CLAIMS

1. A granule composition comprising abiraterone acetate, niraparib, and a pharmaceutically acceptable carrier.
2. The granule composition of claim 1, wherein the granules consist essentially of abiraterone acetate, niraparib, and a pharmaceutically acceptable carrier.
3. The granule composition of claim 2, wherein the granules have a particle size distribution with a d_{50} of about 200 to about 500 µm, or of about 231 to about 396 µm.
4. The granule composition of claim 2 or 3, wherein the granules have a particle size distribution with a d_{10} of about 50 to about 250 µm, or of about 93 to about 192 µm.
5. The granule composition of any one of claims 2-4, wherein the granules have a particle size distribution with a d_{90} of about 500 to about 900 µm, or of about 616 to about 723 µm.
6. The granule composition of claim 1, wherein a first portion of the granules consists essentially of abiraterone acetate and a pharmaceutically acceptable carrier; and a second portion of the granules consists essentially of niraparib and a pharmaceutically acceptable carrier.
7. The granule composition of any one of claims 1-6, wherein niraparib is in the salt form of tosylate monohydrate, sulfate, benzenesulfate, fumarate, succinate, camphorate, mandelate, camsylate, lauryl sulfate, or a mixture of tosylate monohydrate and lauryl sulfate.
8. The granule composition of any one of claims 1-6, wherein niraparib is in the salt form of niraparib tosylate monohydrate.
9. The granule composition of claim 7 or 8, wherein niraparib tosylate monohydrate is in crystal form.
10. The granule composition of any one of claims 1-9, wherein the pharmaceutically acceptable carrier comprises a wetting agent, a diluent, a disintegrant, optionally a glidant, optionally a lubricant, and optionally a binder.
11. The granule composition of claim 10, wherein the diluent is lactose, and wherein lactose is also used as a binder.
12. The granule composition of claim 10 or 11, wherein the disintegrant is crospovidone.
13. An oral dosage form comprising the granule composition of any one of claims 1-12.
14. The oral dosage form of claim 13, wherein the oral dosage form comprises about 50 mg eq. niraparib and about 500 mg abiraterone acetate; about 100 mg eq. niraparib and about 500 mg abiraterone acetate; about 50 mg eq. niraparib and about 375 mg abiraterone acetate; about 100 mg eq. niraparib and about 375 mg abiraterone acetate; about 50 mg eq. niraparib and about 250 mg abiraterone acetate; about 100 mg eq. niraparib and about 250 mg abiraterone acetate; about 33 mg eq. niraparib and about 333 mg abiraterone acetate; or about 67 mg eq. niraparib and about 333 mg abiraterone acetate.

15. The oral dosage form of claims 13 or 14, wherein said oral dosage form is a tablet, wherein the pharmaceutically acceptable carrier comprises a wetting agent, a diluent, a disintegrant, a glidant, a lubricant, optionally a binder, and optionally a coating material.
16. The oral dosage form of claim 15, wherein the wetting agent is sodium lauryl sulfate (SLS) and is present in the dosage form in a percentage from about 3 to 6 % (w/w).
17. The oral dosage form of claim 15 or 16, wherein the wetting agent is SLS and is present in the final dosage forms in a by weight ratio versus abiraterone acetate of about 0.05:1 to 0.2:1 (SLS:abiraterone acetate), preferably about 0.1:1, more preferably about 0.11:1, about 0.12:1, or about 0.123:1.
18. The oral dosage form of any one of claim 15-17, wherein SLS is present both in the intragranular and extragranular phases of the tablet.
19. The oral dosage form of any one of claims 15-18, wherein the disintegrant is crospovidone and is present both in the intragranular and extragranular phases of the tablet.
20. The oral dosage form of any one of claims 15-19, wherein the diluent of the extragranular phase is silicified microcrystalline cellulose.
21. The oral dosage form of any one of claims 15-20, wherein the tablet has a hardness of 250 to 350 N.
22. The oral dosage form of any one of claims 15-21, wherein the tablet has a stratified content uniformity from 75 % to 125 %, or from 90 % to 110 %.
23. The oral dosage form of any one of claims 15-22, wherein the tablet has a blend uniformity with a relative standard deviation up to 3%.
24. The oral dosage form of any one of claims 15-23, wherein the tablet comprises about 500 mg of abiraterone acetate and about 50 mg eq. of niraparib, in its tosylate monohydrate form; and wherein (i) greater than 40%, or about 50%, of abiraterone acetate dissolves after 5 minutes, (ii) greater than 75%, or about 80 or 81%, of abiraterone acetate dissolves after 10 minutes, (iii) greater than 85%, or about 89 or 90% of abiraterone acetate dissolves after 15 minutes, (iv) greater than 87%, or about 92%, of abiraterone acetate dissolves after 20 minutes; (v) greater than 90%, or about 95%, of abiraterone acetate dissolves after 30 minutes, (vi) greater than 91%, or about 96%, of abiraterone acetate dissolves after 45 minutes, (vii) greater than 92%, or about 97%, of abiraterone acetate dissolves after 60 minutes, (viii) greater than 93%, or about 98%, of abiraterone acetate dissolves after 90 minutes, or (ix) greater than 93%, or about 98%, of abiraterone acetate dissolves after 120 minutes; when measured by the USP Paddle method at 75 rpm in 900 mL of an aqueous solution comprising 0.05 mM sodium phosphate buffer with 0.25% (w/v) sodium lauryl sulfate at pH 4.5 and a temperature of 37.0 ± 0.5 °C.
25. The oral dosage form of any one of claims 15-23, wherein the tablet comprises about 500 mg of abiraterone acetate and about 100 mg eq. of niraparib, in its tosylate monohydrate; and wherein (i) greater than 36%, or about 41%, of abiraterone acetate dissolves after 5

