

What is claimed is:

1. A solid form comprising an acid salt of sulcardine, wherein the acid is ethane-1,2-disulfonic acid, naphthalene-1,5-disulfonic acid, 1-hydroxy-2-naphthoic acid, naphthalene-2-sulfonic acid, hydrochloric acid, or hydrobromic acid.
2. The solid form of claim 1, which is crystalline.
3. The solid form of claim 1, comprising an ethane-1,2-disulfonic acid salt of sulcardine.
4. The solid form of claim 3, characterized by an XRPD pattern comprising peaks at approximately 18.8, 20.2, and 21.2° 2 θ .
5. The solid form of claim 4, wherein the XRPD pattern further comprises peaks at approximately 9.2, 10.4, and 13.8° 2 θ .
6. The solid form of claim 5, wherein the XRPD pattern further comprises peaks at approximately 9.6, 14.2, and 14.9° 2 θ .
7. The solid form of claim 4, characterized by an XRPD pattern that matches the XRPD pattern presented in FIG. 26.
8. The solid form of claim 3, characterized by an XRPD peak at about 14.2° 2 θ and an FT-IR spectrum comprising a peak above about 3500 cm⁻¹.
9. The solid form of claim 8, characterized by an XRPD peak at about 14.2° 2 θ with the absence of a peak at about 5.2° 2 θ , and an FT-IR spectrum comprising a peak above about 3500 cm⁻¹, and further optionally comprising one or more FT-IR peaks at about 1206 cm⁻¹ and about 814 cm⁻¹.
10. The solid form of claim 3, characterized by an XRPD pattern having two peaks between about 9.0° 2 θ and about 9.8° 2 θ , optionally wherein the difference between the two peaks is about 0.4° 2 θ , and an FT-IR spectrum comprising a peak above about 3500 cm⁻¹, and further optionally comprising one or more FT-IR peaks at about 1206 cm⁻¹ and about 814 cm⁻¹.
11. The solid form of claim 3, characterized by an XRPD pattern comprising one or more peaks at about 9.2° 2 θ , about 9.6° 2 θ , about 10.4° 2 θ , about 13.8° 2 θ , about 14.2° 2 θ , and about 14.9° 2 θ , and an FT-IR spectrum comprising a peak above about 3500 cm⁻¹, and further optionally comprising one or more FT-IR peaks at about 1206 cm⁻¹ and about 814 cm⁻¹.

12. The solid form of any one of claims 8 to 11, wherein the peak at above about 3500 cm^{-1} is at about 3556 cm^{-1} .
13. The solid form of any one of claims 4 to 12, which is a mono- ethane-1,2-disulfonic acid salt of sulcardine.
14. The solid form of claim 13, which is a mono-hydrate of a mono- ethane-1,2-disulfonic acid salt of sulcardine.
15. The solid form of claim 3, characterized by an XRPD pattern comprising peaks at approximately 15.7 , 16.9 , and $23.6^\circ 2\theta$.
16. The solid form of claim 15, wherein the XRPD pattern further comprises peaks at approximately 5.2 , 9.1 , and $11.3^\circ 2\theta$.
17. The solid form of claim 16, wherein the XRPD pattern further comprises peaks at approximately 17.6 and $19.2^\circ 2\theta$.
18. The solid form of claim 15, characterized by an XRPD pattern that matches the XRPD pattern presented in FIG. 28.
19. The solid form of claim 3, characterized by an XRPD pattern having a peak at about $5.2^\circ 2\theta$, and an FT-IR spectrum comprising no peak above about 3500 cm^{-1} , and further optionally comprising one or more peaks at about 3374 cm^{-1} and about 826 cm^{-1} .
20. The solid form of claim 3, characterized by an XRPD pattern comprising one or more peaks at about $5.2^\circ 2\theta$, about $9.1^\circ 2\theta$, about $10.2^\circ 2\theta$, about $10.8^\circ 2\theta$, about $11.3^\circ 2\theta$, about $13.6^\circ 2\theta$, and about $15.7^\circ 2\theta$, and an FT-IR spectrum comprising no peak above about 3500 cm^{-1} , and further optionally comprising one or more peaks at about 3374 cm^{-1} and about 826 cm^{-1} .
21. The solid form of any one of claims 15 to 20, which is a mono- ethane-1,2-disulfonic acid salt of sulcardine.
22. The solid form of claim 21, which is a di-hydrate of a mono- ethane-1,2-disulfonic acid salt of sulcardine.
23. The solid form of claim 3, characterized by an XRPD pattern comprising peaks at approximately 14.1 , 17.8 , and $23.7^\circ 2\theta$.
24. The solid form of claim 23, wherein the XRPD pattern further comprises peaks at

approximately 5.6 and 14.9° 2 θ .

25. The solid form of claim 24, wherein the XRPD pattern further comprises peaks at approximately 11.0 and 13.0° 2 θ .

26. The solid form of claim 23, characterized by an XRPD pattern that matches the XRPD pattern presented in FIG. 19.

27. The solid form of any one of claims 23 to 26, which is a hemi- ethane-1,2-disulfonic acid salt of sulcardine.

28. The solid form of claim 1, comprising a naphthalene-1,5-disulfonic acid salt of sulcardine.

29. The solid form of claim 28, characterized by an XRPD pattern comprising peaks at approximately 14.9, 15.9, and 23.6° 2 θ .

