

determining region 1 (HCDR1), the heavy chain complementarity determining region 2 (HCDR2) and the heavy chain complementarity determining region 3 (HCDR3) comprises the following:

- LCDR1: RASQDISSYLN (SEQ ID NO: 30 in Sequence Listing),
- 5 LCDR2: YTSRLHS (SEQ ID NO: 31 in Sequence Listing),
- LCDR3: QQLNTLP (SEQ ID NO: 32 in Sequence Listing),
- HCDR1: DAWMD (SEQ ID NO: 33 in Sequence Listing),
- HCDR2: EIRSKANNHATYYAESVKG (SEQ ID NO: 34 in Sequence Listing) and
- HCDR3: RDGAY (SEQ ID NO: 35 in Sequence Listing);
- 10 or
- LCDR1: RSSQSLVHSNGNTYLH (SEQ ID NO: 36 in Sequence Listing)
- LCDR2: KVSNRFS (SEQ ID NO: 37 in Sequence Listing)
- LCDR3: SQSTHVP (SEQ ID NO: 38 in Sequence Listing)
- HCDR1: TSYAWN (SEQ ID NO: 39 in Sequence Listing)
- 15 HCDR2: YISYDGTNNYNPSLKN (SEQ ID NO: 40 in Sequence Listing) and
- HCDR3: SFG.

[0007b]

In a second aspect of the present disclosure, there is provided a nucleic acid molecule coding for the protein portion of the anti-RGMa antibody or an antigen-binding

CLAIMS

1. An isolated anti-RGMA antibody, or an antigen-binding fragment thereof,
 wherein the amino acid sequence of each of the light chain complementarity
 5 determining region 1 (LCDR1), the light chain complementarity determining region
 2 (LCDR2), the light chain complementarity determining region 3 (LCDR3), the
 heavy chain complementarity determining region 1 (HCDR1), the heavy chain
 complementarity determining region 2 (HCDR2) and the heavy chain
 complementarity determining region 3 (HCDR3) comprises the following:
 10 LCDR1: RASQDISSYLN (SEQ ID NO: 30 in Sequence Listing),
 LCDR2: YTSRLHS (SEQ ID NO: 31 in Sequence Listing),
 LCDR3: QQLNTLP (SEQ ID NO: 32 in Sequence Listing),
 HCDR1: DAWMD (SEQ ID NO: 33 in Sequence Listing),
 HCDR2: EIRSKANNHATYYAESVKG (SEQ ID NO: 34 in Sequence Listing) and
 15 HCDR3: RDGAY (SEQ ID NO: 35 in Sequence Listing);
 or
 LCDR1: RSSQSLVHSNGNTYLH (SEQ ID NO: 36 in Sequence Listing)
 LCDR2: KVSNRFS (SEQ ID NO: 37 in Sequence Listing)
 LCDR3: SQSTHVP (SEQ ID NO: 38 in Sequence Listing)
 20 HCDR1: TSYAWN (SEQ ID NO: 39 in Sequence Listing)
 HCDR2: YISYDGTNNYNPSLKN (SEQ ID NO: 40 in Sequence Listing) and
 HCDR3: SFG.

2. The anti-RGMa antibody or an antigen-binding fragment thereof according to claim 1,

wherein the heavy chain variable region (VH) comprises the following:

VH:

5 EVQLVESGGGLVQPGRSLRLSCTASGFTFSDAWMDWVRQAPGKGLEWVAE
IRSKANNHATYYAESVKGRFTISRDDSKSIVYLQMNSLRTEDTALYYCTRRD
GAYWGKGTTVTVSS (SEQ ID NO: 41 in Sequence Listing) or an amino acid
sequence having one or two amino acids may be substituted in said amino acid
sequence by conservative substitution; and

10 wherein the light chainvariable region (VL) comprises the following:

VL:

DIQMTQSPSSVSASVGDRVTITCRASQDISSYLNWYQQKPGKAPKLLIYYTSR
LHSGVPSRFSGSGSGTDFTLTISLQPEDFASYFCQQLNTLPWTFGGGGTKVEM
E (SEQ ID NO: 42 in Sequence Listing) or an amino acid sequence having one or
15 two amino acids may be substituted in said amino acid sequence by conservative
substitution.

3. The anti-RGMa antibody or an antigen-binding fragment thereof according to claim 1 or 2, wherein the anti-RGMa antibody is a humanized antibody.

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4. The anti-RGMa antibody or an antigen-binding fragment thereof according to any one of claims 1 to 3, wherein the anti-RGMa antibody comprises constant regions of human IgG.

25 5. A nucleic acid molecule coding for the protein portion of the anti-RGMa antibody or an antigen-binding fragment thereof according to any one of claims 1 to 4.

