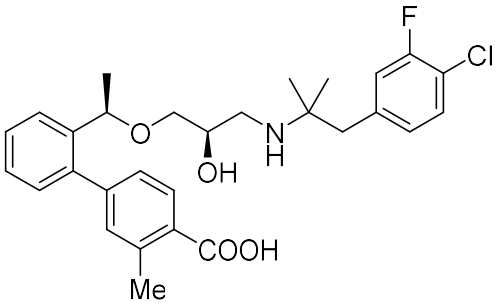
CLAIMS:

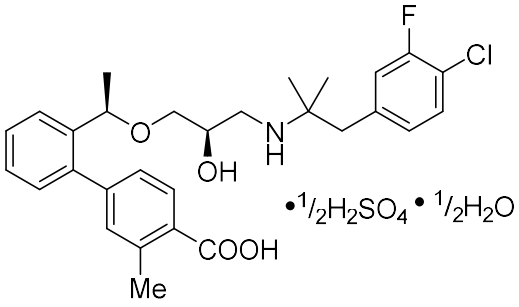
1. Use of a therapeutically effective amount of a compound represented by formula (I):



(I),

or a solvate, a hydrate, a pharmaceutically acceptable salt, or a combination thereof in the manufacture of a medicament for the treatment of an autosomal dominant hypocalcemia type 1(ADH1) in a subject in need thereof, wherein the therapeutically effective amount of the compound or the solvate, hydrate, pharmaceutically acceptable salt, or combination thereof increases a blood calcium concentration (cCa) to a range of about 7.5 milligrams per deciliter (mg/dL) to about 10.5 mg/dL, and wherein the compound is to be administered to the subject.

2. The use of claim **1**, wherein the compound is in a hemihydrate hemisulfate salt form as CLTX-305 represented by formula (Ia):



(Ia).

3. The use of claims **1** or **2**, wherein the subject has hypocalcemia, hypoparathyroidism, hypercalciuria, hyperphosphatemia, and/or hypomagnesemia.

4. The use of any one of claims **1** to **3**, wherein the subject has an activating mutation of the calcium-sensing receptor (*CASR*) gene.

5. The use of any one of claims **1** to **4**, wherein the subject has 25-hydroxy-vitamin D in blood at a level of at least about 25 nanograms per milliliter (ng/mL).

6. The use of any one of claims **1** to **5**, wherein the subject is not treated with calcitriol.

7. The use of any one of claims **1** to **6**, wherein the subject receives a daily calcium intake of at least about 1000 mg from diet and/or supplementation.

8. The use of any one of claims **1** to **7**, wherein the therapeutically effective amount is a total daily dosage of from about 10 mg to about 1800 mg, from about 10 mg to about 1200 mg, from about 10 mg to about 900 mg, from about 10 mg to about 600 mg, or from about 10 mg to about 360 mg of CLTX-305.

9. The use of claim **8**, wherein the therapeutically effective amount is a total daily dosage of about 10 mg, 20 mg, 30 mg, 40 mg, 60 mg, 80 mg, 120 mg, 140 mg, 180 mg, 300 mg, 360 mg, 480 mg, or 720 mg of CLTX-305.

10. The use of any one of claims **1** to **9**, wherein the compound of formula (I) or CLTX-305 is to be administered orally.

11. The use of any one of claims **1** to **10**, wherein the compound of formula (I) or CLTX-305 is to be administered once, twice, three times, or four times daily.

12. The use of claim **11**, wherein the compound of formula (I) or CLTX-305 is to be administered twice daily.

13. The use of any one of claims **1** to **12**, wherein the therapeutically effective amount of the compound of formula (I) or CLTX-305 increases the blood calcium concentration (cCa) by at least about 1 mg/dL over a dosing interval.

14. The use of any one of claims **1** to **13**, wherein the therapeutically effective amount of the compound of formula (I) or CLTX-305 increases intact parathyroid hormone (iPTH) in blood to a peak level of from about 150 picograms per milliliter (pg/mL) to about 300 pg/mL.

15. The use of any one of claims **1** to **14**, wherein the therapeutically effective amount of the compound of formula (I) or CLTX-305 increases intact parathyroid hormone (iPTH) in blood to an elevated level of at least about 50 pg/mL.

