CLAIMS

1. An isolated monoclonal antibody comprising an antigen binding domain, said antibody capable of binding an epitope of a human RAGE molecule, said antigen binding domain comprising at least one CDR comprising an amino acid sequence selected from:

a) the CDR-H3 group of amino acid sequences consisting of SEQ ID NO.: 4, 12 and 20; modified CDR amino acid sequences having a sequence identity of at least 50% to one of said sequences; and/or

b) the CDR-L3 group of amino acid sequences consisting of SEQ ID NO.: 8, 16 and 24; and modified CDR amino acid sequences having a sequence identity of at least 50% to one of said sequences.

2. The antibody according to claim 1, further comprising at least one CDR comprising an amino acid sequence selected from the CDR-H1 group consisting of SEQ ID NO: 2, 10, 18; or selected from the CDR-H2 group consisting of SEQ ID NO: 3, 11, 19; or selected from the CDR-L1 group consisting of SEQ ID NO: 6, 14, 22; or selected from the CDR-L2 group consisting of SEQ ID NO: 7, 15, 23;
and modified CDR amino acid sequences having a sequence identity of at least 50% to one of said sequences.

3. The antibody according to claim 2, comprising at least 3 CDRs which are selected from a variable domain CDR set consisting of:

VH 7F9 set		
VH 7F9 CDR-H1	Residues 31-35 of SEQ ID NO.:1	SEQ ID NO: 2
VH 7F9 CDR-H2	Residues 50-68 of SEQ ID NO.:1	SEQ ID NO: 3
VH 7F9 CDR-H3	Residues 101-108 of SEQ ID NO.:1	SEQ ID NO: 4
VL 7F9 set		
VL 7F9 CDR-L1	Residues 24-34 of SEQ ID NO.:5	SEQ ID NO: 6
VL 7F9 CDR-L2	Residues 50-56 of SEQ ID NO.:5	SEQ ID NO: 7
VL 7F9 CDR-L3	Residues 89-97 of SEQ ID NO.:5	SEQ ID NO: 8
VH 11E6 set		
VH 11E6 CDR-H1	Residues 31-35 of SEQ ID NO.:9	SEQ ID NO: 10
VH 11E6 CDR-H2	Residues 50-66 of SEQ ID NO.:9	SEQ ID NO: 11
VH 11E6 CDR-H3	Residues 99-109 of SEQ ID NO.:9	SEQ ID NO: 12
VL 11E6 set		
VL 11E6 CDR-L1	Residues 24-34 of SEQ ID NO.:13	SEQ ID NO: 14
VL 11E6 CDR-L2	Residues 50-56 of SEQ ID NO.:13	SEQ ID NO: 15

VL 11E6 CDR-L3	Residues 89-97 of SEQ ID NO.:13	SEQ ID NO: 16
VH 4E5 set		
VH 4E5 CDR-H1	Residues 31-35 of SEQ ID NO.:17	SEQ ID NO: 18
VH 4E5 CDR-H2	Residues 50-66 of SEQ ID NO.:17	SEQ ID NO: 19
VH 4E5 CDR-H3	Residues 99-109 of SEQ ID NO.:17	SEQ ID NO: 20
VL 4E5 set		
VL 4E5 CDR-L1	Residues 24-34 of SEQ ID NO.:21	SEQ ID NO: 22
VL 4E5 CDR-L2	Residues 50-56 of SEQ ID NO.:21	SEQ ID NO: 23
VL 4E5 CDR-L3	Residues 89-97 of SEQ ID NO.:21	SEQ ID NO: 24

or a variable domain set wherein at least one of said 3 CDRs is a modified CDR amino acid sequence having a sequence identity of at least 50% to the parent sequence.

4. The antibody according to claim 3, wherein said at least two variable domain CDR sets are selected from a group consisting of:

VH 7F9 set & VL 7F9 set;

VH 4E5 set & VL 4E5 and

VH 11E6 set & VL 11E6 set.

5. The antibody according to one of the preceding claims, further comprising a human acceptor framework.

6. The antibody of any one of the preceding claims comprising at least one heavy chain variable domain selected from SEQ ID NO: 56 and 57; and/or at least one light chain variable domain selected from SEQ ID NO: 58 and 59.

