CLAIMS

1. A PARP inhibitor pellet composition, comprising a pellet and an optional additional excipient, with the pellet comprising (1) a pellet core; (2) a drug-containing layer and (3) an optional protective layer, wherein the drug-containing layer contains (a) an active ingredient and (b) a binder; when the composition comprises the protective layer, the protective layer contains (c) a coating material; and the active ingredient is (R)-2-fluoro-10a-methyl-7,8,9,10,10a,11-hexahydro-5,6,7a,11-tetraazacyclohepta[def]cyclopenta[a]fluoren-4(5H)-one, a pharmaceutically acceptable salt thereof and a hydrate thereof,

wherein the active ingredient has a D_{90} particle size of less than 100 μm.

2. A PARP inhibitor pellet composition, comprising (1) an active ingredient that is (R)-2-fluoro-10a-methyl-7,8,9,10,10a,11-hexahydro-5,6,7a,11-tetraazacyclohepta[def]cyclopenta[a]fluoren-4(5H)-one, a pharmaceutically acceptable salt thereof and a hydrate thereof; (2) a pellet core; (3) a binder; (4) an optional coating material; and (5) an optional additional excipient,

wherein the active ingredient has a D_{90} particle size of less than 100 μm.

3. The pellet composition according to claim 1 or 2, wherein the additional excipient includes one or more of a filler and a lubricant.

4. The pellet composition according to claim 1 or 2, wherein the additional excipient includes a lubricant.

5. The pellet composition according to claim 1 or 2, wherein the pellet core is a blank pellet core selected from one or more of a sucrose pellet core, a microcrystalline cellulose pellet core, and a starch pellet core; and/or

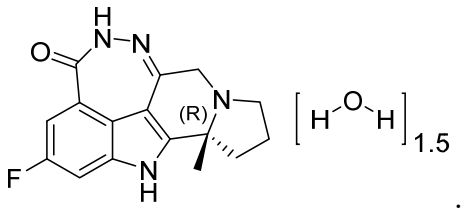
the weight percentage of the pellet core based on the total weight of the pellet composition is 50-90% (w/w).

6. The pellet composition according to claim 5, wherein the weight percentage of the pellet core based on the total weight of the pellet composition is 60-85% (w/w).

7. The pellet composition according to claim 1 or 2, wherein the active ingredient is crystal forms A-L or a hydrate.

8. The pellet composition according to claim 1 or 2, wherein the active ingredient is crystal form C.

9. The pellet composition according to claim 1 or 2, wherein the active ingredient is a sesquihydrate with the following structure:



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10. The pellet composition according to any one of claims 1-9, wherein the active ingredient has a D_{90} particle size of less than 50 μm; and/or the weight percentage of the active ingredient based on the total weight of the pellet composition is 5-50% (w/w).

11. The pellet composition according to claim 10, wherein the active ingredient has a D_{90} particle size of less than 30 μm.

12. The pellet composition according to any one of claims 10 to 11, wherein the weight percentage of the active ingredient based on the total weight of the pellet composition is 10-25% (w/w).

13. The pellet composition according to any one of claims 10 to 12, wherein the weight percentage of the active ingredient based on the total weight of the pellet composition is 10-20% (w/w).

14. The pellet composition according to claim 1 or 2, wherein the active ingredient is crystal form C and/or a sesquihydrate of (R)-2-fluoro-10a-methyl-7,8,9,10,10a,11-hexahydro-5,6,7a,11-tetraazacyclohepta[def]cyclopenta[a]fluoren-4(5H)-one, and has a D_{90} particle size of less than 30 μm, and the weight percentage of the active ingredient based on the total weight of the pellet composition is 10-25%.

15. The pellet composition according to claim 1 or 2, wherein the binder is selected from one

or more of carbomer, sodium carboxymethyl cellulose, hydroxypropylcellulose, hydroxypropyl methylcellulose, sodium hydroxypropyl methylcellulose, and povidone; and/or the weight percentage of the binder based on the total weight of the pellet composition is 1-20% (w/w).

16. The pellet composition according to claim 15, wherein the binder is selected from hydroxypropyl methylcellulose, sodium hydroxypropyl methylcellulose, and povidone.

17. The pellet composition according to claim 15 or 16, wherein the weight percentage of the binder based on the total weight of the pellet composition is 1-10% (w/w).

18. The pellet composition according to any one of claims 15 to 17, wherein the weight percentage of the binder based on the total weight of the pellet composition is 3-8% (w/w).