16. The use of claim **15**, wherein the iPTH is maintained at the elevated level of at least about 50 pg/mL for a period of 1-12 hours.

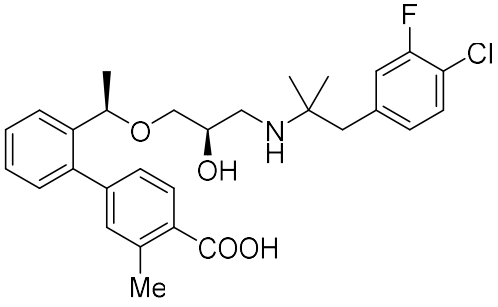
17. The use of claim **16**, wherein the iPTH is maintained at the elevated level of at least about 50 pg/mL for a period of about 12 hours.

18. The use of any one of claims **1** to **17**, wherein the subject is further evaluated for a level of magnesium, (Mg), phosphate (P), sodium (Na), potassium (K), creatinine (Cr), cAMP, and/or citrate in urine and/or a pH value of the urine.

19. The use of any one of claims **1** to **18**, wherein the therapeutically effective amount of the compound of formula (I) or CLTX-305 maintains the blood calcium concentration (cCa) in a range of about 7.5 mg/dL to about 10.5 mg/dL for a period of at least 12 weeks without substantially adjusting the total daily dosage.

20. The use of any one of claims **1** to **19**, wherein an oral calcium supplementation is to be administered in addition to the daily calcium intake.

21. Use of a compound represented by formula (I):



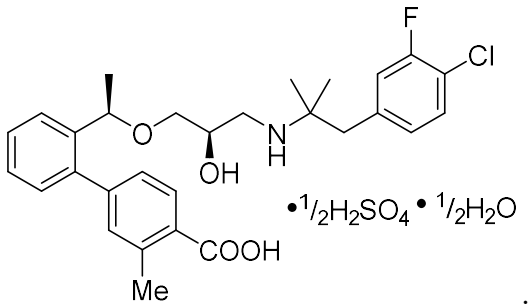
(I),

or a solvate, a hydrate, a pharmaceutically acceptable salt, or a combination thereof in the manufacture of a medicament for the treatment of an autosomal dominant hypocalcemia type 1(ADH1) in a subject in need thereof, wherein the compound is to be administered to the subject according to one or more dosing regimens comprising a first dosing regimen, a second dosing regimen, and/or a third dosing regimen,

wherein:

1) the first dosing regimen comprises a first therapeutically effective amount of the compound or the solvate, hydrate, pharmaceutically acceptable salt, or combination thereof to be administered, wherein the first therapeutically effective amount increases a blood calcium concentration (cCa) up to a maximum cCa of about 10.5 milligrams per deciliter (mg/dL);
2) the second dosing regimen comprises a second therapeutically effective amount of the compound or the solvate, hydrate, pharmaceutically acceptable salt, or combination thereof to be administered, wherein the second therapeutically effective amount titrates the blood calcium concentration (cCa) to a range of about 7.5 mg/dL to about 10.5 mg/dL; and
3) the third dosing regimen comprises a third therapeutically effective amount of the compound or the solvate, hydrate, pharmaceutically acceptable salt, or combination thereof to be administered, wherein the third therapeutically effective amount maintains the blood calcium concentration (cCa) in a range of about 7.5 mg/dL to about 10.5 mg/dL for a period of at least 12 weeks.

22. The use of claim **21**, wherein the compound of formula (I) is in a hemihydrate hemisulfate salt form as CLTX-305 represented by the formula:



.

23. The use of claim **21** or **22**, wherein the compound of formula (I) or CLTX-305 is to be administered orally.

24. The use of any one of claims **21** to **23**, wherein the subject has hypocalcemia, hypoparathyroidism, hypercalciuria, hyperphosphatemia, and/or hypomagnesemia.

25. The use of any one of claims **21** to **24**, wherein the subject has an activating mutation of the calcium-sensing receptor (*CASR*) gene.

