CLAIMS:

1. A pharmaceutical composition for the treatment of an ocular disease associated with pathological abnormalities/changes in the tissues of the visual system, particularly associated with amyloid-beta-related pathological abnormalities/changes in the tissues of the visual system, such as neuronal degradation, comprising a therapeutically effective amount of hC2 antibody.

2. The pharmaceutical composition of claim 1, wherein the hC2 antibody comprises the amino acid sequence of mouse C2 Light Chain Variable Region having SEQ ID NO: 27.

3. The pharmaceutical composition of claim 1, wherein the ocular disease associated with pathological abnormalities/changes in the tissues of the visual system, particularly associated with amyloid-beta-related pathological abnormalities/changes in the tissues of the visual system, such as neuronal degradation, is selected from the group consisting of cortical visual deficits, glaucoma, primary retinal degeneration, including macular degeneration, optic nerve drusen, optic neuropathy, optic neuritis, cataract, ocular amyloidosis and lattice dystrophy.

4. The pharmaceutical composition of claim 3, wherein the ocular disease associated with pathological abnormalities/changes in the tissues of the visual system, particularly associated with amyloid-beta-related pathological abnormalities/changes in the tissues of the visual system, such as neuronal degradation, is glaucoma.

5. The pharmaceutical composition of claim 4, wherein the glaucoma is selected from the group consisting of chronic open-angle glaucoma (COAG), acute angle closure glaucoma (AACG), mixed or combined mechanism glaucoma, normal tension glaucoma, congenital glaucoma, secondary glaucoma, pigmentary glaucoma and exfoliative glaucoma.

6. A method for reducing the plaque load in the retinal ganglion cell layer of a subject suffering from an ocular disease associated with pathological abnormalities/changes in the tissues of the visual system, particularly associated with amyloid-beta-related pathological abnormalities/changes in the tissues of the visual system, such as neuronal degradation, comprising administering to the $_{subject}$ the pharmaceutical composition of claim 1.

7. The method of claim 6, wherein the $_{subject}$ is a mammal.

8. The method of claim 7, wherein the mammal is a human.

9. A method for reducing the amount of plaques in the retinal ganglion cell layer of a subject suffering from an ocular disease associated with pathological abnormalities/changes in the tissues of the visual system, particularly associated with amyloid-beta-related pathological abnormalities/changes in the tissues of the visual system, such as neuronal degradation, comprising administering to the $_{subject}$ the pharmaceutical composition of claim 1.

10. The method of claim 9, wherein the $_{subject}$ is a mammal.

11. The method of claim 10, wherein the mammal is a human.

12. A method for decreasing the total amount of soluble amyloid-β in the retinal ganglion cell layer of a subject comprising administering to the $_{subject}$ the pharmaceutical composition of claim 1.

13. The method of claim 12, wherein the $_{subject}$ is a mammal.

14. The method of claim 13, wherein the mammal is a human.

15. A method for preventing, treating or alleviating the effects of an ocular disease associated with pathological abnormalities/changes in the tissues of the visual system, particularly associated with amyloid-beta-related pathological

abnormalities/changes in the tissues of the visual system, such as neuronal degradation, in a subject comprising administering to the $_{subject}$ the pharmaceutical composition of claim 1.

16. The method of claim 15, wherein the $_{subject}$ is a mammal.

17. The method of claim 16, wherein the mammal is a human.

18. A method for diagnosing an ocular disease associated with pathological abnormalities/changes in the tissues of the visual system, particularly associated with amyloid-beta-related pathological abnormalities/changes in the tissues of the visual system, such as neuronal degradation, in a subject comprising detecting the immunospecific binding of an antibody according to the invention to an epitope of the amyloid protein in a sample or *in situ* which includes the steps of

(a) bringing the sample or a specific body part or body area suspected to contain the amyloid protein into contact with an antibody according to the invention, which antibody binds an epitope of the amyloid protein;

(b) allowing the antibody to bind to the amyloid protein to form an immunological complex;

(c) detecting the formation of the immunological complex, particularly such that presence or absence of the immunological complex correlates with presence or absence of amyloid protein; and

(d) correlating the presence or absence of the immunological complex with the presence or absence of amyloid protein in the sample or specific body part or area.