6. The nucleic acid molecule according to claim 5, wherein the nucleotide sequences coding for the VH and VL amino acid sequences each is a nucleotide sequence comprising:

VH:

5 gaagtgcagctggtggaatctggcggcggactggtgcagcctggcagatccctgagactgtcctgtaccgcctccggct
tcaccttctccgacgcctggatggattgggtgacagggcctggcaagggcctggaatgggtggccgagatccggctc
caaggccaacaaccacgccactactacgccgagctgtgaagggccggtcaccatctccgggacgactccaagtcc
atcgtgtacctgcagatgaactccctgcggaccgaggacaccgccctgtactactgcaccagaaggacggcgctact
ggggcaagggcaccacagtgcagtgctctcc (SEQ ID NO: 43 in Sequence Listing), and

10 VL:

gacatccagatgaccagtcctccctcctcgtgtctgcttcgtgggcgacagagtgaccatcacctgtcgggcctccca
ggacatctcctctacctgaactggtatcagcagaagcccggcaaggccccaagctgctgatctactacacctccggc
tgactccggcgtgcctctagattttcggctctggctccggcaccgactttaccctgaccatctccagcctgcagccg
aggacttcgcctctacttctgtcagcagctgaacacctgccttgacctttggcggaggcaccaaggtggaaatggaa

15 (SEQ ID NO: 44 in Sequence Listing).

7. A recombinant vector comprising the nucleic acid molecule according to claim 5 or 6.

20 8. A host cell containing the recombinant vector according to claim 7.

9. A method for producing the anti-RGMa antibody or an antigen-binding fragment thereof according to any one of claims 1 to 4, the method comprising a step of culturing the host cell according to claim 8.

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10. A pharmaceutical composition comprising the anti-RGMa antibody or an antigen-binding fragment thereof according to any one of claims 1 to 4.

11. The pharmaceutical composition according to claim 10 for use in preventing, treating, or preventing the relapse of neurological or immunological diseases.
- 5 12. The pharmaceutical composition according to claim 11, wherein the neurological diseases are selected from the group consisting of amyotrophic lateral sclerosis, brachial plexus injury, brain damage (including traumatic brain injury), cerebral palsy, Guillain-Barre syndrome, cerebral leukodystrophy, multiple sclerosis (including relapsing-remitting multiple sclerosis, primary progressive multiple
 - 10 sclerosis, secondary progressive multiple sclerosis), neuromyelitis optica, post-polio syndrome, spina bifida, spinal cord injury, spinal muscular atrophy, spinal neoplasm, transverse myelitis, dementia (including senile dementia, mild cognitive impairment, Alzheimer's disease, dementia associated with Alzheimer's disease), Huntington's disease, tardive dyskinesia, mania, Parkinson's disease, Steele-Richardson syndrome,
 - 15 Down's syndrome, myasthenia gravis, neurotrauma (including optic nerve trauma), vascular amyloidosis, cerebral hemorrhage associated with amyloidosis, brain infarction, cerebritis, acute confusional state, glaucoma, schizophrenia and retinal nerve fiber layer degeneration (including diabetic retinopathy, ischemic optic neuropathy, X-linked retinoschisis, drug-induced optic neuropathy, retinal dystrophy,
 - 20 age-related macular degeneration, eye diseases characterized by optic disc drusen, eye diseases characterized by genetic determinant for photoreceptor degeneration, autosomal recessive cone-rod dystrophy, mitochondrial disorder associated with optic neuropathy).
- 25 13. The pharmaceutical composition according to claim 11, wherein the immunological diseases are selected from the group consisting of multiple sclerosis (including relapsing-remitting multiple sclerosis, primary progressive multiple sclerosis, secondary progressive multiple sclerosis), neuromyelitis optica, psoriasis,

arthritis (including rheumatoid arthritis, osteoarthritis, psoriatic arthritis), Guillain-Barre syndrome, neuro-Behcet disease, pernicious anemia, type I (insulin-dependent) diabetes mellitus, systemic lupus erythematosus (SLE), inflammatory bowel disease (IBD), Sjogren's syndrome, Goodpasture's syndrome, Graves' disease, 5 autoimmune hemolytic anemia, autoimmune thrombocytopenic purpura, asthma, pollinosis, atopic dermatitis, glomerulonephritis, myasthenia gravis, Hashimoto's disease, and sarcoidosis.

14. The pharmaceutical composition according to claim 11, wherein the 10 neurological or immunological diseases are selected from the group consisting of spinal cord injury, neurotrauma (including optic nerve trauma), multiple sclerosis (including relapsing-remitting multiple sclerosis, primary progressive multiple sclerosis, secondary progressive multiple sclerosis).