What is claimed is:

1. A composition comprising vancomycin or a pharmaceutically acceptable salt thereof, wherein the composition is a dry powder.

2. The composition of claim 1 wherein the pharmaceutically acceptable salt comprises vancomycin hydrochloride.

3. The composition of claim 1 further comprising a hydrophobic amino acid.

4. The composition of claim 3 wherein the hydrophobic amino acid is selected from the group consisting of: tryptophan, tyrosine, leucine, trileucine, and phenylalanine.

5. The composition of claim 3 wherein the hydrophobic amino acid is leucine.

6. The composition of claim 3 wherein the hydrophobic amino acid is present in an amount less than 50% by weight of the composition.

7. The composition of claim 3 wherein the hydrophobic amino acid is present in an amount less than 30% by weight of the composition.

8. The composition of claim 3 wherein the hydrophobic amino acid is present in an amount of about 10% to about 20% by weight of the composition.

9. The composition of claim 1 further comprising a carbohydrate bulking agent.

10. The composition of claim 9 wherein the carbohydrate bulking agent is selected from the group consisting of: lactose, mannitol, trehalose, raffinose, and a maltodextrin.

11. The composition of claim 9 wherein the carbohydrate bulking agent is trehalose.

12. The composition of claim 1 wherein the dry powder comprises particles having a mass median aerodynamic diameter of less than or equal to about 10 μm.

13. The composition of claim 1 wherein the dry powder comprises particles having a mass median aerodynamic diameter of greater than or equal to about 10 μm

14. The composition of claim 12 wherein at least 95% of the particles have a mass median aerodynamic diameter of less than about 10 μm.

15. The composition of claim 1 wherein the dry powder comprises particles having a mass median aerodynamic diameter greater than or equal to about 1 μm and less than or equal to 5 μm.

16. The composition of claim 1 wherein the dry powder is encapsulated in a capsule.

17. The composition of claim 16 wherein the capsule comprises hydroxypropyl methylcellulose.

18. The composition of claim 1 wherein the dry powder has a moisture content below about 10% by weight water.

19. The composition of claim 1 wherein the dry powder has a moisture content below about 7% by weight water.

20. The composition of claim 1 wherein the dry powder is substantially amorphous.

21. The composition of claim 1 wherein the pH of reconstituted powder is greater than 3.0, greater than 3.5, or greater than 4.0.

22. The composition of claim 1 wherein the dry powder has a tap density of greater than about 0.4 g/cm^3.

23. The composition of claim 1 wherein:

the dry powder has a tap density of greater than about 0.4 g/cm^3;

wherein vancomycin or the pharmaceutically acceptable salt thereof is present in an amount of about 90% by weight of the composition; and

wherein the composition further comprises leucine in an amount of about 10% by weight of the composition.

24. The composition of claim 23, wherein the composition provides a median T_{max} value between one and three hours.

25. The composition of claim 23, wherein the composition provides a median T_{max} value greater than or equal to one hour.

26. The composition of claim 23, wherein the composition provides a median T_{max} value greater than or equal to 30 minutes.

27. The composition of claim 23, wherein the composition provides a median T_{max} value less than or equal to 6 hours.

28. The composition of claim 23, wherein the composition provides a mean maximum blood plasma concentration of vancomycin (C_{max}) within the range of about 50% to about 150% of about *n* x 620 ng/mL, wherein *n* is a value from 0.01 to 10 and *n* is 1 when the dose of vancomycin is 80 mg.

29. The composition of claim 23, wherein the composition provides a median $t_{1/2}$ value greater than 6 hours.

30. The composition of claim 23, wherein the composition provides a median $t_{1/2}$ value of about 8 hours.

31. The composition of claim 23, wherein the dry powder composition provides a delivery efficiency of 40% or more.

32. The composition of claim 22, wherein the dry powder composition provides a delivery efficiency of 60% or more.

33. The composition of claim 23, wherein the dry powder composition provides an absolute bioavailability of 40% or more.

34. The composition of claim 23, wherein the vancomycin or the pharmaceutically acceptable salt thereof is present in the dry powder composition in an amount of about 80 mg and wherein the dry powder composition provides:

a mean maximum blood plasma concentration of vancomycin (C_{max}) within the range of about 50% to about 150% of about 620 ng/mL;

a mean AUC_{0-24h} value within the range of about 50% to about 150% of about 6,250 nghr/mL; and

a median T_{max} value within the range of about 0.75 hours to about 3 hours, wherein the maximum blood plasma concentration of vancomycin, the AUC_{0-24h} value, and the T_{max} value are measured following a single pulmonary administration of the dry powder composition.

