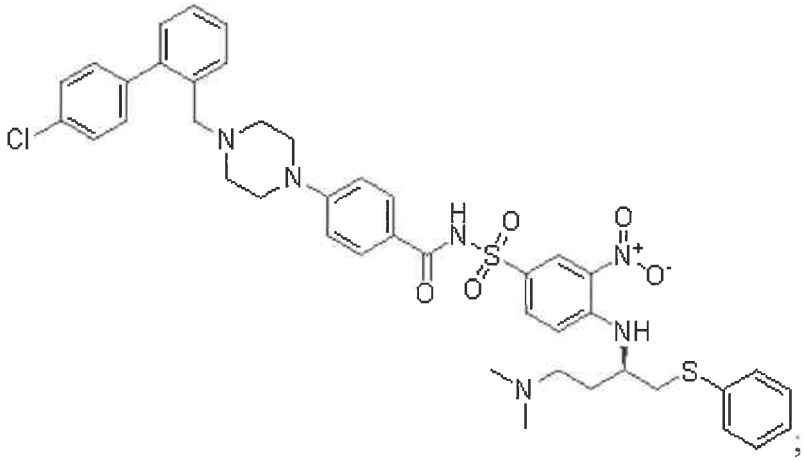
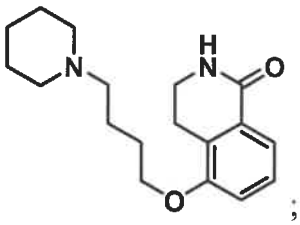
(CEP-9722);



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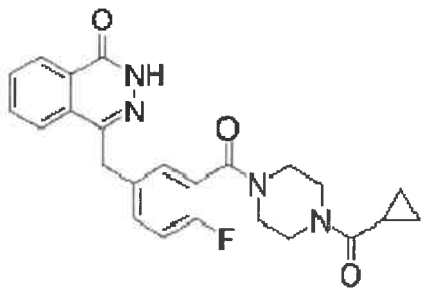
;


;

HCl ;

;

;

;

ABT767; and MP-124,

or a pharmaceutically acceptable salt thereof.

8. The use of claim 7, wherein the PARP inhibitor is



(olaparib), or a pharmaceutically acceptable salt thereof.

9. The use of any one of claims 1-8, wherein the antibody or antigen-binding fragment thereof comprises a heavy chain variable region comprising an amino acid sequence having at least 95% identity to the amino acid sequence of SEQ ID NO:7 or 9.

10. The use of any one of claims 1-8, wherein the antibody or antigen-binding fragment thereof comprises a light chain variable region comprising an amino acid sequence having at least 95% identity to the amino acid sequence of SEQ ID NO:8 or 10.

11. The use of any one of claims 1-10, wherein the antibody or antigen-binding fragment thereof comprises a heavy chain variable region comprising the sequence of SEQ ID NO:9 and a light chain variable region comprising the sequence of SEQ ID NO:10.

12. The use of any one of claims 1-11, wherein the antibody is huMy9-6.

13. The use of claim 12, wherein the antibody is a CDR-grafted or resurfaced antibody.

14. The use of any one of claims 1-13, wherein the antibody-drug conjugate is IMGN779.

15. The use of any one of claims 1-14, wherein the cancer is selected from the group consisting of leukemia, lymphoma and myeloma.

16. The use of claim 15, wherein the cancer is selected from the group consisting of acute myeloid leukemia (AML), chronic myeloid leukemia (CML), acute lymphoblastic leukemia (ALL), B-cell lineage acute lymphoblastic leukemia (B ALL), chronic lymphocytic leukemia (CLL), hairy cell leukemia (HCL), myelodysplastic syndrome (MDS), basic plasmacytoid DC neoplasm (BPDCN) leukemia, non-Hodgkin lymphomas (NHL), mantle cell lymphoma, and Hodgkin's leukemia (HL).

