amino acid selected from the group consisting of T, S, Y, N, and K; Xaa4 is an amino acid selected from the group consisting of K, N, D, Q and T; Xaa5 is an amino acid selected from the group consisting of R, G, S, and L; Xaa6 is an amino acid selected from the group consisting of P, S, I, and E; Xaa7 is an amino acid selected from the group consisting of S, H, I, and T; Xaa8 is Asn; Xaa9 is Lys; and Xaa10 is Gly; Xaa11 is Asp; and

Xaa1 – Xaa2 – Xaa3 – Xaa4 – Xaa5 – Xaa6 – Xaa7 – Xaa8 – Xaa9 – (Xaa)n (Formula 3 – CDR-L3), wherein n is 0-2, and

wherein Xaa1 is an amino acid selected from the group consisting of C, Q, H, F, H, L, V, I, K, Y, and A; Xaa2 is an amino acid selected from the group consisting of S, A, T, Q, and V; Xaa3 is an amino acid selected from the group consisting of Y, W, and S; Xaa4 is an amino acid selected from the group consisting of A, D, G, S, H and Y; Xaa5 is an amino acid selected from the group consisting of G, S, N, P, D, V, and T; Xaa6 is an amino acid selected from the group consisting of I, T, S, G, L, F and Y; Xaa7 is an amino acid selected from the group consisting of D, T, L, I, P, and S; Xaa8 is an amino acid selected from the group consisting of T, G, R, Y, D, N, W, L, F and P; Xaa9 is an amino acid selected from the group consisting of L, V, G, T, and H; Xaa10 is an amino acid selected from the group consisting of Val, Tyr, and His; Xaa11 is Leu or Val.

[0037] In another aspect, the present invention is directed to a pharmaceutical composition that comprises the herein described antibody, antibody fragment, or mixture or derivative thereof.

[0037a] In another aspect there is provided use of a therapeutically, effective amount of the herein described antibody in the manufacture of a medicament for treating, preventing, modulating, or attenuating a disease or disorder associated with neurite degeneration.

[0038] In another aspect, the present invention is directed to a method of treating, preventing, modulating, or attenuating a disease or disorder associated with neurite degeneration, comprising administering to a subject in need thereof a therapeutically effective amount of the herein described antibody. The neurite degenerative disorder may be multiple sclerosis, Parkinson's disease; Alzheimer's disease; Huntington's disease; amyotrophic lateral sclerosis and other motoneuron diseases; Tay-Sachs disease; Niemann-Pick disease; Gaucher's disease; Hurler's syndrome; idiopathic inflammatory demyelinating diseases; vitamin B12 deficiency; central pontine myelinolysis; tabes dorsalis; transverse myelitis; Devic's disease, progressive multifocal leukoencephalopathy; optic neuritis; traumatic injury to the CNS; ischemic cerebral stroke; a retinopathy; such as glaucoma, diabetic retinopathy or age-dependent macular degeneration; and a leukodystrophy.

and a variable light domain that comprises complementarity-determining region (CDR) residues SEQ ID NO:112, SEQ ID NO:113, and SEQ ID NO:114.

22. The isolated antibody or antibody fragment of claim 1, wherein the antibody or antibody fragment comprises a variable heavy domain that comprises complementarity-determining region (CDR) residues SEQ ID NO:116, SEQ ID NO:117, and SEQ ID NO:118, and a variable light domain that comprises complementarity-determining region (CDR) residues SEQ ID NO:120, SEQ ID NO:121, and SEQ ID NO:122.

23. The isolated antibody or antibody fragment of claim 1, wherein the antibody or antibody fragment comprises a variable heavy domain that comprises complementarity-determining region (CDR) residues SEQ ID NO:124, SEQ ID NO:125, and SEQ ID NO:126, and a variable light domain that comprises complementarity-determining region (CDR) residues SEQ ID NO:128, SEQ ID NO:129, and SEQ ID NO:130.

24. The isolated antibody or antibody fragment of claim 1, wherein the antibody or antibody fragment comprises a variable heavy domain that comprises complementarity-determining region (CDR) residues SEQ ID NO:132, SEQ ID NO:133, and SEQ ID NO:134, and a variable light domain that comprises complementarity-determining region (CDR) residues SEQ ID NO:136, SEQ ID NO:137, and SEQ ID NO:138.

25. The antibody or antibody fragment of claim 1, wherein the antibody or antibody fragment further comprises an agent selected from the group consisting of: an immunoadhesion molecule, an imaging agent, and a therapeutic agent.

26. The antibody or antibody fragment of claim 25, wherein the imaging agent is selected from the group consisting of a radiolabel, an enzyme, a fluorescent label, a luminescent label, a bioluminescent label, a magnetic label, and biotin.

27. The antibody or antibody fragment of claim 26, wherein the radiolabel is selected from the group consisting of 3H, 14C, 35S, 90Y, 99Tc, 111In, 125I, 131I, 177Lu, 166Ho, and 153Sm.

28. A pharmaceutical composition comprising the antibody, antibody fragment, mixture or derivative thereof of claim 1.

29. ~~A method of treating, preventing, modulating, or attenuating a disease or disorder associated with neurite degeneration, comprising administering to a subject in need thereof~~ Use of a therapeutically effective amount of the antibody of claim 1, in the manufacture of a medicament for treating, preventing, modulating, or attenuating a disease or disorder associated with neurite degeneration.

30. The ~~method~~ use of claim 29, wherein the neurite degenerative disorder is selected from the group consisting of multiple sclerosis, Parkinson's disease, Alzheimer's disease, Tay-Sachs disease, Niemann-Pick disease, Gaucher's disease, Hurler's syndrome, Huntington's disease, amyotrophic lateral sclerosis, idiopathic inflammatory demyelinating diseases, vitamin B12 deficiency, central pontine myelinolysis, tabes dorsalis, transverse myelitis, Devic's disease, progressive multifocal leukoencephalopathy, optic neuritis, traumatic injury to the CNS, , an ischemic cerebral stroke, glaucoma, diabetic retinopathy, age-dependent macular degeneration, and a leukodystrophy.

31. A method for determining whether a subject has a neurite degenerative disorder, comprising

(a) measuring the level of RGMa in a sample from the subject; and

(b) comparing the level of RGMa in the sample with a normal control, wherein an altered level of RGMa indicates that the subject has a neurite degenerative disorder.

32. The method of claim 31, wherein an increased level of RGMa as compared to the normal control, indicates that the subject has neurite degenerative disorder.

33. The method of claim 31, wherein the sample is selected from the group consisting of a blood sample, a cerebrospinal fluid sample, and a serum sample.

34. The method of claim 31, wherein step (a) is an immunoassay.

35. The method of claim 35, wherein the immunoassay is an enzyme-linked immunosorbent assay (ELISA).

36. The method of claim 35, wherein the ELISA is a sandwich ELISA.

37. The isolated antibody or antibody fragment of claim 1, wherein the antibody or antibody fragment comprises SEQ ID NOs:1-7 and 67.

38. The isolated antibody or antibody fragment of claim 1, wherein the antibody or antibody fragment comprises SEQ ID NOs:1-7 and 68.

39. The isolated antibody or antibody fragment of claim 1, wherein the antibody or antibody fragment comprises SEQ ID NOs:1-7 and 69.

40. The isolated antibody or antibody fragment of claim 1, wherein the antibody or antibody fragment comprises SEQ ID NOs:1-7 and 70.

41. The isolated antibody or antibody fragment of claim 1, wherein the antibody or antibody fragment comprises SEQ ID NOs:1-7 and 71.