35. The composition of claim 23 wherein the vancomycin or the pharmaceutically acceptable salt thereof is present in the dry powder composition in an amount of about *n* x 80 mg and wherein the dry powder composition provides:

a mean maximum blood plasma concentration of vancomycin (C_{max}) within the range of about 50% to about 150% of about *n* x 620 ng/mL;

a mean AUC_{0-24h} value within the range of about 50% to about 150% of about *n* x 6,250 nghr/mL; and

a median T_{max} value within the range of about 0.5 to about 6 hours, wherein the maximum blood plasma concentration of vancomycin, the AUC_{0-24h} value, and the T_{max} value are measured following a single pulmonary administration of the dry powder composition;

wherein *n* is a value from 0.01 to 10.

36. A method comprising administering a dry powder composition comprising vancomycin or a pharmaceutically acceptable salt thereof to a subject via pulmonary administration.

37. The method of claim 32 wherein the subject is a mammal that has a pulmonary or airway infection.

38. The method of claim 33 wherein the pulmonary or airway infection is caused by bacteria or other pathogens susceptible to vancomycin or a pharmaceutically acceptable salt thereof.

39. The method of claim 33 wherein the pulmonary or airway infection is caused by a gram-positive bacteria.

40. The method of claim 35 wherein the gram-positive bacteria is methicillin-resistant *Staphylococcus aureus*.

41. The method of claim 33 wherein the subject has cystic fibrosis, bronchiectasis, or pneumonia.

42. The method of claim 33 wherein a dry powder inhaler is used to administer the dry powder composition.

43. The method of claim 38 wherein the dry powder inhaler is a capsule-based dry powder inhaler.

44. The method of claim 39 wherein the capsule-based dry powder inhaler is a Monodose inhaler.

45. The method of claim 32, wherein the composition provides a median T_{max} value between one and three hours.

46. The method of claim 32, wherein the composition provides a median T_{max} value greater than or equal to 30 minutes.

47. The method of claim 32, wherein the composition provides a median T_{max} value less than or equal to 6 hours.

48. The method of claim 32, wherein the composition provides a mean maximum blood plasma concentration of vancomycin (C_{max}) within the range of about 50% to about 150% of about *n* x 620 ng/mL, wherein *n* is a value from 0.01 to 10 and *n* is 1 when the dose of vancomycin is 80 mg.

49. The method of claim 32, wherein the composition provides a median $t_{1/2}$ value greater than 6 hours.

50. The method of claim 32, wherein the composition provides a median $t_{1/2}$ value of about 8 hours.

51. The method of claim 32, wherein the dry powder composition provides a delivery efficiency of 40% or more.

52. The method of claim 32, wherein the dry powder composition provides a delivery efficiency of 60% or more.

53. The method of claim 32, wherein the dry powder composition provides an absolute bioavailability of 40% or more.

54. The composition of claim 23 wherein the vancomycin or the pharmaceutically acceptable salt thereof is present in the dry powder composition in an amount of about *n* x 80 mg and wherein the dry powder composition provides:

a mean maximum blood plasma concentration of vancomycin (C_{max}) within the

range of about 50% to about 150% of about *n* x 620 ng/mL;

an mean $AUC_{0\text{-}24h}$ value within the range of about 50% to about 150% of about *n* x 6,250 nghr/mL; and

a median T_{max} value within the range of about 0.5 to about 6 hours, wherein the maximum blood plasma concentration of vancomycin, the $AUC_{0\text{-}24h}$ value, and the T_{max} value are measured following a single pulmonary administration of the dry powder composition;

wherein *n* is a value from 0.01 to 10.

55. A method comprising spray drying an aqueous composition comprising vancomycin, or a pharmaceutically acceptable salt thereof, and a hydrophobic amino acid so as to form a dry powder composition.

56. The method of claim 55 wherein the dry powder composition is substantially amorphous.

57. The method of claim 55 wherein the aqueous composition comprising vancomycin or a pharmaceutically acceptable salt thereof has a solids content of at least 1% by weight water.

58. The method of claim 55 wherein the aqueous composition comprising vancomycin or a pharmaceutically acceptable salt thereof has a solids content of at least 2% by weight water.

59. The method of claim 55 wherein the aqueous composition comprising vancomycin or a pharmaceutically acceptable salt thereof has a solids content of at least 4% by weight water.

60. A composition comprising vancomycin or a pharmaceutically acceptable salt thereof, wherein the composition is a dry powder.

61. The composition of claim 60, wherein the composition provides a median T_{max} value greater than or equal to 30 minutes.