17. The use of claim 16, wherein the cancer is acute myeloid leukemia (AML).

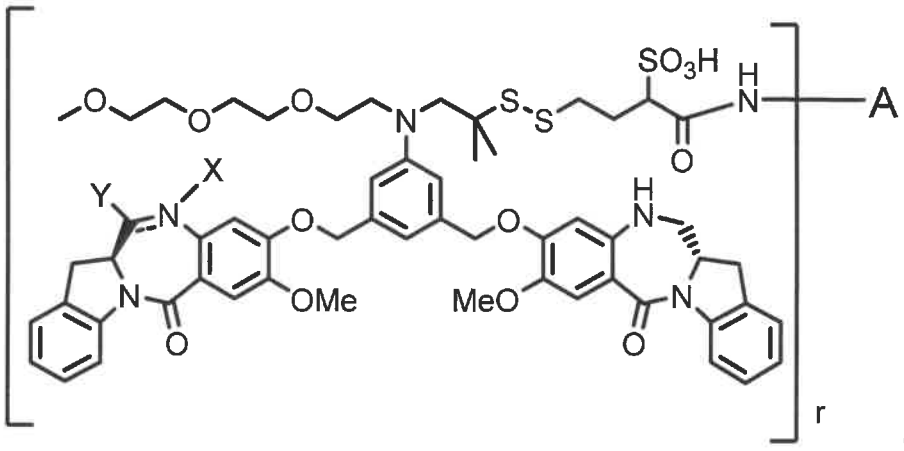
18. The use of claim 17, wherein the acute myeloid leukemia (AML) is refractory or relapse acute myeloid leukemia.

19. The use of claim 17, wherein the acute myeloid leukemia (AML) is characterized by overexpression of P-glycoprotein, overexpression of EVI1, a p53 alteration, DNMT3A mutation, FLT3 internal tandem duplication, a complex karyotype, decreased expression in BRCA1, BRCA2, or PALB2, or mutations in BRCA1, BRCA2, or PALB2.

20. The use of claims 15-19, wherein the cancer is chemotherapy sensitive.

21. The use of claims 15-20, wherein the cancer is chemotherapy resistant.

22. A pharmaceutical composition comprising: i) an effective amount of a PARP inhibitor; ii) an effective amount of an antibody-drug conjugate of Formula (I):



(I),

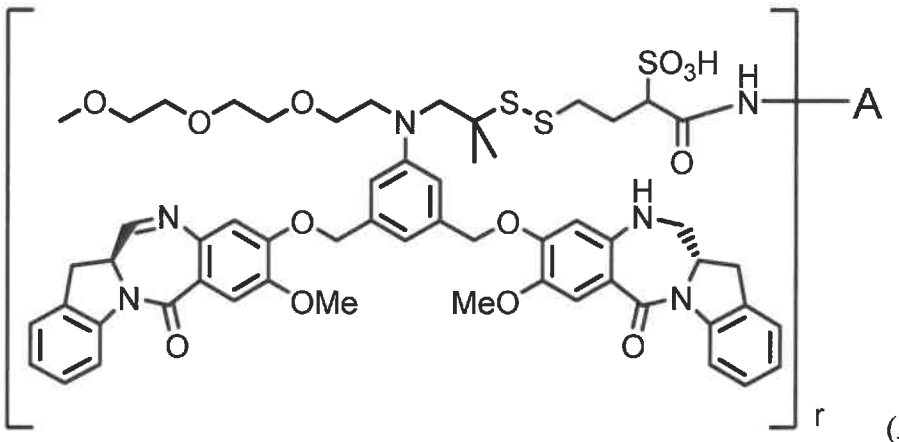
or a pharmaceutically acceptable salt thereof; and iii) a pharmaceutically acceptable carrier or diluent; wherein:

the double line == between N and C represents a single bond or a double bond, provided that when it is a double bond, X is absent and Y is hydrogen, when it is a single bond, X is hydrogen, Y is $-SO_3H$;

wherein A is the antibody or antigen-binding fragment thereof specifically binds to CD33 comprising a heavy chain variable region (VH) complementary determining region (CDR)1 sequence of SEQ ID NO:1, a VH CDR2 sequence of SEQ ID NO:2, and a VH CDR3 sequence of SEQ ID NO:3, and a light chain variable region (VL) CDR1 sequence of SEQ ID NO:4, a VL CDR2 sequence of SEQ ID NO:5, and a VL CDR3 sequence of SEQ ID NO:6; and

r is an integer from 1 to 10.