19. The method of claim 18, wherein the $_{subject}$ is a mammal.

20. The method of claim 19, wherein the mammal is a human.

21. A method for diagnosing a predisposition to an ocular disease associated with pathological abnormalities/changes in the tissues of the visual system,

particularly associated with amyloid-beta-related pathological abnormalities/changes in the tissues of the visual system, such as neuronal degradation, in a subject comprising detecting the specific binding of an antibody according to the invention to an epitope of the amyloid protein in a sample or *in situ* which includes the steps of

(a) bringing the sample or a specific body part or body area suspected to contain the amyloid protein into contact with the antibody, wherein the antibody binds a conformational epitope of the amyloid protein;

(b) allowing the antibody to bind to any amyloid protein in the sample to form an immunological complex;

(c) detecting the formation of the immunological complex;

(d) correlating the presence or absence of the immunological complex with the presence or absence of amyloid protein in the sample or specific body part or area; and

(e) comparing the amount of said immunological complex to a normal control value,

wherein an increase in the amount of said complex compared to a normal control value indicates that said patient is suffering from or is at risk of developing an ocular disease associated with pathological abnormalities/changes in the tissues of the visual system, particularly associated with amyloid-beta-related pathological abnormalities/changes in the tissues of the visual system.

22. The method of claim 21, wherein the $_{\text{subject}}$ is a mammal.

23. The method of claim 22, wherein the mammal is a human.

24. A method for monitoring minimal residual ocular disease associated with pathological abnormalities/changes in the tissues of the visual system, particularly associated with amyloid-beta-related pathological abnormalities/changes in the tissues of the visual system, such as neuronal degradation, in a patient following treatment with the pharmaceutical composition of claim 1, wherein said method comprises:

(a) bringing a sample or a specific body part or body area suspected to contain the amyloid protein into contact with an antibody according to the invention, which antibody binds an epitope of the amyloid protein;

(b) allowing the antibody to bind to the amyloid protein to form an immunological complex;

(c) detecting the formation of the immunological complex;

(d) correlating the presence or absence of the immunological complex with the presence or absence of amyloid protein in the sample or specific body part or area; and

(e) comparing the amount of said immunological complex to a normal control value,

wherein an increase in the amount of said complex compared to a normal control value indicates that said patient still suffers from a minimal residual ocular disease associated with pathological abnormalities/changes in the tissues of the visual system, particularly associated with amyloid-beta-related pathological abnormalities/changes in the tissues of the visual system.

25. The method of claim 24, wherein the patient is a mammal.

26. The method of claim 25, wherein the mammal is a human.

27. A method for predicting responsiveness of a patient being treated with the pharmaceutical composition of claim 1 comprising the steps of:

(a) bringing a sample or a specific body part or body area suspected to contain an amyloid protein into contact with an antibody according to the invention, which antibody binds an epitope of the amyloid protein;

(b) allowing the antibody to bind to the amyloid protein to form an immunological complex;

(c) detecting the formation of the immunological complex;

(d) correlating the presence or absence of the immunological complex with the presence or absence of amyloid protein in the sample or specific body part or area; and

(e) comparing the amount of said immunological complex before and after onset of the treatment,

wherein a decrease in the amount of said immunological complex indicates that said patient has a high potential of being responsive to the treatment.

28. The method of claim 27, wherein the patient is a mammal.

29. The method of claim 28, wherein the mammal is a human.

30. A method for retaining or decreasing ocular pressure in the eyes of a subject suffering from an ocular disease associated with pathological abnormalities/changes in the tissues of the visual system, particularly associated with amyloid-beta-related pathological abnormalities/changes in the tissues of the visual system, such as neuronal degradation, comprising administering to the $_{\text{subject}}$ a therapeutically effective amount of the pharmaceutical composition of claim 1.