minutes, (ii) greater than 67%, or about 72%, of abiraterone acetate dissolves after 10 minutes, (iii) greater than 76%, or about 81%, of abiraterone acetate dissolves after 15 minutes, (iv) greater than 81%, or about 86%, of abiraterone acetate dissolves after 20 minutes, (v) greater than 85 or 86%, or about 90 or 91%, of abiraterone acetate dissolves after 30 minutes, (vi) greater than 90%, or about 95%, of abiraterone acetate dissolves after 45 minutes, (vii) greater than 90 or 91%, or about 95 or 96%, of abiraterone acetate dissolves after 60 minutes, (viii) greater than 93%, or about 98%, of abiraterone acetate dissolves after 90 minutes, or (ix) greater than 94%, or about 99%, of abiraterone acetate dissolves after 120 minutes; when measured by the USP Paddle method at 75 rpm in 900 mL of an aqueous solution comprising 0.05 mM sodium phosphate buffer with 0.25% (w/v) sodium lauryl sulfate at pH 4.5 and a temperature of 37.0 ± 0.5 °C.

26. The oral dosage form of any one of claims 15-23, wherein the tablet comprises about 500 mg of abiraterone acetate and about 50 mg eq. of niraparib, in its tosylate monohydrate; and wherein (i) greater than 30 or 35%, or about 39 or 40%, of niraparib dissolves after 5 minutes, (ii) greater than 79 or 80%, or about 84 or 85%, of niraparib dissolves after 10 minutes, (iii) greater than 90%, or about 95%, of niraparib dissolves after 15 minutes, (iv) greater than 92%, or about 97%, of niraparib dissolves after 20 minutes, (v) greater than 93%, or about 98%, of niraparib dissolves after 30 minutes, (vi) greater than 93%, or about 98%, of niraparib dissolves after 45 minutes, (vii) greater than 93%, or about 98%, of niraparib dissolves after 60 minutes, (viii) greater than 93%, or about 98%, of niraparib dissolves after 90 minutes, or (ix) greater than 93%, or about 98%, of niraparib dissolves after 120 minutes; when measured by the USP Paddle method at 75 rpm in 900 mL of an aqueous solution comprising 0.05 mM sodium phosphate buffer with 0.25% (w/v) sodium lauryl sulfate at pH 4.5 and a temperature of 37.0 ± 0.5 °C.

27. The oral dosage form of any one of claims 15-23, wherein the tablet comprises about 500 mg of abiraterone acetate and about 100 mg eq. of niraparib, in its tosylate monohydrate form; and wherein (i) greater than 23%, or about 28%, of niraparib dissolves after 5 minutes, (ii) greater than 64%, or about 69%, of niraparib dissolves after 10 minutes, (iii) greater than 80 or 81%, or about 85 or 86%, of niraparib dissolves after 15 minutes, (iv) greater than 87%, or about 92%, of niraparib dissolves after 20 minutes, (v) greater than 90%, or about 95%, of niraparib dissolves after 30 minutes, (vi) greater than 91%, or about 96%, of niraparib dissolves after 45 minutes, (vii) greater than 92%, or about 97%, of niraparib dissolves after 60 minutes, (viii) greater than 92%, or about 97%, of niraparib dissolves after 90 minutes, or (ix) greater than 92%, or about 97%, of niraparib dissolves after 120 minutes; when measured by the USP Paddle method at 75 rpm in 900 mL of an aqueous solution comprising 0.05 mM sodium phosphate buffer with 0.25% (w/v) sodium lauryl sulfate at pH 4.5 and a temperature of 37.0 ± 0.5 °C.

