

CLAIMS

What is claimed is:

1. An anti-syndecan-2 antibody comprising a heavy chain variable region and a light chain variable region, wherein the heavy chain variable region comprises a first amino acid
5 sequence having at least 90.5% sequence identity to at least one selected from the group consisting of SEQ ID NOs: 1, 3, 5, 7, and 9 and the light chain variable region comprises a second amino acid sequence having at least 91.5% sequence identity to at least one selected from the group consisting of SEQ ID NOs: 2, 4, 6, 8, and 10.
2. The anti-syndecan-2 antibody of claim 1, wherein the first amino acid sequence is selected
10 from the group consisting of SEQ ID NOs: 1, 3, 5, 7, and 9 and the second amino acid sequence is selected from the group consisting of SEQ ID NOs: 2, 4, 6, 8, and 10.
3. The anti-syndecan-2 antibody of claim 1 being an IgA, an IgD, an IgE, an IgG, or an IgM.
4. The anti-syndecan-2 antibody of claim 1, further comprising a heavy chain constant region and a light chain constant region, wherein the heavy chain constant region comprises a third
15 amino acid sequence having at least 90.5% sequence identity to SEQ ID NO: 36 and the light chain constant region comprises a fourth amino acid sequence having at least 91.5% sequence identity to SEQ ID NO: 37.
5. The anti-syndecan-2 antibody of claim 4, wherein the third amino acid sequence is SEQ ID NO: 36 and the fourth amino acid sequence is SEQ ID NO: 37.
- 20 6. The anti-syndecan-2 antibody of claim 5, wherein a fifth amino acid sequence comprising SEQ ID NO: 38 is fused to the heavy chain variable region and a sixth amino acid sequence comprising SEQ ID NO: 39 is fused to the light chain variable region.
7. The anti-syndecan-2 antibody of claim 2, wherein the first amino acid sequence and the second amino acid sequence are respectively selected from the group consisting of SEQ ID
25 NOs: 1 and 2, 3 and 4, 5 and 6, 7 and 8, and 9 and 10.
8. A method of treating a syndecan-2 associated disease in a subject in need thereof, the method comprising administering to the subject an effective amount of an anti-syndecan-2 antibody to treat the ARDS, the anti-syndecan-2 antibody comprising a heavy chain variable region and a light chain variable region, wherein the heavy chain variable region comprises a
30 first amino acid sequence having at least 90.5% sequence identity to at least one selected

from the group consisting of SEQ ID NOs: 1, 3, 5, 7, and 9 and the light chain variable region comprises a second amino acid sequence having at least 91.5% sequence identity to at least one selected from the group consisting of SEQ ID NOs: 2, 4, 6, 8, and 10.

9. The method of claim 8, wherein the syndecan-2 associated disease is acute respiratory distress syndrome (ARDS), stroke, a neurological disease in which the blood brain barrier (BBB) is altered or disrupted, neovascular eye disease, a cardiovascular disease with a component of vascular hyperpermeability.
10. The method of claim 9, wherein the syndecan-2 associated disease is coronavirus disease 2019-induced ARDS (COVID-19-induced ARDS).
11. The method of any one of claims 8-10, wherein the anti-syndecan-2 antibody is conjugated to a heterologous peptide.
12. The method of any one of claims 8-11, wherein the subject is a mammal.
13. The method of any one of claims 8-12, wherein the subject is a human.
14. The method of any one of claims 8-13, wherein the anti-syndecan-2 antibody is administered in a dosage form further comprising at least one pharmaceutically acceptable carrier.
15. A method of treating acute respiratory distress syndrome (ARDS) in a subject in need thereof, the method comprising administering to the subject an effective amount of a syndecan-2 disrupting peptide comprising an amino acid sequence set forth in SEQ ID NOs: 31, 32, or 33.
16. The method of claim 15, wherein the ARDS is coronavirus disease 2019-induced ARDS (COVID-19-induced ARDS).
17. The method of claim 15 or claim 16, wherein the syndecan-2 disrupting peptide is conjugated to a heterologous peptide.
18. The method of claim 16, wherein the heterologous peptide is selected from the group consisting of a cell penetrating peptide, a secretion signal peptide, or a stability enhancing domain.

19. The method of any one of claims 15-18, wherein the subject is a mammal.
20. The method of any one of claims 15-19, wherein the subject is a human.
21. The method of any one of claims 15-20, wherein the syndecan-2 disrupting peptide is administered in a dosage form further comprising at least one pharmaceutically acceptable
5 carrier.