WHAT IS CLAIMED IS:

1. An isolated anti-hepsin antibody, wherein a monovalent form of the antibody binds human hepsin with an affinity of less than or equal to 10 nM or better, wherein a monovalent form of the antibody binds mouse hepsin with an affinity of less than or equal to 330 nM, and wherein the antibody binds hepsin present in a complex comprising hepsin and a serine protease inhibitor that binds the human hepsin S1 subsite, and wherein the antibody comprises:

(a) HVR-H1 comprising sequence GFNFSYSYMH (SEQ ID NO:4);

(b) HVR-H2 comprising sequence ASIYSYYGSTYYADSVKG (SEQ ID NO:5);

(c) HVR-H3 comprising sequence ARSDSWSYKSGYTQKIYSKGLDY (SEQ ID NO:6)

(d) HVR-L1 comprising sequence RASQSVSSAVA (SEQ ID NO:1);

(e) HVR-L2 comprising sequence SASSLYS (SEQ ID NO:2); and

(f) HVR-L3 comprising sequence QQYYSSYYLLT (SEQ ID NO:3).

2. The antibody of claim 1, wherein the serine protease inhibitor is 3,4-dichloro-isocoumarin (DCI).

3. The antibody of claim 1, wherein the antibody inhibits hepsin-mediated activation of macrophage stimulating protein (MSP).

4. The antibody of claim 1, wherein the antibody inhibits laminin-dependent cell migration.

5. The antibody of claim 1, further comprising a heavy chain variable domain framework sequence selected from the group consisting of SEQ ID NOs: 14, 15, 48, 16 and 43; or light chain variable domain framework sequence selected from the group consisting of SEQ ID NOs.: 17, 18, 19, 20, 49, 50, 51, 52, 53, 54, 55, 56, 57, and 58.

6. The antibody of claim 1, comprising (a) a VH sequence having at least 95% sequence identity to the amino acid sequence of SEQ ID NO:10; or (b) a VL sequence having at least 95% sequence identity to the amino acid sequence of SEQ ID NO:9; or (c) a VH sequence as in (a) and a VL sequence as in (b).

7. The antibody of claim 6, comprising a VH sequence of SEQ ID NO:10 and a VL sequence of SEQ ID NO:9.

8. The antibody of any of the preceding claims, which is a full length IgG1 antibody.

9. The antibody of any of the preceding claims, wherein the antibody comprises human κ subgroup consensus framework sequence.

10. The antibody of any of the preceding claims, wherein the antibody comprises heavy chain human subgroup III consensus framework sequence.

11. Isolated nucleic acid encoding the antibody of any of the preceding claims.

12. An immunoconjugate comprising the antibody of claim 1 and a cytotoxic agent.

13. A pharmaceutical formulation comprising the antibody of claim 1 and a pharmaceutically acceptable carrier.

WHAT IS CLAIMED IS:

1. An isolated anti-hepsin antibody, wherein a monovalent form of the antibody binds human hepsin with an affinity of less than or equal to 10 nM or better, wherein a monovalent form of the antibody binds mouse hepsin with an affinity of less than or equal to 330 nM, and wherein the antibody binds hepsin present in a complex comprising hepsin and a serine protease inhibitor that binds the human hepsin S1 subsite.

2. The antibody of claim 1, wherein the serine protease inhibitor is 3,4-dichloro-isocoumarin (DCI).

3. The antibody of claim 1, wherein the antibody binds a Kunitz domain binding region of hepsin.

4. The antibody of claim 1, wherein the antibody blocks substrate binding to hepsin subsite 2 and/or hepsin subsite 3.

5. The antibody of claim 1, wherein the antibody inhibits hepsin-mediated activation of macrophage stimulating protein (MSP).

6. The antibody of claim 1, wherein the antibody inhibits laminin-dependent cell migration.

7. The antibody of claim 1, wherein the antibody comprises: at least one, two, three, four, five, and/or six hypervariable region (HVR) sequences selected from the group consisting of:

(a) HVR-L1 comprising sequence RASQSVSSAVA (SEQ ID NO:1);

(b) HVR-L2 comprising sequence SASSLYS (SEQ ID NO:2);

(c) HVR-L3 comprising sequence QQYYSSYYLLT (SEQ ID NO:3);

(d) HVR-H1 comprising sequence GFNFSYSYMH (SEQ ID NO:4);

(e) HVR-H2 comprising sequence ASIYSYYGSTYYADSVKG (SEQ ID NO:5); and

(f) HVR-H3 comprising sequence ARSDSWSYKSGYTQKIYSKGLDY (SEQ ID NO:6).