31. The method of claim 30, wherein the $_{\text{subject}}$ is a mammal.

32. The method of claim 31, wherein the mammal is a human.

CLAIMS:

1. An *in vitro* method for diagnosing an ocular disease associated with amyloid-beta-related pathological abnormalities/changes in the tissues of the visual system, in a subject comprising detecting the immunospecific binding of a humanized antibody or fragment thereof to an epitope of amyloid protein in a sample, which includes the steps of

    (a) bringing the sample from the subject suspected to contain amyloid protein into contact with a humanized antibody or fragment thereof that binds an epitope of an amyloid protein and comprises a heavy chain complementarity determining region (CDR) 1 having the amino acid sequence of SEQ ID NO: 1; a heavy chain CDR2 having the amino acid sequence of SEQ ID NO: 2; a heavy chain CDR3 having the amino acid sequence of SEQ ID NO: 3; a light chain CDR1 having the amino acid sequence of SEQ ID NO: 4; a light chain CDR2 having the amino acid sequence of SEQ ID NO: 5, the amino acid sequence RVSNRFS, or the amino acid sequence KVSSRFS; and a light chain CDR3 having the amino acid sequence of SEQ ID NO: 6; wherein the antibody is of the IgG4 isotype;

    (b) allowing the antibody or epitope-binding fragment thereof to bind to amyloid protein to form an immunological complex;

    (c) detecting the formation of the immunological complex; and

    (d) correlating the presence or absence of the immunological complex with the presence or absence of amyloid protein in the sample.

2. An *in vitro* method for diagnosing a predisposition to an ocular disease associated with amyloid-beta-related pathological abnormalities/changes in the tissues of the visual system, in a subject comprising detecting the specific binding of a humanized antibody or fragment thereof to an epitope of amyloid protein in a sample, which includes the steps of

(a) bringing the sample from the subject suspected to contain amyloid protein into contact with an antibody or fragment thereof that binds to an epitope of the amyloid protein and comprises a heavy chain CDR1 having the amino acid sequence of SEQ ID NO: 1; a heavy chain CDR2 having the amino acid sequence of SEQ ID NO: 2; a heavy chain CDR3 having the amino acid sequence of SEQ ID NO: 3; a light chain CDR1 having the amino acid sequence of SEQ ID NO: 4; a light chain CDR2 having the amino acid sequence of SEQ ID NO: 5, the amino acid sequence RVSNRFS, or the amino acid sequence KVSSRFS; and a light chain CDR3 having the amino acid sequence of SEQ ID NO: 6; wherein the antibody is of the IgG4 isotype;

(b) allowing the antibody or epitope-binding fragment thereof to bind to any amyloid protein in the sample to form an immunological complex;

(c) detecting the formation of the immunological complex;

(d) correlating the presence or absence of the immunological complex with the presence or absence of amyloid protein in the tissues of the visual system; and

(e) comparing the amount of said immunological complex to a normal control value,

wherein an increase in the amount of said complex compared to a normal control value indicates that said patient is suffering from or is at risk of developing an ocular disease associated with amyloid-beta-related pathological abnormalities/changes in the tissues of the visual system.

3. An *in vitro* method for monitoring minimal residual ocular disease associated with amyloid-beta-related pathological abnormalities/changes in the tissues of the visual system, in a subject following treatment with a pharmaceutical composition,

wherein the pharmaceutical composition comprises a therapeutically effective amount of a humanized antibody or fragment thereof that binds to an epitope of an amyloid protein, wherein the antibody or epitope-binding fragment thereof comprises

a heavy chain CDRl having the amino acid sequence of SEQ ID NO: 1; a heavy chain CDR2 having the amino acid sequence of SEQ ID NO: 2; a heavy chain CDR3 having the amino acid sequence of SEQ ID NO: 3; a light chain CDR1 having the amino acid sequence of SEQ ID NO: 4; a light chain CDR2 having the amino acid sequence of SEQ ID NO: 5, the amino acid sequence RVSNRFS, or the amino acid sequence KVSSRFS; and a light chain CDR3 having the amino acid sequence of SEQ ID NO: 6; and wherein the antibody is of the IgG4 isotype

and wherein said method comprises:

(a) bringing a sample from the subject suspected to contain amyloid protein into contact with a humanized antibody or fragment thereof that binds to an epitope of amyloid protein and comprises a heavy chain CDRl having the amino acid sequence of SEQ ID NO: 1; a heavy chain CDR2 having the amino acid sequence of SEQ ID NO: 2; a heavy chain CDR3 having the amino acid sequence of SEQ ID NO: 3; a light chain CDR1 having the amino acid sequence of SEQ ID NO: 4; a light chain CDR2 having the amino acid sequence of SEQ ID NO: 5, the amino acid sequence RVSNRFS, or the amino acid sequence KVSSRFS; and a light chain CDR3 having the amino acid sequence of SEQ ID NO: 6; wherein the antibody is of the IgG4 isotype;

