Claims

1. Antibody, characterised in that it binds to AβpGlu(11) peptides or variants thereof, preferably with high affinity.

2. Antibody according to claim 1, wherein said high affinity means a dissociation constant (K_D) value of 10^{-7} M, or better.

3. Antibody according to claim 1 or 2, wherein said antibody is a monoclonal antibody.

4. Antibody according to any of the preceding claims, wherein the variable part of the light chain of said antibody has a nucleotide sequence of SEQ ID NO: 51, or an amino acid sequence of SEQ ID NO: 52.

5. Antibody according to any of the preceding claims, wherein the variable part of the heavy chain of said antibody has a nucleotide sequence of SEQ ID NO: 53, or an amino acid sequence of SEQ ID NO: 54.

6. Antibody according to any of the preceding claims, wherein the variable part of the light chain of said antibody has the nucleotide sequence of SEQ ID NO: 51 or the amino acid sequence of SEQ ID NO: 52, and wherein the variable part of the heavy chain of said antibody has the nucleotide sequence of SEQ ID NO: 53, or the amino acid sequence of SEQ ID NO: 54.

7. Antibody according to any of the preceding claims, wherein said antibody is Aβ 13-11-6 (Deposit No. DSM ACC 3100) or a functional variant thereof.

8. Antibody according to claim 7, wherein said antibody is Aβ 13-11-6 (Deposit No. DSM ACC 3100).

9. Antibody according to any of the preceding claims, wherein said antibody is a humanized or chimeric antibody, or an antibody fragment which retains the high affinity.

10. Antibody according to any of the preceding claims for use in the detection of AβpGlu(11)peptides or variants thereof.

11. Antibody according to claim 10, wherein said variants are selected from the following group:

pGlu-$A\beta_{11-38}$
pGlu-$A\beta_{11-40}$
pGlu-$A\beta_{11-42}$, and
pGlu-$A\beta_{11-x}$ variants,

wherein x is an integer between 18 and 42, more preferably 30 and 42.

12. Antibody according to any of the preceding claims, which is human.

13. Antibody according to any of the preceding claims, which is a diabody or a single chain antibody which retains the high affinity.

14. Antibody according to any of the preceding claims, which binds to the epitope bound by the antibodies defined in claim 11.

15. Antibody according to any of the preceding claims, which has the complementarity determining regions of the antibodies as defined in claim 11.

16. Antibody according to any of the preceding claims, wherein the variable part of the light chain of said antibody has

one or more, such as one, two or three, complementarity determining regions which are the same as one or more, such as one, two or three, complementarity determining regions of the antibody having a variable part of a light chain which has a nucleotide sequence of SEQ ID NO: 51, or an amino acid sequence of SEQ ID NO: 52.

17. Antibody according to any of the preceding claims, wherein the variable part of the light chain of said antibody has one or more, such as one, two or three, complementarity determining regions which are the same as one or more, such as one, two or three, complementarity determining regions of the antibody having a variable part of a heavy chain which has a nucleotide sequence of SEQ ID NO: 53, or an amino acid sequence of SEQ ID NO: 54.

18. Antibody according to any of the preceding claims, which is labeled.

19. Antibody according to any of the preceding claims, which is immobilised on a solid phase.

20. Antibody obtainable from the hybridoma cell line DSM ACC 3100.

21. Composition comprising the antibody as defined in any of the preceding claims.

22. Composition according to claim 21 for the treatment, prevention or delay of amyloidosis.

23. Composition according to claim 21 or 22, wherein said amyloidosis is a neurodegenerative disease selected from the group consisting of mild cognitive impairment, Alzheimer's disease and neurodegeneration in Down Syndrome.

24. Composition according to claim 21 or 22, wherein said amyloidosis is sporadic Alzheimer's disease or a Familial Alzheimer's dementia.

25. Composition according to claim 24, wherein said Familial Alzheimer's dementia is Familial British Dementia or Familial Danish Dementia.

26. Hybridoma cell line DSM ACC 3100.

27. Use of the antibody as defined in any one of claims 1 to 20 or the composition as defined in any one of claims 21 to 25 in a diagnostic or therapeutic method.

28. The use according to claim 27 for the diagnosis of an amyloid-associated disease or condition.

29. The use according to claim 28, wherein said amyloidosis is a neurodegenerative disease selected from the group consisting of mild cognitive impairment, Alzheimer's disease and neurodegeneration in Down Syndrome.

30. The use according to claim 28, wherein said amyloidosis is sporadic Alzheimer's disease or a Familial Alzheimer's dementia.

31. The use according to claim 28, wherein said Familial Alzheimer's dementia is Familial British Dementia or Familial Danish Dementia.

32. *In vitro* diagnostic method for the diagnosis of an amyloid-associated disease or condition, in particular Alzheimer's disease, comprising the following steps:
contacting an antibody according to any one of claims 1 to 20 with a sample from a subject suspected to be afflicted with said disease or condition, and

detecting binding of the antibody to a AβpGlu(11) protein from the sample.

33. Diagnostic kit, comprising the antibody as defined in any one of claims 1 to 20, and instructions for use, and - optionally - (a) further biologically active substance(s).

34. The diagnostic kit of claim 33, wherein said further biological substance is an inhibitor of glutaminyl cyclase.

35. An oligonucleotide selected from the group consisting of SEQ ID NOs: 26 to 50.

Claims

1. An isolated monoclonal antibody that binds to AβpGlu(11) peptides or variants thereof, wherein

said antibody has a dissociation constant (K_D) value of 10^{-7} M or less; and

the variable part of the light chain of said antibody is encoded by a nucleic acid molecule having the nucleotide sequence of SEQ ID NO: 51 or has the amino acid sequence of SEQ ID NO: 52.

2. The antibody according to claim 1, wherein said antibody is Aβ 13-11-6 (Deposit No. DSM ACC 3100).

3. The antibody according to claim 1, wherein the antibody is a labeled antibody.

4. The antibody according to claim 1, wherein the antibody is immobilized on a solid phase.

5. An isolated monoclonal antibody that binds to AβpGlu(11) peptides or variants thereof, wherein

said antibody has a dissociation constant (K_D) value of 10^{-7} M or less, and

the variable part of the heavy chain of said antibody is encoded by a nucleic acid molecule having the nucleotide sequence of SEQ ID NO: 53 or has the amino acid sequence of SEQ ID NO: 54.

6. The antibody according to claim 5, wherein said antibody is Aβ 13-11-6 (Deposit No. DSM ACC 3100).

7. An isolated monoclonal antibody that binds to AβpGlu(11) peptides or variants thereof, wherein

said antibody has a dissociation constant (K_D) value of 10^{-7} M or less,

the variable part of the light chain of said antibody is encoded by a nucleic acid molecule having the nucleotide sequence of SEQ ID NO: 51 or has the amino acid sequence of SEQ ID NO: 52, and

the variable part of the heavy chain of said antibody is encoded by a nucleic acid molecule having the nucleotide sequence of SEQ ID NO: 53 or has the amino acid sequence of SEQ ID NO: 54.

8. The antibody according to claim 7, wherein said antibody is Aβ 13-11-6 (Deposit No. DSM ACC 3100).

9. An antibody obtainable from the hybridoma cell line DSM ACC 3100.

10. A hybridoma cell line DSM ACC 3100.