28. The oral dosage form of any one of claims 24-27, wherein said dosage forms are bioequivalent, when administered orally on an equivalent dose basis, to free-dose combinations of abiraterone acetate and niraparib.
29. The oral dosage form of claims 13 or 14, wherein said oral dosage form is a capsule or a sachet, optionally further comprising a diluent.
30. The oral dosage form of any one of claims 13-29, wherein the oral dosage form is a fixed-dose combination (FDC).
31. The oral dosage form of any one of claims 13-30, for use in the treatment of prostate cancer in a patient.
32. The oral dosage form for the use of claim 31, wherein the prostate cancer is metastatic prostate cancer, advanced prostate cancer, regional prostate cancer, locally advanced prostate cancer, localized prostate cancer, non-metastatic prostate cancer, non-metastatic advanced prostate cancer, non-metastatic regional prostate cancer, non-metastatic locally advanced prostate cancer, non-metastatic localized prostate cancer, hormone-naïve prostate cancer, chemotherapy-naïve prostate cancer, castration-naïve cancer with or without metastases, radiation-naïve prostate cancer, castration-resistant prostate cancer (CRPC), non-metastatic CRPC (nmCRPC), localized CRPC, locally advanced CRPC, regional CRPC, advanced CRPC, metastatic CRPC (mCRPC), mCRPC in patients having biallelic DNA-repair gene defect (DRD) or HRD; mCRPC in patients having monoallelic DRD or HRD; mCRPC in patients having no DRD or HRD; mCRPC in patients having DRD or HRD and having received taxane and/or androgen receptor-targeted therapy, mCRPC in patients having received docetaxel or cabazitaxel; CRPC in patients having received hormone therapy (for example enzalutamide, darolutamide, apalutamide), CRPC in patients having received taxane therapy (for example docetaxel, mitoxantrone, cabazitaxel), chemotherapy-naïve CRPC, chemotherapy-naïve mCRPC, hormone-naïve CRPC, hormone-naïve mCRPC, CRPC with progression, CRPC with visceral metastases, CRPC with visceral metastases in patients having received hormone therapy (for example enzalutamide, darolutamide, apalutamide), CRPC with visceral metastases in patients having received taxane therapy (for example docetaxel, mitoxantrone, cabazitaxel), CRPC with visceral metastases and progression, castration-sensitive prostate cancer (CSPC), non-metastatic CSPC (nmCSPC), localized CSPC, locally advanced CSPC, regional CSPC, advanced CSPC, metastatic CSPC (mCSPC), chemotherapy-naïve CSPC, chemotherapy-naïve mCSPC, hormone-naïve CSPC, hormone-naïve mCSPC, hormone-sensitive prostate cancer (HSPC), hormone-dependent prostate cancer, androgen-dependent prostate cancer, androgen-sensitive prostate cancer, biochemically relapsed HSPC, metastatic HSPC (mHSPC), hormone-resistant prostate cancer (HRPC), non-metastatic HRPC (nmHRPC), localized HRPC, locally advanced HRPC, regional HRPC, advanced HRPC, metastatic HRPC (mHRPC), recurrent prostate cancer, prostate cancer with prostate specific antigen

(PSA) persistence or recurrence after prostatectomy with or without distant metastases, radiation-resistant prostate cancer, and any combination thereof.