26. The use of any one of claims **21** to **25**, wherein the patient has 25-hydroxy-vitamin D in blood at a level of at least about 25 nanograms per milliliter (ng/mL).

27. The use of any one of claims **21** to **26**, wherein the patient is not treated with calcitriol.

28. The use of any one of claims **21** to **27**, wherein the patient receives a daily calcium intake of at least about 1000 mg either from diet or supplementation.

29. The use of any one of claims **21** to **28**, wherein the first dosing regimen comprises a total daily dosage of at least about 10 mg, 20 mg, 30 mg, 40 mg, 60 mg, 80 mg, 90 mg, 120 mg, 140 mg, 180 mg, 300 mg, or 360 mg of CLTX-305.

30. The use of claim **29**, wherein the first dosing regimen comprises an initial total daily dosage of about 30 mg of CLTX-305.

31. The use of any one of claims **21** to **30**, wherein the first dosing regimen comprises CLTX-305 to be administered in a daily dosing frequency of 1 to 4 times daily.

32. The use of claim **31**, wherein the first dosing regimen comprises CLTX-305 to be administered once daily for initial three days and twice daily for two days.

33. The use of any one of claims **21** to **32**, wherein the first dosing regimen comprises:

a1) increasing the total daily dosage, when the blood calcium concentration (cCa) is less than a maximum cCa of about 10.5 mg/dL;

b1) decreasing the total daily dosage, when the blood calcium concentration (cCa) reaches the maximum cCa; and/or

c1) increasing the daily dosing frequency while maintaining the total daily dosage, when the blood calcium concentration (cCa) reaches the maximum cCa.

34. The use of claim **33**, wherein the blood calcium concentration (cCa) is determined after each of one or more once-daily dosages and one or more twice-daily dosages.

35. The use of claim **34**, wherein the total daily dosage is increased from about 30 mg to about 60 mg, from about 30 mg to about 90 mg, from about 10 mg to about 20 mg, from about 20 mg to about 40 mg, from about 60 mg to about 90 mg, from about 60 mg to about 120 mg, from about 90 mg to about 120 mg, from about 90 mg to about 180 mg, or from about 180 mg to about 360 mg of CLTX-305.

36. The use of claim **34**, wherein the total daily dosage is decreased from about 30 mg to about 10 mg, from about 40 mg to about 20 mg, from about 60 mg to about 30 mg, from about 90 mg to about 60 mg, from about 90 mg to about 30 mg, from about 120 mg to about 90 mg, from about 120 mg to about 60 mg, from about 180 mg to about 120 mg, from about 180 mg to about 90 mg, from about 180 mg to about 60 mg, or from about 360 mg to about 180 mg of CLTX-305.

37. The use of claim **34**, wherein the daily dosing frequency is increased from once to twice daily while maintaining the total daily dosage of about 30 mg, 60 mg, 90 mg, or 180 mg of CLTX-305.

38. The use of any one of claims **21** to **37**, wherein the first dosing regimen further comprises:

i) selecting a lowest dosage among one or more once-daily dosages to be administered twice daily, provided that the one or more once-daily dosages meet a criteria selected from the group consisting of:

i-1) the blood calcium concentration (cCa) is increased by at least about 1 mg/dL over a dosing interval;

i-2) the blood calcium concentration (cCa) is maintained in a range of about 7.5 to about 10.5 mg/dL;

i-3) intact parathyroid hormone (iPTH) in blood is increased to a peak level of from about 150 pg/mL to about 300 pg/mL; and

i-4) intact parathyroid hormone (iPTH) in blood is increased to an elevated level of at least about 50 pg/mL and maintained for a period of about 12 hours,

or

ii) selecting a highest dosage among one or more once-daily dosages to be administered twice daily, provided that the one or more once-daily dosages do not meet any one of criteria i-1) to i-4); and the highest dosage is tolerable in the subject.

39. The use of any one of claims **21** to **38**, wherein the second dosing regimen comprises a total daily dosage of at least about 10 mg, 20 mg, 40 mg, 60 mg, 80 mg, 120 mg, 140 mg, 180 mg, 300 mg, 360 mg, 480 mg, or 720 mg of CLTX-305.