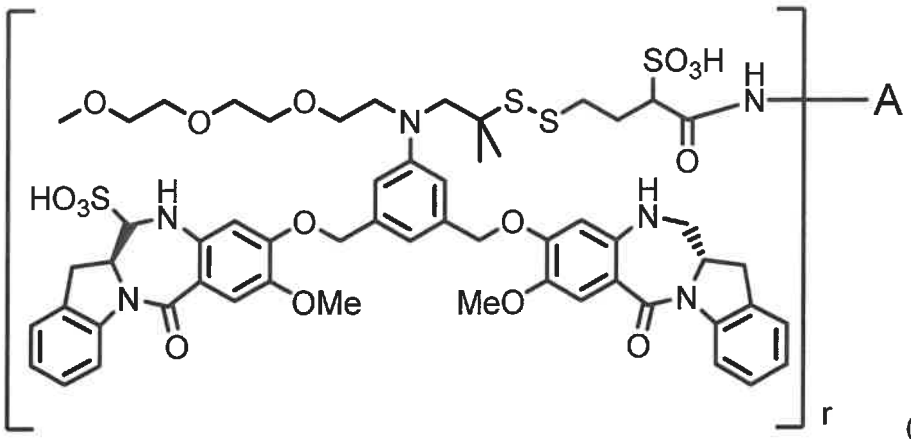
23. The pharmaceutical composition of claim 22, wherein the antibody-drug conjugate is of ADC1:



(ADC1)

or a pharmaceutically acceptable salt thereof.

24. The pharmaceutical composition of claim 22, wherein the antibody-drug conjugate of ADC2:



(ADC2)

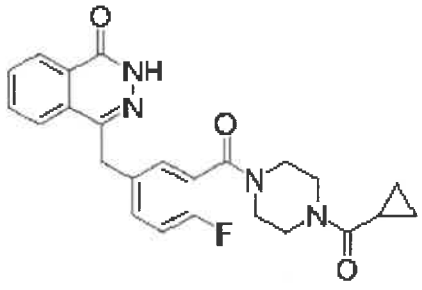
or a pharmaceutically acceptable salt thereof.

25. The pharmaceutical composition of any one claims 22-24, wherein the pharmaceutically acceptable salt is a sodium or potassium salt.

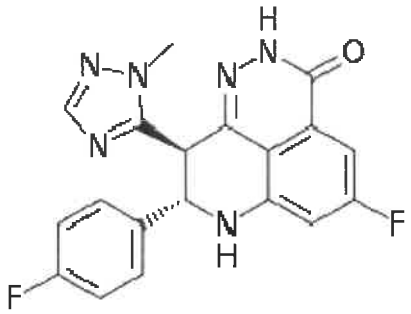
26. The pharmaceutical composition of any one of claims 22-25, wherein the PARP inhibitor is a PARP-1 inhibitor.

27. The pharmaceutical composition of any one of claims 22-25, wherein the PARP inhibitor is a PARP-2 inhibitor.

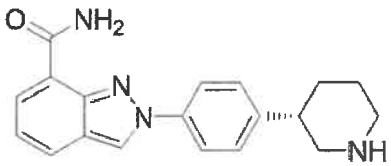
28. The pharmaceutical composition of any one of claims 22-27, wherein the PARP inhibitor is selected from the group consisting of



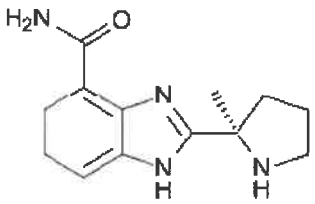
(olaparib);



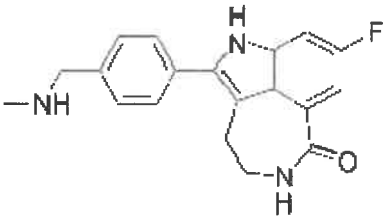
(talazoparib);



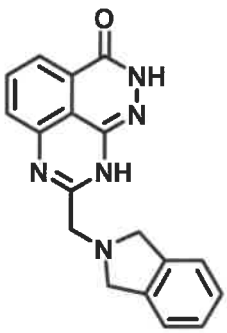
(niraparib);



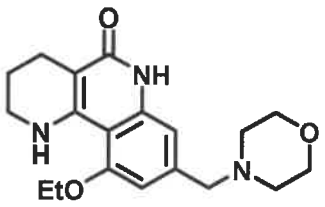
(veliparib);



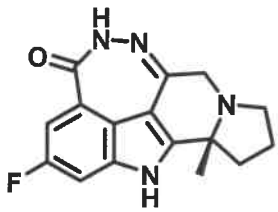
(rucaparib);



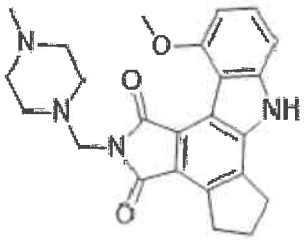
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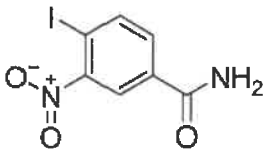
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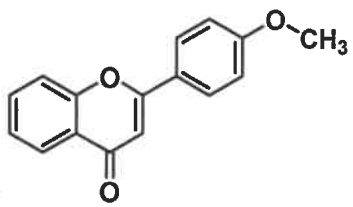
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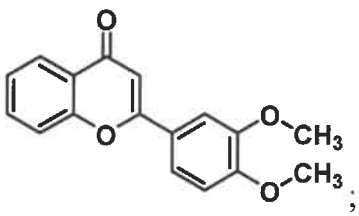
(CEP-9722);



