WHAT IS CLAIMED IS:

1. Use of an effective amount of an isolated antibody or antigen-binding fragment thereof which specifically binds to semaphorin-4D (SEMA4D) in the manufacture of a medicament for treating a subject with increased blood brain barrier permeability associated with a neuroinflammatory disorder.

2. The use of claim 1, wherein the binding molecule inhibits SEMA4D interaction with Plexin-B1.

3. Use of an effective amount of an isolated antibody or antigen-binding fragment thereof which specifically inhibits semaphorin 4D (SEMA4D) interaction with a SEMA4D receptor in the manufacture of a medicament for treating a subject with increased blood brain barrier permeability associated with a neuroinflammatory disorder, wherein the medicament decreases blood brain barrier permeability.

4. The use of claim 3, wherein the SEMA4D receptor is Plexin-B1.

5. The use of claim 3 or claim 4, wherein the antibody or antigen-binding fragment thereof specifically binds to SEMA4D or Plexin-B1.

6. The use of any one of claims 1-5, wherein the antibody or antigen-binding fragment thereof competitively inhibits a reference monoclonal antibody selected from the group consisting of VX15/2503 or 67 from specifically binding to SEMA4D.

7. Use of an effective amount of an isolated antibody or antigen-binding fragment thereof which specifically binds to SEMA4D in the manufacture of a medicament for treating a subject with increased blood-brain barrier permeability associated with a neuroinflammatory disorder, wherein the antibody or antigen-binding fragment thereof competitively inhibits a reference monoclonal antibody selected from the group consisting of VX15/2503 or 67 from specifically binding to SEMA4D, thereby decreasing blood brain barrier permeability in the subject.

8. The use of any one of claims 1-7, wherein the antibody or antigen-binding fragment thereof specifically binds to the same SEMA4D epitope as a reference monoclonal antibody selected from the group consisting of VX15/2503 or 67.

9. The use of claim 8, wherein the antibody or antigen-binding fragment thereof comprises a variable heavy chain (VH) comprising VHCDRs 1-3 comprising SEQ ID NOs 6, 7,

and 8, respectively, and a variable light chain (VL) comprising VLCDRs 1-3 comprising SEQ ID NOs 14, 15, and 16, respectively.

10. The use of claim 9, wherein the antibody or antigen-binding fragment thereof is monoclonal antibody VX15/2503 or 67.

11. The use of claim 5, wherein the antibody or antigen-binding fragment thereof specifically binds to Plexin-B1.

12. The use of claim 11, wherein the antibody or antigen-binding fragment thereof competitively inhibits SEMA4D from binding to Plexin-B1.

13. Use of an effective amount of an isolated antibody or antigen-binding fragment thereof which specifically binds to semaphorin-4D (SEMA4D) and an isolated antibody or antigen-binding fragment thereof which specifically binds to Plexin-B1 in the manufacture of a medicament for treating a subject having increased blood brain barrier permeability associated with a neuroinflammatory disorder, wherein the SEMA4D and Plexin-B1 antibody or antigen-binding fragment thereof decrease permeability of the blood-brain barrier, thereby treating the subject.

14. The use of any one of claims 1-13, wherein the neuroinflammatory disorder is selected from the group consisting of Multiple Sclerosis, Amyotrophic Lateral Sclerosis, epilepsy, Alzheimer's Disease, Parkinson's Disease, meningitis, brain edema, and brain trauma.

WHAT IS CLAIMED IS:

1. Use of an effective amount of an isolated binding molecule which specifically binds to semaphorin-4D (SEMA4D) in the manufacture of a medicament for decreasing blood brain barrier permeability in a subject having a neuroinflammatory disorder.

2. Use of an effective amount of an isolated binding molecule which specifically binds to semaphorin-4D (SEMA4D) in the manufacture of a medicament for maintaining or increasing Claudin-5 expression in a subject having a neuroinflammatory disorder.

3. The use of claim 1 or 2, wherein the binding molecule inhibits SEMA4D interaction with Plexin-B1.

4. Use of an effective amount of an isolated binding molecule which specifically inhibits semaphorin 4D (SEMA4D) interaction with a SEMA4D receptor in the manufacture of a medicament for decreasing blood brain barrier permeability in a subject having a neuroinflammatory disorder.

5. Use of an effective amount of an isolated binding molecule which specifically inhibits semaphorin 4D (SEMA4D) interaction with a SEMA4D receptor in the manufacture of a medicament for treating a subject having a neuroinflammatory disorder, wherein the binding molecule decreases permeability of the blood-brain barrier, thereby treating the subject.

6. The use of claim 4 or 5, wherein the SEMA4D receptor is Plexin-B1.

7. The use of any one of claims 4-6, wherein the binding molecule specifically binds to SEMA4D or Plexin-B1.

8. The use of any one of claims 1-7, wherein the binding molecule competitively inhibits a reference monoclonal antibody selected from the group consisting of VX15/2503 or 67 from specifically binding to SEMA4D.

9. Use of an effective amount of an isolated binding molecule which specifically binds to SEMA4D in the manufacture of a medicament for decreasing blood-brain barrier permeability in a subject having a neuroinflammatory disorder, wherein the binding molecule competitively inhibits a reference monoclonal antibody selected from the group consisting of VX15/2503 or 67 from specifically binding to SEMA4D, thereby decreasing blood brain barrier permeability in the subject.

10. The use of any one of claims 1-9, wherein the binding molecule specifically binds to the same SEMA4D epitope as a reference monoclonal antibody selected from the group consisting of VX15/2503 or 67.

11. The use of any one of claims 1-10, wherein the binding molecule comprises an antibody or antigen-binding fragment thereof.

12. The use of claim 11, wherein the antibody or antigen-binding fragment thereof comprises a variable heavy chain (VH) comprising VHCDRs 1-3 comprising SEQ ID NOs 6, 7, and 8, respectively, and a variable light chain (VL) comprising VLCDRs 1-3 comprising SEQ ID NOs 14, 15, and 16, respectively.

13. The use of claim 12, wherein the antibody or antigen-binding fragment thereof is monoclonal antibody VX15/2503 or 67.

14. The use of claim 7, wherein the binding molecule specifically binds to Plexin-B1.

15. The use of claim 14, wherein the binding molecule competitively inhibits SEMA4D from binding to Plexin-B1.

16. The use of claims 14 or 15, wherein the binding molecule is an anti-Plexin-B1 antibody or antigen binding fragment thereof.

17. Use of an effective amount of an isolated binding molecule which specifically binds to semaphorin-4D (SEMA4D) and an isolated binding molecule which specifically binds to Plexin-B1 in the manufacture of a medicament for treating a subject having a neuroinflammatory disorder, wherein the SEMA4D and Plexin-B1 binding molecules decrease permeability of the blood-brain barrier, thereby treating the subject.

18. Use of an effective amount of an inhibitor of semaphorin 4D (SEMA4D) interaction with a SEMA4D receptor in the manufacture of a medicament for treating a subject having a neuroinflammatory disorder, wherein the inhibitor decreases permeability of the blood-brain barrier, thereby treating the subject.

19. The use of claim 18, wherein the inhibitor is selected from the group consisting of an anti-SEMA4D binding molecule, an anti-PlexinB1 binding molecule, a small molecule inhibitor of SEMA4D, or a small molecule inhibitor of a SEMA4D receptor.

20. The use of any one of claims 1-19, wherein the neuroinflammatory disorder is selected from the group consisting of Multiple Sclerosis, Amyotrophic Lateral Sclerosis, epilepsy, Alzheimer's Disease, Parkinson's Disease, meningitis, brain edema, and brain trauma.