What is claimed is:

1. Use of a composition comprising nanoparticles comprising paclitaxel and an albumin in the manufacture of a medicament for treating NSCLC in an individual; wherein the medicament is to be administered with an effective amount of a platinum-based agent, wherein the treatment is to be based upon the NSCLC having one or more characteristics selected from the group consisting of (i) squamous cellular carcinoma, (ii) differential levels of caveolin-1 (CAV1), (iii) differential levels of SPARC, (iv) differential levels of hypoxia markers, (v) differential levels of tumor acidity, (vi) differential levels of gp60, (vii) differential levels of thymidylate synthase (TS), (viii) differential levels of S phase kinase-associated protein (Skp2), (ix) differential loss of heterozygosity (LOH) of singlenucleotide polymorphism (SNP), (x) differential Kras mutations, (xi) differential methylation of promoter region of tumor-related genes, and (xii) differential albumin uptake.

2. The use of claim 1, wherein the individual for treatment is to be selected based on a characteristics selected from the group consisting of (i) squamous cellular carcinoma, (ii) differential levels of caveolin-1 (CAV1), (iii) differential levels of SPARC, (iv) differential levels of hypoxia markers, (v) differential levels of tumor acidity, (vi) differential levels of gp60, (vii) differential levels of thymidylate synthase (TS), (viii) differential levels of S phase kinase-associated protein (Skp2), (ix) differential loss of heterozygosity (LOH) of single-nucleotide polymorphism (SNP), (x) differential Kras mutations, (xi) differential methylation of promoter region of tumor-related genes, and (xii) differential albumin uptake.

3. The use of claim 1 or claim 2, wherein the treatment is to be based on the NSCLC being squamous cellular carcinoma.

4. The use of any one of claims 1-3, wherein the treatment is to be based on the NSCLC having a differential level of hypoxia.

5. The use of claim 4, wherein the differential level of hypoxia is a differential level of carbonic anhydrase-9 (CA-9) or a differential level of LDH *(e.g.,* LDH-5).

6. The use of any one of claims 1-5, wherein the treatment is based on the differential level of tumor acidity.

7. The use of claim 6, wherein the differential level of tumor acidity is based on a differential level of HIF-1α, a differential level of HIF-2α, or a differential level of differentiated embryo-chrondrocyte expressed gene 1 (DEC-1).

8. The use of any one of claims 1-7, wherein the effective amount of the composition comprising nanoparticles comprising paclitaxel and albumin is between about 50 mg/m^2 and about 125 mg/m^2.

9. The use of any one of claims 1-8, wherein the composition comprising nanoparticles comprising paclitaxel and albumin is to be administered weekly.

10. The use of any one of claims 1-9, wherein the effective amount of the platinum-based agent is between about AUC=2 and about AUC=6.

11. The use of any one of claims 1-10, wherein the platinum-based agent is to be administered once every three weeks.

12. The use of any one of claims 1-11, wherein the effective amount of the composition comprising nanoparticles comprising paclitaxel and albumin is 100 mg/m^2, to be administered weekly and the effective amount of the platinum-based agent is AUC=6, to be administered once every three weeks.

13. The use of any one of claims 1-12, wherein the composition comprising nanoparticles comprising paclitaxel and albumin and the platinum-based agent are to be administered parenterally.

14. The use of any one of claims 1-12, wherein the composition comprising nanoparticles comprising paclitaxel and albumin and the platinum-based agent are to be administered intravenously.

15. The use of any one of claims 1-14, wherein the platinum-based agent is carboplatin.

16. The use of any one of claims 1-15, wherein the medicament is to be administered with thoracic radiation.

17. The use of claim 16, wherein the effective amount of the composition comprising nanoparticles comprising paclitaxel and albumin is between about 20 mg/m^2 to about 60 mg/m^2 to be administered weekly, the effective amount of a platinum-based agent is between about AUC=2 to about AUC=6 to be administered weekly, and the thoracic radiation is between about 25 to about 40 fractions by either 3D conformal or intensity-modulated techniques concurrently.

18. A method of assessing whether an individual with NSCLC will respond to treatment comprising assessing, from a sample derived from the individual, one or more characteristics of the NSCLC selected from the group consisting of (a) squamous cellular carcinoma, (b) differential levels of caveolin-1 (CAV1), (c) differential levels of SPARC, (d) differential levels of hypoxia markers, (e) differential levels of tumor acidity, (f) differential levels of gp60, (g) differential levels of thymidylate synthase (TS), (h) differential levels of S phase kinase-associated protein (Skp2), (i) differential loss of heterozygosity (LOH) of single-nucleotide polymorphism (SNP), j) differential Kras mutations, (k) differential methylation of promoter region of tumor-related genes, and (1) differential albumin uptake, wherein one or more of the characteristics of the NSCLC indicates the individual will be responsive to the treatment and the treatment comprises i) an effective amount of a composition comprising nanoparticles comprising paclitaxel and an albumin and ii) an effective amount of a platinum-based agent.