33. The oral dosage form for the use of claim 31, wherein the prostate cancer is first-line (L1) mCRPC and the patient is positive for DRD or HRD.
34. The oral dosage form for the use of claim 31, wherein the prostate cancer is deleterious germline or somatic homologous recombination repair (HRR) gene-mutated mCSPC.
35. The oral dosage form for the use of claim 31, wherein the prostate cancer is mCRPC, with or without DNA-repair gene defects (DRD) or HRD, and optionally with cyclin dependent kinase 12 (CDK12) pathogenic alterations.
36. The oral dosage form for the use of claim 31, wherein the prostate cancer is high-risk localized prostate cancer.
37. The oral dosage form for the use of claims 31 or 32, wherein the patient is in a risk group selected from very low, low, intermediate favorable, intermediate unfavorable, high, very high, and regional.
38. The oral dosage form for the use of any one of claims 31-37, wherein the use comprises administering about 666 to about 1500 mg/day of abiraterone acetate; administering about 999 to about 1500 mg/day of abiraterone acetate; administering about 666 mg/day of abiraterone acetate; or administering about 1000 mg/day of abiraterone acetate.
39. The oral dosage form for the use of any one of claims 31-38, wherein the use comprises administering about 33 to about 300 mg/day of niraparib eq.; administering about 100 to about 200 mg/day of niraparib eq.; administering about 66 mg/day of niraparib eq.; administering about 100 mg/day of niraparib eq.; administering about 134 mg/day of niraparib eq.; or administering about 200 mg/day eq. of niraparib.
40. The oral dosage form for the use of any one of claims 31-39, wherein the use comprises administering 1, 2, or 3 oral dosage forms per day.
41. The oral dosage form for the use of any one of claims 31-40, wherein the use comprises administering the oral dosage form(s) once a day (q.d.) or two times a day (b.i.d.); preferably once a day at least 1 hour before a meal or at least two hours after a meal.
42. The oral dosage form for the use of any one of claims 31-41, wherein the use comprises administering separately about 1 to about 60 mg/day of prednisone; about 5 to about 15 mg/day of prednisone; about 9 to about 11 mg/day of prednisone; about 10 mg/day of prednisone; about 5 mg/day of prednisone; or about 5 mg/day of prednisone.
43. A process for preparing the granule composition of any one of claims 1-5 and 7-12 comprising the steps of:

    (a) preparing a binder solution comprising a wetting agent;

    (b) blending the binder solution of step (a) with abiraterone acetate, niraparib, and a diluent, optionally in the presence of a disintegrant;

(c) wet granulating the blend obtained from step (b);

(d) drying the product obtained from step (c).

44. The process of claim 43, wherein the binder solution comprises a binder, the wetting agent and a solvent.
45. The process of claim 43 or 44, wherein the inlet air temperature during the wet granulating of step c), is from 25 °C to 65 °C.
46. The process of any one of claims 43-45, wherein the spray rate during the wet granulating of step c), is from 190 to 300 g/min.
47. The process of any one of claims 43-46, wherein the inlet air flow during the wet granulating of step c), is from 800 to 1300 m^3/h.
48. A process for preparing the granule composition of any one of claims 1-2 and 7-12 comprising the steps of:

(a) blending abiraterone acetate, niraparib, a wetting agent, and a diluent, optionally in the presence of a disintegrant and a lubricant;

(b) dry-granulating the blend obtained from step (a);

(c) milling the dry-granulated product obtained from step (b);

(d) optionally blending the product obtained from step (c), with a wetting agent, a diluent, a disintegrant, and a glidant.

49. A process for preparing the granule composition of any one of claims 1 and 6-12 comprising the steps of:
    a) blending niraparib with a diluent, optionally in the presence of a disintegrant, a glidant, and a lubricant;
    b) dry-granulating the blend obtained from step (a);
    c) milling the dry-granulated blend obtained from step (b);
    d) preparing a binder solution comprising a wetting agent;
    e) blending the binder solution of step (d) with abiraterone acetate and a diluent, optionally in the presence of a disintegrant;
    f) wet granulating the blend obtained from step (e);
    g) drying the product obtained from step (f);
    h) blending the granule blends obtained from steps (c) and (g), optionally in the presence of a wetting agent, a diluent, a disintegrant, a lubricant, and a glidant;

    wherein steps d)-g) may be performed before, or in parallel, to steps a)-c).

50. The process of any one of claims 43-49, wherein the obtained granule composition is further compressed into a tablet optionally with a lubricant.