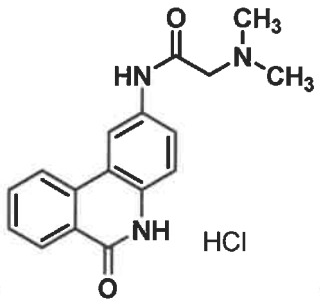
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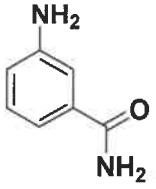
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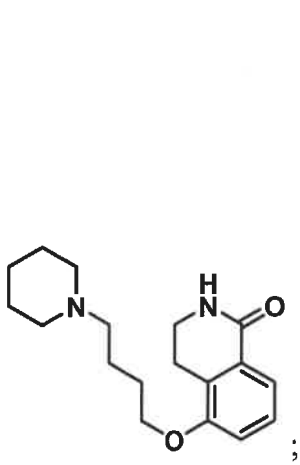
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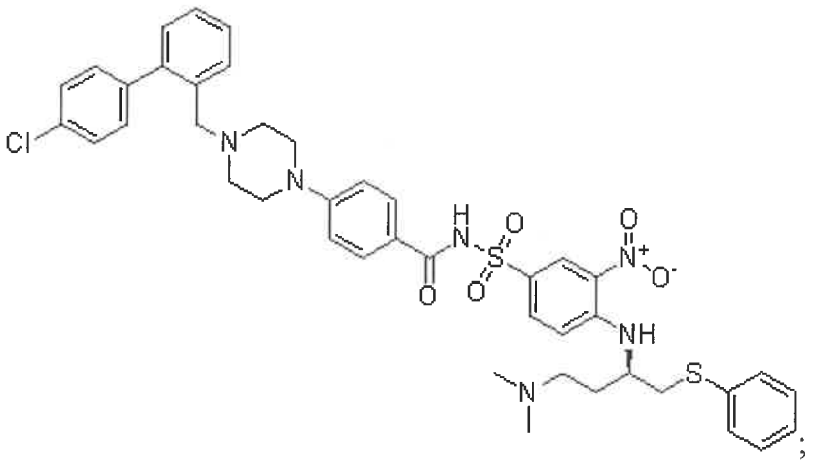


HCl ;



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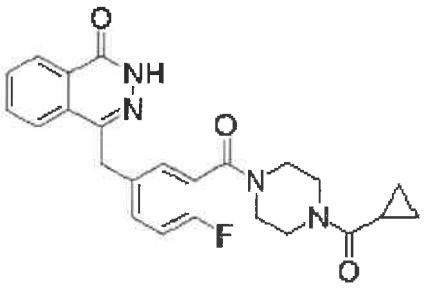

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ABT767; and MP-124,

or a pharmaceutically acceptable salt thereof.

29. The pharmaceutical composition of claim 28, wherein the PARP inhibitor is


(olaparib), or a pharmaceutically acceptable salt thereof.

30. The pharmaceutical composition of any one of claims 22-29, wherein the antibody or antigen-binding fragment thereof comprises a heavy chain variable region comprising an amino acid sequence having at least 95% identity to the amino acid sequence of SEQ ID NO:7 or 9.

31. The pharmaceutical composition of any one of claims 22-29, wherein the antibody or antigen-binding fragment thereof comprises a light chain variable region comprising an amino acid sequence having at least 95% identity to the amino acid sequence of SEQ ID NO:8 or 10.

32. The pharmaceutical composition of any one of claims 22-31, wherein the antibody or antigen-binding fragment thereof comprises a heavy chain variable region comprising the sequence of SEQ ID NO:9 and a light chain variable region comprising the sequence of SEQ ID NO:10.

33. The pharmaceutical composition of any one of claims 22-32, wherein the antibody is huMy9-6.

34. The pharmaceutical composition of any one of claims 22-32, wherein the antibody is a CDR-grafted or resurfaced antibody.

35. The pharmaceutical composition of any one of claims 22-34, wherein the antibody-drug conjugate is IMGN779.

36. The pharmaceutical composition of any one of claims 22 to 35, for use in the treatment of cancer in a subject.