19. A method of identifying an individual with NSCLC likely to respond to treatment comprising a) a composition comprising nanoparticles comprising paclitaxel and an albumin and b) a platinum-based agent comprising: (A) assessing, from a sample derived from the individual, one or more characteristics of NSCLC selected from the group consisting of (i) squamous cellular carcinoma, (ii) differential levels of caveolin-1 (CAV1), (iii) differential levels of SPARC, (iv) differential levels of hypoxia markers, (v) differential levels of tumor acidity, (vi) differential levels of gp60, (vii) differential levels of thymidylate synthase (TS), (viii) differential levels of S phase kinase-associated protein (Skp2), (ix) differential loss of heterozygosity (LOH) of single-nucleotide polymorphism (SNP), (x) differential Kras mutations, (xi) differential methylation of promoter region of tumor-related genes, and (xii) differential albumin uptake; and (B) identifying the individual having one or more characteristics of NSCLC selected from the group consisting of (i) squamous cellular carcinoma, (ii) differential levels of caveolin-1 (CA V1), (iii) differential levels of SPARC, (iv) differential levels of hypoxia markers, (v) differential levels of tumor acidity, (vi) differential levels of gp60, (vii) differential levels of thymidylate synthase (TS), (viii)

differential levels of S phase kinase-associated protein (Skp2), (ix) differential loss of heterozygosity (LOH) of single-nucleotide polymorphism (SNP), (x) differential Kras mutations, (xi) differential methylation of promoter region of tumor-related genes, and (xii) differential albumin uptake.

20. The method of claim 18 or 19, wherein the treatment is based on the NSCLC being squamous cellular carcinoma.

21. Use of a composition comprising nanoparticle comprising paclitaxel and an albumin in the manufacture of a medicament for treating NSCLC in an individual; wherein the medicament is to be administered with an effective amount of a platinum-based agent, wherein the NSCLC is squamous cellular carcinoma.

22. The use of claim 21, wherein an effective amount of the composition comprising nanoparticles comprising paclitaxel and albumin is 100 mg/m^2 to be administered weekly and an effective amount of the platinum-based agent is AUC=6.

23. The use of claim 21 or claim 22, wherein the composition comprising nanoparticles comprising paclitaxel and albumin is to be administered weekly and the platinum-based agent is to be administered once every three weeks.

24. The use of any one of claims 21-23, wherein the composition comprising nanoparticles comprising paclitaxel and albumin and the platinum-based agent are to be administered intravenously.

25. The use of any one of claims 21-24, wherein the NSCLC is advanced NSCLC.

26. The use of any one of claims 21-25, wherein the treatment is to be used as first-line therapy.

27. The use of any one of claims 21-26, wherein the platinum based agent is carboplatin.

28. The use of any one of claims 1-17 and 21-27, wherein paclitaxel in the nanoparticles is coated with albumin.

29. The use of any one of claims 1-17 and 21-28, wherein the albumin is human albumin.

30. The use of any one of claims 1-17 and 21-28, wherein the albumin is human serum albumin.

31. The use of any one of claims 1-17 and 21-30, wherein the nanoparticles in the composition have an average diameter of no greater than about 200 nm.

32. The use of any one of claims 1-17 and 21-31, wherein the NSCLC is Stage IIIB NSCLC or Stage IV NSCLC.

33. The use of any one of claims 1-17 and 21-32, wherein the individual is human.

34. The method of any one of claims 18-20, wherein paclitaxel in the nanoparticles is coated with albumin.

35. The method of any one of claims 18-20 and 34, wherein the albumin is human albumin.

36. The method of any one of claims 18-20 and 34, wherein the albumin is human serum albumin.

37. The method of any one of claims 18-20 and 34-36, wherein the nanoparticles in the composition have an average diameter of no greater than about 200 nm.

38. The method of any one of claims 18-20 and 34-37, wherein the NSCLC is Stage IIIB NSCLC or Stage IV NSCLC.

39. The method of any one of claims 18-20 and 34-38, wherein the individual is human.

What is claimed is:

1. Use of a composition comprising nanoparticles comprising paclitaxel and an albumin in the manufacture of a medicament for treating NSCLC in an individual, wherein the medicament is to be administered with an effective amount of a platinum-based agent, wherein the treatment is to be based upon the NSCLC being squamous cellular carcinoma.