30. The solid form of claim 29, wherein the XRPD pattern further comprises peaks at approximately 4.9 and 10.4° 2 θ .

31. The solid form of claim 30, wherein the XRPD pattern further comprises peaks at approximately 11.3, 12.3, and 19.0° 2 θ .

32. The solid form of claim 29, characterized by an XRPD pattern that matches the XRPD pattern presented in FIG. 1.

33. The solid form of claim 1, comprising a 1-hydroxy-2-naphthoic acid salt of sulcardine.

34. The solid form of claim 33, characterized by an XRPD pattern comprising peaks at approximately 16.8, 18.6, and 18.9° 2 θ .

35. The solid form of claim 34, wherein the XRPD pattern further comprises peaks at approximately 6.7 and 6.9° 2 θ .

36. The solid form of claim 35, wherein the XRPD pattern further comprises peaks at approximately 13.8, 20.3, and 20.8° 2 θ .

37. The solid form of claim 34, characterized by an XRPD pattern that matches the XRPD pattern presented in FIG. 6.

38. The solid form of claim 33, characterized by an XRPD pattern comprising peaks at

approximately 5.8, 18.6, and 19.9° 2 θ .

39. The solid form of claim 38, wherein the XRPD pattern further comprises peaks at approximately 10.6, 17.8, and 21.4° 2 θ .

40. The solid form of claim 39, wherein the XRPD pattern further comprises peaks at approximately 20.6 and 25.3° 2 θ .

41. The solid form of claim 38, characterized by an XRPD pattern that matches the XRPD pattern presented in FIG. 9.

42. The solid form of any one of claims 38 to 41, which has approximately unit cell dimensions of: $a = 10.2 \text{ \AA}$, $b = 29.9 \text{ \AA}$, $c = 10.8 \text{ \AA}$, $\alpha = 90^\circ$, $\beta = 103.4^\circ$, and $\gamma = 90^\circ$.

43. The solid form of claim 1, comprising a naphthalene-2-sulfonic acid salt of sulcardine.

44. The solid form of claim 43, characterized by an XRPD pattern comprising peaks at approximately 17.2, 17.8, and 21.3° 2 θ .

45. The solid form of claim 44, wherein the XRPD pattern further comprises peaks at approximately 13.3, 13.5, 16.6, and 16.9° 2 θ .

46. The solid form of claim 45, wherein the XRPD pattern further comprises peaks at approximately 9.4 and 10.6° 2 θ .

47. The solid form of claim 44, characterized by an XRPD pattern that matches the XRPD pattern presented in FIG. 13.

48. The solid form of claim 1, comprising a sulcardine hydrochloride salt.

49. The solid form of claim 48, characterized by an XRPD pattern comprising peaks at approximately 12.3, 13.0, and 17.8° 2 θ .

50. The solid form of claim 49, wherein the XRPD pattern further comprises peaks at approximately 13.9, 17.4, and 23.9° 2 θ .

51. The solid form of claim 50, wherein the XRPD pattern further comprises peaks at approximately 20.3 and 21.9° 2 θ .

52. The solid form of claim 49, characterized by an XRPD pattern that matches the XRPD pattern presented in FIG. 17.

53. The solid form of claim 48, characterized by an XRPD pattern comprising peaks at approximately 13.5, 19.6, and 20.6° 2 θ .
54. The solid form of claim 53, wherein the XRPD pattern further comprises peaks at approximately 10.1, 11.8, and 16.4° 2 θ .
55. The solid form of claim 54, wherein the XRPD pattern further comprises peaks at approximately 17.8, 19.4, and 25.5° 2 θ .
56. The solid form of claim 53, characterized by an XRPD pattern that matches the XRPD pattern presented in FIG. 17A.
57. The solid form of claim 1, comprising a sulcardine hydrobromide salt.
58. The solid form of claim 57, characterized by an XRPD pattern comprising peaks at approximately 17.9, 19.7, and 24.0° 2 θ .
59. The solid form of claim 58, wherein the XRPD pattern further comprises peaks at approximately 14.1 and 14.9° 2 θ .
60. The solid form of claim 59, wherein the XRPD pattern further comprises peaks at approximately 5.7, 13.0, and 16.2° 2 θ .
61. The solid form of claim 58, characterized by an XRPD pattern that matches the XRPD pattern presented in FIG. 23.
62. A pharmaceutical composition comprising a solid form of any one of claims 1 to 61, and one or more pharmaceutically acceptable excipients.
63. A method of treating arrhythmia, comprising administering to a subject in need thereof a therapeutically effective amount of a solid form of any one of claims 1 to 61, or a pharmaceutical composition of claim 62.
64. The method of claim 63, wherein the arrhythmia is atrial fibrillation, supraventricular tachyarrhythmia, premature ventricular contraction, ventricular tachycardia, or ventricular fibrillation.