19. The pellet composition according to any one of claims 15 to 18, wherein the weight percentage of the binder based on the total weight of the pellet composition is 3-6% (w/w).

20. The pellet composition according to claim 1 or 2, wherein the coating material is selected from one or more of carbomer, sodium carboxymethyl cellulose, hydroxypropylcellulose, hydroxypropyl methylcellulose, sodium hydroxypropyl methylcellulose, and povidone; and/or the weight percentage of the coating material based on the total weight of the pellet composition is 1-25% (w/w).

21. The pellet composition according to claim 20, wherein the coating material is selected from hydroxypropyl methylcellulose and sodium hydroxypropyl methylcellulose.

22. The pellet composition according to any one of claims 20 to 21, wherein the weight percentage of the coating material based on the total weight of the pellet composition is 1-10% (w/w).

23. The pellet composition according to any one of claims 20 to 22, wherein the weight percentage of the coating material based on the total weight of the pellet composition is 1.5-8% (w/w).

24. The pellet composition according to any one of claims 20 to 23, wherein the weight percentage of the coating material based on the total weight of the pellet composition is 3-6%

(w/w).

25. The pellet composition according to any one of claims 3 to 4, wherein the lubricant includes, but is not limited to, one or more of calcium stearate, magnesium stearate, zinc stearate, stearic acid, sodium stearyl fumarate, and talc; and/or the weight percentage of the lubricant based on the total weight of the pellet composition is 0.1-5.0% (w/w).

26. The pellet composition according to claim 25, wherein the lubricant includes, but is not limited to, talc.

27. The pellet composition according to any one of claims 25 to 26, wherein the weight percentage of the lubricant based on the total weight of the pellet composition is 0.1-2% (w/w).

28. The pellet composition according to any one of claims 25 to 27, wherein the weight percentage of the lubricant based on the total weight of the pellet composition is 0.5-1.5% (w/w).

29. A method for preparing the pellet composition according to any one of claims 1 and 2, comprising the steps of:

1) dispersing an active ingredient in a binder solution to prepare a drug-containing suspension;

2) spraying the drug-containing suspension in step 1) onto the surface of a pellet core to form a drug-containing layer to prepare a drug-loaded pellet;

3) preparing a coating material solution, and spraying the coating material solution onto the surface of the drug-loaded pellet as a protective layer to prepare a protective layer pellet, this step being optionally performed; and

4) mixing the pellet obtained in step 2) or step 3) with an additional excipient to prepare a total mixture of pellet, this step being optionally performed.

30. A PARP inhibitor oral formulation, wherein the PARP inhibitor oral formulation comprises the pellet composition according to any one of preceding claims 1-28, and the oral formulation is a tablet, a capsule, or a granule.

31. The PARP inhibitor oral formulation according to claim 30, wherein the oral formulation is a capsule.

32. The oral formulation according to any one of claims 30 to 31, wherein the capsule comprises a capsule shell; the capsule shell is selected from a gelatin hollow capsule shell, a hydroxypropyl methylcellulose hollow capsule shell; and/or different sizes of capsules are filled according to the content of the active ingredient in the pellet and the weight of the pellet, and the size is selected such that each capsule contains 5 mg, 10 mg, 20 mg, 30 mg, 40 mg, 50 mg, 60 mg, 70 mg, 80 mg, or 100 mg of the active ingredient on the basis of the weight of (R)-2-fluoro-10a-methyl-7,8,9,10,10a,11-hexahydro-5,6,7a,11-tetraazacyclohepta[def]cyclopenta[a]fluoren-4(5H)-one.

33. The oral formulation according to claim 32, wherein the capsule shell is a gelatin hollow capsule shell.

34. Use of the pellet composition according to any one of claims 1-28 or the oral formulation according to any one of claims 30 and 33 in the manufacture of a medicament for treating a PARP-associated disease, wherein the PARP-associated disease is selected from tumor angiogenesis, chronic inflammatory disease, rheumatoid arthritis, atherosclerosis, dermatosis, psoriasis and scleroderma, diabetes-induced dermatosis, diabetic retinopathy, retinopathy of prematurity, age-related degenerative macula, cancer, hemangioma, glioma, Kaposi’s sarcoma, ovarian cancer, breast cancer; lung cancer, small cell lung cancer, pancreatic cancer, lymphoma, prostatic cancer, colon cancer and dermatoma, and complications thereof.