8. The antibody of claim 7, wherein the antibody comprises (a) HVR-H3 comprising sequence ARSDSWSYKSGYTQKIYSKGLDY (SEQ ID NO:6); (b) HVR-L3 comprising sequence QQYYSSYYLLT (SEQ ID NO:3); and HVR-H2 comprising sequence ASIYSYYGSTYYADSVKG (SEQ ID NO:5).

9. The antibody of claim 7, wherein the antibody comprises (a) HVR-H1 comprising sequence GFNFSYSYMH (SEQ ID NO:4); (b) HVR-H2 comprising sequence ASIYSYYGSTYYADSVKG (SEQ ID NO:5); and (c) HVR-H3 comprising sequence ARSDSWSYKSGYTQKIYSKGLDY (SEQ ID NO:6).

10. The antibody of claim 9, further comprising (a) HVR-L1 comprising sequence RASQSVSSAVA (SEQ ID NO:1); (b) HVR-L2 comprising sequence SASSLYS (SEQ ID NO:2); and (c) HVR-L3 comprising sequence QQYYSSYYLLT (SEQ ID NO:3).

11. The antibody of claim 7, wherein the antibody comprises (a) HVR-L1 comprising sequence RASQSVSSAVA (SEQ ID NO:1); (b) HVR-L2 comprising sequence SASSLYS (SEQ ID NO:2); and (c) HVR-L3 comprising sequence QQYYSSYYLLT (SEQ ID NO:3).

12. The antibody of claim 9 or 11, further comprising a heavy chain variable domain or light chain variable domain framework sequence shown in Figure 3, 4, 5, or 6.

13. The antibody of claim 1, comprising (a) a VH sequence having at least 95% sequence identity to the amino acid sequence of SEQ ID NO:10; or having at least 95% sequence identity to the amino acid sequence of SEQ ID NO:9; or (c) a VH sequence as in (a) and a VL sequence as in (b).

14. The antibody of claim 13, comprising a VH sequence of SEQ ID NO:10.

15. The antibody of claim 13, comprising a VL sequence of SEQ ID NO:9.

16. The antibody of claim 13, comprising a VH sequence of SEQ ID NO:10 and a VL sequence of SEQ ID NO:9.

17. The antibody of any of the preceding claims, which is a full length IgG1 antibody.

18. The antibody of any of the preceding claims, wherein the antibody comprises human κ subgroup consensus framework sequence.

19. The antibody of any of the preceding claims, wherein the antibody comprises heavy chain human subgroup III consensus framework sequence.

20. Isolated nucleic acid encoding the antibody of any of the preceding claims.

21. A host cell comprising the nucleic acid of claim 20.

22. A method for making an antibody comprising culturing the host cell of claim 21 so that the antibody is produced.

23. The method of claim 22, further comprising recovering the antibody from the host cell culture.

24. An immunoconjugate comprising the antibody of claim 1 and a cytotoxic agent.

25. A pharmaceutical formulation comprising the antibody of claim 1 and a pharmaceutically acceptable carrier.

26. The pharmaceutical formulation of claim 25, further comprising an additional therapeutic agent.

27. The antibody of claim 1 for use as a medicament.

28. The antibody of claim 1 for use in treating cancer.

29. The antibody of claim 1 for use in treating an immune disorder.

30. The antibody of claim 1 for use in inhibiting cell migration.

31. The antibody of claim 1 for use in inhibiting hepsin enzymatic activity.

32. Use of the antibody of claim 1 in the manufacture of a medicament.

33. The use of claim 32, wherein the medicament is for treatment of cancer.

34. The use of claim 32, wherein the medicament is for treatment of an immune disorder.

35. The use of claim 32, wherein the medicament is for inhibiting cell migration or inhibiting hepsin enzymatic activity.

36. A method of making an anti-serine protease antibody, comprising selecting antibody that bind serine protease present in a complex comprising (a) serine protease; and (b) a serine protease inhibitor that binds a S1 subsite.

37. The method of claim 36, wherein the serine protease is hepsin.

38. The method of claim 36, wherein the serine protease inhibitor is 3,4-dichloro-isocoumarin.

39. The method of claim 36, wherein the serine protease inhibitor binds hepsin catalytic amino acid residues Ser195 and His57, whereby hepsin is inactivated.

40. The method of claim 36, wherein prior to selecting the antibody, the antibody is incubated with serine protease and serine protease inhibitor.

41. The method of claim 37, further comprising selecting antibodies that compete for hepsin binding with a Kunitz domain.

42. The method of claim 41, wherein the Kunitz domain is KD1.