

WHAT IS CLAIMED IS:

1. A method of preventing, slowing the progression of, arresting, and/or reversing calciphylaxis in a subject in need thereof, the method comprising administering to the subject an effective amount of a composition comprising substantially pure menaquinone-7 (MK-7) and/or menaquinol-7 (MKH2-7) thereby to prevent, slow the progression of, arrest, or reverse calciphylaxis.
2. The method of claim 1, wherein the subject has distal calciphylaxis and/or central calciphylaxis.
3. The method of claim 1 or 2, wherein the subject has diabetes, chronic kidney disease or end stage renal disease.
4. The method of claim 3, wherein the subject has stage 3 chronic kidney disease.
5. The method of claim 3, wherein the subject has stage 4 chronic kidney disease.
6. The method of claim 3, wherein the subject has stage 5 chronic kidney disease.
7. The method of any one of claims 1-6, wherein the subject is undergoing hemodialysis.
8. The method of any one of claims 1-7, wherein the subject is receiving non-warfarin-based anti-coagulant therapy.
9. The method of claim 8, wherein the anti-coagulant therapy is oral anti-coagulation therapy.
10. The method of claim 8, wherein the anti-coagulation therapy comprises an inhibitor of Factor Xa activity (*e.g.*, apixaban, rivaroxaban, betrixaban, edoxaban, otamixaban, letaxaban, eribaxaban or fondaparinux) or Factor IIa activity (*e.g.*, dabigatran or argatroban).
11. The method of any one of claims 1-10, wherein the subject has chronic obstructive pulmonary disease (COPD).
12. The method of any one of claims 1-11, wherein the subject has a calciphylaxis-related dermal lesion.
13. The method of claim 12, wherein administration of the composition reduces the size of the dermal lesion.

14. The method of claim 13, wherein administration of the composition reduces the total surface area of the dermal lesion by at least 5%, 10%, 15%, 20%, 25%, 30%, 35%, 40%, 45%, 50%, 55%, 60%, 65%, 70%, 75%, 80%, 85%, 90%, 95%, or 100%.
15. The method of any one of claim 1-14, whereupon administration of the MK-7 and/or MKH2-7 to the subject increases the subject's serum T50 value (*e.g.*, by at least 5%, 10%, 15%, 20%, 25%, 30%, 35%, 40%, 45%, 50%, 55%, 60%, 65%, 70%, 75%, 80%, 85%, 90%, 95%, or 100%) relative to the subject's serum T50 value prior to administration of the MK-7 and/or MKH2-7.
16. The method of any one of claims 1-15, wherein administration of the MK-7 and/or MKH2-7 (a) increases a ratio of a carboxylated to a non-carboxylated of a Vitamin K dependent protein or (b) decreases an amount of a non-carboxylated Vitamin K dependent protein in plasma of the subject relative to the ratio or amount present prior to administration of the MK-7 and/or MKH2-7.
17. The method of claim 16, wherein the Vitamin K-dependent protein is selected from Matrix Gla Protein, Growth Arrest Specific Gene 6 (Gas-6) protein, PIVKA-II protein, osteocalcin, activated Protein C, or activated Protein S.
18. The method of any one of claims 1-17, wherein upon administration of the MK-7 and/or MKH2-7 to the subject increases a plasma level of osteoprotegerin or Fetuin A relative to the plasma level of osteoprotegerin or Fetuin A prior to administration of the MK-7 and/or MKH2-7.
19. The method of any one of claims 1-18, wherein upon administration of the MK-7 and/or MKH2-7 to the subject decreases a plasma level of D-Dimer or Highly Sensitive C Reactive Protein (hs-CRP) relative to the plasma level of D-Dimer or Highly Sensitive C Reactive Protein (hs-CRP) prior to administration of the MK-7 and/or MKH2-7.
20. The method of any one of claims 1-19, wherein, prior to administration of the composition, the subject has a uremic oxidative blockade.
21. A method of preventing, slowing the progression of, and/or reversing one or more symptoms of chronic obstructive pulmonary disease (COPD) in a subject in need thereof, the method comprising administering to the subject at least 2 mg of substantially pure menaquinone-7 (MK-7) and/or menaquinol-7 (MKH2-7) per day, thereby to prevent, or