7. The antibody according to claim 6, wherein said binding protein comprises at least one framework mutation selected from the group consisting of:

(heavy chain sequence position): 1, 2, 68, 70, 72, 76, 85, 89, 95
(light chain sequence position): 11, 13, 43, 49, 58, 70, 87.

8. The antibody of any one of the preceding claims, wherein said binding protein comprises at least one (framework mutated) variable domain having an amino acid sequence selected from the group consisting of:
(heavy chain sequences) SEQ ID NO: 62, 67, 68 and 69;

(light chain sequences) SEQ ID NO: 63, 64, 65 and 66.

9. The antibody of claim 1, which is selected from the group consisting of antibodies 11E6, 4E5 and 7F9.

10. An isolated nucleic acid encoding the amino acid sequence of the antibody of any one of claims 1-9.

11. A vector comprising an isolated nucleic acid according to claims 10.

12. A host cell comprising a vector according to claim 11.

13. A method of producing a protein capable of binding RAGE, comprising culturing a host cell according to claim 12 in culture medium under conditions sufficient to produce a binding protein capable of binding RAGE.

14. A protein produced according to the method of 13.

15. A composition for the release of an antibody said composition comprising
(a) a formulation, wherein said formulation comprises the antibody of claim 1 to 9 in crystallized form as an ingredient; and
(b) at least one polymeric carrier.

16. A pharmaceutical composition comprising the antibody of any one of claims 1 to 9, and a pharmaceutically acceptable carrier.

17. A method for treating a mammal comprising the step of administering to the mammal an effective amount of the composition according to claim 15 or 16.

18. The method of claim 17, wherein the method is for treating neurological diseases selected from the group comprising Amytropic Lateral Sclerosis, Brachial Plexus Injury, Brain Injury, including traumatic brain injury, Cerebral Palsy, Friedrich's Ataxia, Guillain Barre, Leukodystrophies, Multiple Sclerosis, Post Polio, Spina

Bifida, Spinal Cord Injury, Spinal Muscle Atrophy, Spinal Tumors, Stroke, Transverse Myelitits, dementia, senile dementia, mild cognitive impairment, Alzheimer-related dementia, Huntington's chorea, tardive dyskinesia, hyperkinesias, manias, Morbus Parkinson, steel-Richard syndrome, Down's syndrome, myasthenia gravis, nerve trauma, vascular amyloidosis, cerebral hemorrhage I with amyloidosis, brain inflammation, Friedrich's ataxia, acute confusion disorder, amyotrophic lateral sclerosis, glaucoma, Alzheimer's disease, diabetic nephropathy, sepsis, rheumatoid arthritis and related inflammatory diseases.

19. The method of claim 17, wherein the method is for treating Alzheimer's disease.

20. The method of claim 19, wherein the composition comprises 11E6.

CLAIMS

1. An isolated monoclonal antibody or antigen-binding fragment thereof comprising an antigen binding domain, said antibody or antigen-binding fragment capable of binding an epitope of a human RAGE molecule, said antigen binding domain comprising:
three heavy chain variable region CDRs having the sequences SEQ ID NO: 2, SEQ ID NO: 3, and SEQ ID NO: 4, and three light chain variable region CDRs having the sequences SEQ ID NO: 6, SEQ ID NO: 7, and SEQ ID NO: 8.

2. The antibody according to claim 1, further comprising a human acceptor framework.

3. The antibody of claim 1 comprising a heavy chain variable domain of SEQ ID NO: 1; and/or a light chain variable domain of SEQ ID NO: 5.

4. An isolated nucleic acid molecule, which encodes the amino acid sequence of the antibody or antigen-binding fragment of claim 1.

5. A vector comprising an isolated nucleic acid molecule according to claim 4.

6. A host cell comprising the vector according to claim 5.

7. A method of producing an antibody capable of binding RAGE or an antigen-binding fragment thereof, comprising culturing the host cell according to claim 6 in culture medium under conditions sufficient to produce a binding protein capable of binding RAGE the antibody or antigen-binding fragment thereof.

8. An antibody or antigen-binding fragment thereof produced according to the method of claim 7.

9. A composition for the release of an antibody, said composition comprising:
(a) a formulation, wherein said formulation comprises the antibody of claim 1 in crystallized form as an ingredient; and
(b) at least one polymeric carrier.

10. A pharmaceutical composition comprising the antibody of claim 1, and a pharmaceutically acceptable carrier.