51. The process of claim 50, further comprising preparing a coating suspension and coating the tablet with said suspension.
52. The process of any one of claims 43-49, wherein the obtained granule composition is further dosed into a capsule or sachet, optionally with a diluent.
53. A method for the treatment of prostate cancer in a patient, said method comprising administering to the patient the oral dosage form of any one of claims 13-30.
54. The method of claim 53, wherein the prostate cancer is metastatic prostate cancer, advanced prostate cancer, regional prostate cancer, locally advanced prostate cancer, localized prostate cancer, non-metastatic prostate cancer, non-metastatic advanced prostate cancer, non-metastatic regional prostate cancer, non-metastatic locally advanced prostate cancer, non-metastatic localized prostate cancer, hormone-naïve prostate cancer, chemotherapy-naïve prostate cancer, castration-naïve cancer with or without metastases, radiation-naïve prostate cancer, castration-resistant prostate cancer (CRPC), non-metastatic CRPC (nmCRPC), localized CRPC, locally advanced CRPC, regional CRPC, advanced CRPC, metastatic CRPC (mCRPC), mCRPC in patients having biallelic DNA-repair gene defect (DRD) or HRD; mCRPC in patients having monoallelic DRD or HRD; mCRPC in patients having no DRD or HRD; mCRPC in patients having DRD or HRD and having received taxane and/or androgen receptor-targeted therapy, mCRPC in patients having received docetaxel or cabazitaxel; CRPC in patients having received hormone therapy (for example enzalutamide, darolutamide, apalutamide), CRPC in patients having received taxane therapy (for example docetaxel, mitoxantrone, cabazitaxel), chemotherapy-naïve CRPC, chemotherapy-naïve mCRPC, hormone-naïve CRPC, hormone-naïve mCRPC, CRPC with progression, CRPC with visceral metastases, CRPC with visceral metastases in patients having received hormone therapy (for example enzalutamide, darolutamide, apalutamide), CRPC with visceral metastases in patients having received taxane therapy (for example docetaxel, mitoxantrone, cabazitaxel), CRPC with visceral metastases and progression, castration-sensitive prostate cancer (CSPC), non-metastatic CSPC (nmCSPC), localized CSPC, locally advanced CSPC, regional CSPC, advanced CSPC, metastatic CSPC (mCSPC), chemotherapy-naïve CSPC, chemotherapy-naïve mCSPC, hormone-naïve CSPC, hormone-naïve mCSPC, hormone-sensitive prostate cancer (HSPC), hormone-dependent prostate cancer, androgen-dependent prostate cancer, androgen-sensitive prostate cancer, biochemically relapsed HSPC, metastatic HSPC (mHSPC), hormone-resistant prostate cancer (HRPC), non-metastatic HRPC (nmHRPC), localized HRPC, locally advanced HRPC, regional HRPC, advanced HRPC, metastatic HRPC (mHRPC), recurrent prostate cancer, prostate cancer with prostate specific antigen (PSA) persistence or recurrence after prostatectomy with or without distant metastases, radiation-resistant prostate cancer, and any combination thereof.

55. The method of claim 53, wherein the prostate cancer is first-line (L1) mCRPC and the patient is positive for DRD or HRD.
56. The method of claim 53, wherein the prostate cancer is deleterious germline or somatic homologous recombination repair (HRR) gene-mutated mCSPC.
57. The method of claim 53, wherein the prostate cancer is mCRPC, with or without DNA-repair gene defects (DRD) or HRD, and optionally with cyclin dependent kinase 12 (CDK12) pathogenic alterations.
58. The method of claim 53, wherein the patient has high-risk localized prostate cancer.
59. The method of claim 53 or 54, wherein the patient is in a risk group selected from very low, low, intermediate favorable, intermediate unfavorable, high, very high, and regional.
60. The method of any one of claims 53-59, wherein the method comprises administering about 666 to about 1500 mg/day of abiraterone acetate; administering about 999 to about 1500 mg/day of abiraterone acetate; administering about 666 mg/day of abiraterone acetate; or administering about 1000 mg/day of abiraterone acetate.
61. The method of any one of claims 53-60, wherein the method comprises administering about 33 to about 300 mg/day of niraparib eq.; administering about 100 to about 200 mg/day of niraparib eq.; administering about 66 mg/day of niraparib eq.; administering about 100 mg/day of niraparib eq.; administering about 134 mg/day of niraparib eq.; or administering about 200 mg/day eq. of niraparib.
62. The method of any one of claims 53-61, wherein the method comprises administering 1, 2, or 3 dosage forms per day.
63. The method of any one of claims 53-62, wherein the method comprises administering the dosage form(s) once a day (q.d.) or two times a day (b.i.d.); preferably once a day; preferably once a day at least 1 hour before a meal or at least two hours after a meal.
64. The method of any one of claims 53-63, wherein the method comprises administering separately about 1 to about 60 mg/day of prednisone; about 5 to about 15 mg/day of prednisone; about 9 to about 11 mg/day of prednisone; about 10 mg/day of prednisone; about 5 mg/day of prednisone; or about 5 mg/day of prednisone.