- slow the progression of, or reverse the one or more symptoms of COPD, wherein the MK7 and/or MKH2-7 is administered in a pharmaceutical composition.
22. The method of claim 21, wherein the one or more symptoms is selected from the group consisting of breathing difficulty, cough, mucus production, wheezing, and elastinolysis.
23. A method of preventing calciphylaxis in a subject in need thereof or slowing the progression of, arresting, and/or reversing tissue calcification in a subject with calciphylaxis, the method comprising administering to the subject
- (a) at least 2 mg of substantially pure menaquinone-7 (MK-7) and/or menaquinol-7 (MKH2-7) per day; and
 - (b) a statin.
24. The method of claim 23, wherein the statin is selected from simvastatin, lovastatin, atorvastatin, pravastatin, pitavastatin, rosuvastatin, and fluvastatin.
25. The method of claim 23 or 24, wherein the MK-7 and/or MKH2-7 is administered in the same dosage form as the statin.
26. The method of claim 23 or 24, wherein the MK-7 and/or MKH2-7 is administered in a separate dosage form from the statin.
27. The method of any one of claims 1-26, wherein at least 2 mg of MK-7 and/or MKH2-7 is administered to the subject per day.
28. The method of any one of claims 1-27, wherein from about 5 mg to about 100 mg of MK-7 and/or MKH2-7 is administered to the subject per day.
29. The method of any one of claims 1-28, wherein from about 10 mg to about 50 mg of MK-7 and/or MKH2-7 is administered to the subject per day.
30. The method of any one of claims 1-29, wherein 10, 25, 50, 75 or 100 mg of MK-7 and/or MKH2-7 is administered to the subject per day.
31. The method of any of claims 1-30, wherein the composition is administered to the subject for at least 2 weeks.
32. The method of any one of claims 1-31, wherein the composition is administered to the subject for at least 6 weeks.

33. The method of any one of claims 7-32, wherein the composition is administered to the subject for a period that includes the duration of hemodialysis.
34. The method of any one of claims 1-33, wherein the composition is administered daily.
35. The method of any one of claims 1-34, wherein the composition is administered orally.
36. The method of any one of claims 1-35, wherein the composition is disposed within a tablet, caplet, or capsule.
37. The method of any one of claims 1-36, wherein the composition comprises MK-7 and/or MKH2-7 and a pharmaceutically acceptable excipient.
38. A method for preventing calciphylaxis in a subject or slowing the progression of, arresting, and/or reversing tissue calcification in a subject with calciphylaxis, the method comprising administering to the subject at least 2 mg of substantially pure menaquinone-7 (MK-7) and/or menaquinol-7 (MKH2-7) per day, wherein the subject is taking calcium-based phosphate binders and/or vitamin D analogs.
39. The method of claim 38, wherein the subject has hyperparathyroidism.
40. The method of claim 38 or 39, wherein at least 2 mg of MK-7 and/or MKH2-7 is administered to the subject per day.
41. The method of any one of claims 38-40, wherein from about 5 mg to about 100 mg of MK-7 and/or MKH2-7 is administered to the subject per day.
42. The method of any one of claims 38-41, wherein from about 10 mg to about 50 mg of MK-7 and/or MKH2-7 is administered to the subject per day.
43. The method of any one of claims 38-41, wherein 10, 25, 50, 75 or 100 mg of MK-7 and/or MKH2-7 is administered to the subject per day.
44. The method of any of claims 38-43, wherein the composition is administered to the subject for at least 2 weeks.
45. The method of any one of claims 38-44, wherein the composition is administered to the subject for at least 6 weeks.
46. The method of any one of claims 38-45, wherein the composition is administered daily.
47. The method of any one of claims 38-46, wherein the composition is administered orally.

48. The method of any one of claims 38-47, wherein the composition is disposed within a tablet, caplet, or capsule.
49. The method of any one of claims 38-48, wherein the composition comprises MK-7 and/or MKH2-7 and a pharmaceutically acceptable excipient.