(b) allowing the antibody or epitope-binding fragment thereof to bind to amyloid protein to form an immunological complex;

(c) detecting the formation of the immunological complex;

(d) correlating the presence or absence of the immunological complex with the presence or absence of amyloid protein in the sample; and

(e) comparing the amount of said immunological complex to a normal control value,

wherein an increase in the amount of said complex compared to a normal control value indicates that said patient still suffers from minimal residual ocular

disease associated with amyloid-beta-related pathological abnormalities/changes in the tissues of the visual system.

4. An *in vitro* method for predicting responsiveness of a subject being treated with the pharmaceutical composition for the treatment of an ocular disease associated with amyloid-beta-related pathological abnormalities/changes in the tissues of the visual system,

wherein the pharmaceutical composition comprises a therapeutically effective amount of a humanized antibody or fragment thereof that binds to an epitope of an amyloid protein, wherein the antibody or epitope-binding fragment thereof comprises a heavy chain CDR1 having the amino acid sequence of SEQ ID NO: 1; a heavy chain CDR2 having the amino acid sequence of SEQ ID NO: 2; a heavy chain CDR3 having the amino acid sequence of SEQ ID NO: 3; a light chain CDR1 having the amino acid sequence of SEQ ID NO: 4; a light chain CDR2 having the amino acid sequence of SEQ ID NO: 5, the amino acid sequence RVSNRFS, or the amino acid sequence KVSSRFS; and a light chain CDR3 having the amino acid sequence of SEQ ID NO: 6; and wherein the antibody is of the IgG4 isotype

and wherein said method comprises:

(a) bringing a sample from the subject suspected to contain amyloid protein into contact with a humanized antibody or fragment thereof that binds to an epitope of an amyloid protein and comprises a heavy chain CDR1 having the amino acid sequence of SEQ ID NO: 1; a heavy chain CDR2 having the amino acid sequence of SEQ ID NO: 2; a heavy chain CDR3 having the amino acid sequence of SEQ ID NO: 3; a light chain CDR1 having the amino acid sequence of SEQ ID NO: 4; a light chain CDR2 having the amino acid sequence of SEQ ID NO: 5, the amino acid sequence RVSNRFS, or the amino acid sequence KVSSRFS; and a light chain CDR3 having the amino acid sequence of SEQ ID NO: 6; wherein the antibody is of the IgG4 isotype;

(b) allowing the antibody or epitope-binding fragment thereof to bind to amyloid protein to form an immunological complex;

(c) detecting the formation of the immunological complex;

(d) correlating the presence or absence of the immunological complex with the presence or absence of amyloid protein in the sample; and

(e) comparing the amount of said immunological complex to a normal control value,

wherein a decrease in the amount of said immunological complex indicates that said patient has a high potential of being responsive to the treatment.

5. The method of any one of claims 1 to 4, wherein the antibody or epitope-binding fragment thereof comprises a light chain variable region of SEQ ID NO: 12 and a heavy chain variable region of SEQ ID NO: 15.

6. The method of any one of claims 1 to 4, wherein the ocular disease is selected from the group consisting of cortical visual deficits, glaucoma, optic nerve drusen, optic neuropathy, optic neuritis, cataract, ocular amyloidosis and lattice dystrophy.

7. The method of claim 6, wherein the ocular disease is glaucoma.

8. The method of claim 7, wherein the glaucoma is selected from the group consisting of chronic open-angle glaucoma (COAG), acute angle closure glaucoma (AACG), mixed or combined mechanism glaucoma, normal tension glaucoma, congenital glaucoma, secondary glaucoma, pigmentary glaucoma and exfoliative glaucoma.

9. The method of any one of claim 1 to 4, wherein the ocular disease is not macular degeneration.

10. The method of any one of claims 1 to 9, wherein the subject is a mammal.

11. The method of claim 10, wherein the mammal is a human.