62. The composition of claim 60, wherein the composition provides a median T_{max} value less than or equal to 6 hours.

63. The composition of claim 60, wherein the composition provides a mean maximum blood plasma concentration of vancomycin (C_{max}) within the range of about 50% to about 150% of about *n* x 620 ng/mL, wherein *n* is a value from 0.01 to 10 and *n* is 1 when the dose of vancomycin is 80 mg.

64. The composition of claim 60, wherein the composition provides a median $t_{1/2}$ value greater than 6 hours.

65. The composition of claim 60, wherein the dry powder composition provides a delivery efficiency of 40% or more.

66. The composition of claim 60, wherein the dry powder composition provides an absolute bioavailability of 40% or more.

67. The composition of claim 60 wherein the vancomycin or the pharmaceutically acceptable salt thereof is present in the dry powder composition in an amount of about *n* x 80 mg and wherein the dry powder composition provides:

a mean maximum blood plasma concentration of vancomycin (C_{max}) within the range of about 50% to about 150% of about *n* x 620 ng/mL;

an mean $AUC_{0\text{-}24h}$ value within the range of about 50% to about 150% of about *n* x 6,250 nghr/mL; and

a median T_{max} value within the range of about 0.5 to about 6 hours, wherein the maximum blood plasma concentration of vancomycin, the $AUC_{0\text{-}24h}$ value, and the T_{max} value are measured following a single pulmonary administration of the dry powder composition;

wherein *n* is a value from 0.01 to 10.

CLAIMS

1. A composition comprising vancomycin or a pharmaceutically acceptable salt thereof, and leucine, wherein leucine is present in an amount less than 30% by weight of the composition, wherein the composition is a dry powder, and wherein the dry powder is substantially amorphous.

2. The composition of claim 1 wherein the pharmaceutically acceptable salt comprises vancomycin hydrochloride.

3. The composition of claim 1, wherein leucine is present in an amount of about 10% to about 20% by weight of the composition.

4. The composition of claim 1, further comprising a carbohydrate bulking agent.

5. The composition of claim 4, wherein the carbohydrate bulking agent is selected from the group consisting of: lactose, mannitol, trehalose, raffinose, and a maltodextrin.

6. The composition of claim 4, wherein the carbohydrate bulking agent is trehalose.

7. The composition of claim 1, wherein the dry powder comprises particles having a mass median aerodynamic diameter of less than or equal to about 10 μm.

8. The composition of claim 1, wherein the dry powder comprises particles having a mass median aerodynamic diameter of greater than or equal to about 10 μm

9. The composition of claim 7, wherein at least 95% of the particles have a mass median aerodynamic diameter of less than about 10 μm.

10. The composition of claim 1, wherein the dry powder comprises particles having a mass median aerodynamic diameter greater than or equal to about 1 μm and less than or equal to 5 μm.

11. The composition of claim 1, wherein the dry powder is encapsulated in a capsule.

12. The composition of claim 11, wherein the capsule comprises hydroxypropyl methylcellulose.

13. The composition of claim 1, wherein the dry powder has a moisture content below about 10% by weight water.

14. The composition of claim 1, wherein the dry powder has a moisture content below about 7% by weight water.

15. The composition of claim 1, wherein the dry powder has a tap density of greater than about 0.4 g/cm^3.

16. The composition of claim 1 wherein:

the dry powder has a tap density of greater than about 0.4 g/cm^3;

wherein vancomycin or the pharmaceutically acceptable salt thereof is present in an amount of about 90% by weight of the composition; and

wherein leucine is present in an amount of about 10% by weight of the composition.

17. The composition of claim 16, wherein the composition provides a median T_{max} value between one and three hours.

18. The composition of claim 16, wherein the composition provides a median T_{max} value greater than or equal to one hour.

19. The composition of claim 16, wherein the composition provides a median T_{max} value greater than or equal to 30 minutes.

20. The composition of claim 16, wherein the composition provides a median T_{max} value less than or equal to 6 hours.

21. The composition of claim 16, wherein the composition provides a mean maximum blood plasma concentration of vancomycin (C_{max}) within the range of about 50% to about 150% of about n x 620 ng/mL, wherein n is a value from 0.01 to 10 and n is 1 when the dose of vancomycin is 80 mg.