40. The use of claim **39**, wherein the second dosing regimen comprises an initial total daily dosage of about 10 mg, 20 mg, 30 mg, 60 mg, 80 mg, 90 mg, 120 mg, 140 mg, 180 mg, 300 mg, 360 mg, 480 mg, or 720 mg of CLTX-305.

41. The use of any one of claims **21** to **40**, wherein the second dosing regimen comprises CLTX-305 to be administered in a daily dosing frequency of 2 to 4 times daily.

42. The method of claim **41**, wherein the second dosing regimen comprises CLTX-305 to be administered twice daily for five days.

43. The use of any one of claims **21** to **42**, wherein the second dosing regimen comprises:

a2) maintaining the total daily dosage, when the blood calcium concentration (cCa) is maintained in a range of from about 7.5 mg/dL to about 10.5 mg/dL;

b2) increasing the total daily dosage, when the blood calcium concentration (cCa) is less than about 7.5 mg/dL; and/or

c2) decreasing the total daily dosage when the blood calcium concentration (cCa) is more than about 10.5 mg/dL.

44. The use of claim **43**, wherein the blood calcium concentration (cCa) is determined after the first dosing regimen or after initial two days of the second dosing regimen.

45. The use of claim **44**, wherein the total daily dosage is increased from about 20 mg to about 40 mg, from about 40 mg to about 60 mg, from about 60 mg to about 120 mg, from about 120 mg to about 180 mg, from about 180 mg to about 360 mg, from about 360 mg to about 480 mg, or from about 480 mg to about 720 mg of CLTX-305.

46. The use of claim **44**, wherein the total daily dosage is decreased from about 40 mg to about 20 mg, from about 60 mg to about 40 mg, from about 120 mg to about 60 mg, from about 180 mg to about 120 mg, from about 360 mg to about 180 mg, or from about 480 mg to about 360 mg of CLTX-305.

47. The use of any one of claims **21** to **46**, wherein the third dosing regimen comprises a total daily dosage of at least about 10 mg, 20 mg, 40 mg, 60 mg, 80 mg, 120 mg, 140 mg, 180 mg, 300 mg, 360 mg, 480 mg, or 720 mg of CLTX-305.

48. The use of claim **47**, wherein the third dosing regimen comprises an initial total daily dosage of about 10 mg, 20 mg, 40 mg, 60 mg, 80 mg, 120 mg, 140 mg, 180 mg, 300 mg, 360 mg, 480 mg, or 720 mg of CLTX-305.

49. The use of any one of claims **21** to **48**, wherein the third dosing regimen comprises CLTX-305 to be administered in a daily dosing frequency of 2 to 4 times daily.

50. The use of claim **49**, wherein the third dosing regimen comprises CLTX-305 to be administered twice daily for at least 24 weeks.

51. The use of any one of claims **21** to **50**, wherein the third dosing regimen comprises titrating the total daily dosage while maintaining the blood calcium concentration (cCa) in a range of from about 7.5 mg/dL to about 10.5 mg/dL.

52. The use of claim **51**, wherein the third dosing regimen comprises:

a3) maintaining the total daily dosage when the blood calcium concentration (cCa) is in a range of from about 7.5 mg/dL to about 10.5 mg/dL;

b3) increasing the total daily dosage when the blood calcium concentration (cCa) is less than about 7.5 mg/dL; and/or

c3) decreasing the total daily dosage when the blood calcium concentration (cCa) is more than about 10.5 mg/dL.

53. The use of any one of claims **21**, **47** to **52**, wherein the third dosing regimen reduces symptoms associated with hypocalcemia and hypercalcemia, and minimizes hypercalciuria in the subject.

54. The use of any one of claims **21**, **47** to **53**, wherein the third dosing regimen maintains the blood calcium concentration (cCa) in a range of about 7.5 mg/dL to about 10.5 mg/dL for a period of at least 24 weeks.

55. The use of any one of claims **21**, **47** to **53**, wherein the third dosing regimen further comprises an oral calcium supplementation to be administered in addition to the daily calcium intake.

56. The use of any one of claims **21** to **55**, wherein the subject is evaluated by one or more tests comprising blood analyses, urine analyses, and/or hematology tests.