2. The use of claim 1, wherein the individual for treatment is to be selected based on the individual having squamous cellular carcinoma.

3. The use of claim 1 or 2, wherein the treatment is further based on the NSCLC having a high level of caveolin-1 (CAV-1).

4. The use of any one of claims 1-3, wherein the effective amount of the composition comprising nanoparticles comprising paclitaxel and albumin is between about 50 mg/m^2 and about 125 mg/m^2.

5. The use of any one of claims 1-4, wherein the composition comprising nanoparticles comprising paclitaxel and albumin is to be administered weekly.

6. The use of any one of claims 1-5, wherein the effective amount of the platinum-based agent is between about AUC=2 and about AUC=6.

7. The use of any one of claims 1-6, wherein the platinum-based agent is to be administered once every three weeks.

8. The use of any one of claims 1-7, wherein the effective amount of the composition comprising nanoparticles comprising paclitaxel and albumin is 100 mg/m^2, to be administered weekly and the effective amount of the platinum-based agent is AUC=6, to be administered once every three weeks.

9. The use of any one of claims 1-8, wherein the composition comprising nanoparticles comprising paclitaxel and albumin and the platinum-based agent are to be administered parenterally.

10. The use of any one of claims 1-8, wherein the composition comprising nanoparticles comprising paclitaxel and albumin and the platinum-based agent are to be administered intravenously.

11. The use of any one of claims 1-10, wherein the platinum-based agent is carboplatin.

12. The use of any one of claims 1-11, wherein the medicament is to be administered with thoracic radiation.

13. A method of assessing whether an individual with NSCLC will respond to treatment comprising assessing, from a sample derived from the individual, for squamous cellular carcinoma, wherein squamous NSCLC indicates the individual will be responsive to the treatment and the treatment comprises i) an effective amount of a composition comprising nanoparticles comprising paclitaxel and an albumin and ii) an effective amount of a platinum-based agent.

14. A method of identifying an individual with NSCLC likely to respond to treatment comprising a) a composition comprising nanoparticles comprising paclitaxel and an albumin and b) a platinum-based agent comprising: (A) assessing, from a sample derived from the individual, for squamous cellular carcinoma; and (B) identifying the individual having squamous cellular carcinoma.

15. The use of claim 1, wherein an effective amount of the composition comprising nanoparticles comprising paclitaxel and albumin is 100 mg/m^2 to be administered weekly and an effective amount of the platinum-based agent is AUC=6.

16. The use of claim 1 or claim 15, wherein the composition comprising nanoparticles comprising paclitaxel and albumin is to be administered weekly and the platinum-based agent is to be administered once every three weeks.

17. The use of any one of claims 1, 15, or 16, wherein the composition comprising nanoparticles comprising paclitaxel and albumin and the platinum-based agent are to be administered intravenously.

18. The use of any one of claims 1 or 15-17, wherein the NSCLC is advanced NSCLC.

19. The use of any one of claims 1 or 15-18, wherein the treatment is to be used as first-line therapy.

20. The use of any one of claims 1 or 15-19, wherein the platinum based agent is carboplatin.

21. The use of any one of claims 1-12 and 15-20, wherein paclitaxel in the nanoparticles is coated with albumin.

22. The use of any one of claims 1-12 and 15-21, wherein the albumin is human albumin.

23. The use of any one of claims 1-12 and 15-21, wherein the albumin is human serum albumin.

24. The use of any one of claims 1-12 and 15-23, wherein the nanoparticles in the composition have an average diameter of no greater than about 200 nm.

25. The use of any one of claims 1-12 and 15-24, wherein the NSCLC is Stage IIIB NSCLC or Stage IV NSCLC.

26. The use of any one of claims 1-12 and 15-25, wherein the individual is human.

27. The method of any one of claims 13-14, wherein paclitaxel in the nanoparticles is coated with albumin.

28. The method of any one of claims 13-14 and 27, wherein the albumin is human albumin.

29. The method of any one of claims 13-14 and 27, wherein the albumin is human serum albumin.

30. The method of any one of claims 13-14 and 27-29, wherein the nanoparticles in the composition have an average diameter of no greater than about 200 nm.

31. The method of any one of claims 13-14 and 27-30, wherein the NSCLC is Stage IIIB NSCLC or Stage IV NSCLC.

32. The method of any one of claims 13-14 and 27-31, wherein the individual is human.