22. The composition of claim 16, wherein the composition provides a median $t_{1/2}$ value greater than 6 hours.

23. The composition of claim 16, wherein the composition provides a median $t_{1/2}$ value of about 8 hours.

24. The composition of claim 16, wherein the dry powder composition provides a delivery efficiency of 40% or more.

25. The composition of claim 16, wherein the dry powder composition provides a delivery efficiency of 60% or more.

26. The composition of claim 16, wherein the dry powder composition provides an absolute bioavailability of 40% or more.

27. The composition of claim 16, wherein the vancomycin or the pharmaceutically acceptable salt thereof is present in the dry powder composition in an amount of about 80 mg and wherein the dry powder composition provides:

a mean maximum blood plasma concentration of vancomycin (C_{max}) within the range of about 50% to about 150% of about 620 ng/mL;

a mean $AUC_{0\text{-}24h}$ value within the range of about 50% to about 150% of about 6,250 nghr/mL; and

a median T_{max} value within the range of about 0.75 hours to about 3 hours, wherein the maximum blood plasma concentration of vancomycin, the $AUC_{0\text{-}24h}$ value, and the T_{max} value are measured following a single pulmonary administration of the dry powder composition.

28. The composition of claim 16, wherein the vancomycin or the pharmaceutically acceptable salt thereof is present in the dry powder composition in an amount of about *n* x 80 mg and wherein the dry powder composition provides:

a mean maximum blood plasma concentration of vancomycin (C_{max}) within the range of about 50% to about 150% of about *n* x 620 ng/mL;

a mean $AUC_{0\text{-}24h}$ value within the range of about 50% to about 150% of about *n* x 6,250 nghr/mL; and

a median T_{max} value within the range of about 0.5 to about 6 hours, wherein the maximum blood plasma concentration of vancomycin, the $AUC_{0\text{-}24h}$ value, and the T_{max} value are measured following a single pulmonary administration of the dry powder composition;

wherein *n* is a value from 0.01 to 10.

29. The composition of claim 16, wherein the vancomycin or the pharmaceutically acceptable salt thereof is present in the dry powder composition in an amount of about n x 80 mg and wherein the dry powder composition provides:

a mean maximum blood plasma concentration of vancomycin (Cmax) within the range of about 50% to about 150% of about n x 620 ng/mL;

an mean AUC0-24h value within the range of about 50% to about 150% of about n x 6,250 nghr/mL; and

a median T_{max} value within the range of about 0.5 to about 6 hours, wherein the maximum blood plasma concentration of vancomycin, the AUC0-24h value, and the T_{max}

value are measured following a single pulmonary administration of the dry powder composition;

wherein n is a value from 0.01 to 10.

30. A method comprising spray drying an aqueous composition comprising vancomycin, or a pharmaceutically acceptable salt thereof, and a hydrophobic amino acid so as to form a dry powder composition.

31. The method of claim 30, wherein the dry powder composition is substantially amorphous.

32. The method of claim 30, wherein the aqueous composition comprising vancomycin or a pharmaceutically acceptable salt thereof has a solids content of at least 1% by weight water.

33. The method of claim 30, wherein the aqueous composition comprising vancomycin or a pharmaceutically acceptable salt thereof has a solids content of at least 2% by weight water.

34. The method of claim 30, wherein the aqueous composition comprising vancomycin or a pharmaceutically acceptable salt thereof has a solids content of at least 4% by weight water.

35. The composition of claim 1, wherein the composition provides a median T_{max} value greater than or equal to 30 minutes.

36. The composition of claim 1, wherein the composition provides a median T_{max} value less than or equal to 6 hours.

37. The composition of claim 1, wherein the composition provides a mean maximum blood plasma concentration of vancomycin (C_{max}) within the range of about 50% to about 150% of about *n* x 620 ng/mL, wherein *n* is a value from 0.01 to 10 and *n* is 1 when the dose of vancomycin is 80 mg.

38. The composition of claim 1, wherein the composition provides a median $t_{1/2}$ value greater than 6 hours.

39. The composition of claim 1, wherein the dry powder composition provides a delivery efficiency of 40% or more.

40. The composition of claim 1, wherein the dry powder composition provides an absolute bioavailability of 40% or more.

41. The composition of claim 1, wherein the vancomycin or the pharmaceutically acceptable salt thereof is present in the dry powder composition in an amount of about *n* x 80 mg and wherein the dry powder composition provides:

a mean maximum blood plasma concentration of vancomycin (C_{max}) within the range of about 50% to about 150% of about *n* x 620 ng/mL;

an mean $AUC_{0\text{-}24h}$ value within the range of about 50% to about 150% of about *n* x 6,250 nghr/mL; and

a median T_{max} value within the range of about 0.5 to about 6 hours, wherein the maximum blood plasma concentration of vancomycin, the $AUC_{0\text{-}24h}$ value, and the T_{max} value are measured following a single pulmonary administration of the dry powder composition;

wherein *n* is a value from 0.01 to 10.