

greater than 55% reduction of change in GA area from baseline GA area. In one embodiment, the treatment results in greater than 50% reduction of change in GA area from baseline GA area. In one embodiment, the treatment results in greater than 45% reduction of change in GA area from baseline GA area. In one embodiment, the treatment results in greater than 40% reduction of change in GA area from baseline GA area. In one embodiment, the treatment results in greater than 35% reduction of change in GA area from baseline GA area. In one embodiment, the treatment results in greater than 30% reduction of change in GA area from baseline GA area. In one embodiment, the treatment results in greater than 25% reduction of change in GA area from baseline GA area. In one embodiment, the treatment results in greater than 20% reduction of change in GA area from baseline GA area. In one embodiment, the treatment results in greater than 15% reduction of change in GA area from baseline GA area. In one embodiment, the treatment results in greater than 10% reduction of change in GA area from baseline GA area. In one embodiment, the treatment results in greater than 5% reduction of change in GA area from baseline GA area. In one embodiment, the patient has geographic atrophy secondary to AMD. In one embodiment, the study eye in the patient has a BCVA between 20/25 and 20/400. In one embodiment, the study eye in the patient has a BCVA between 20/25 and 20/100. In one embodiment, the study eye in the patient has a BCVA between 20/50 and 20/400. In one embodiment, the study eye in the patient has a BCVA between 20/50 and 20/100. In one embodiment, the study eye in the patient has a BCVA better than 20/25 or worse than 20/400. In one embodiment, the BCVA was determined using ETDRS charts. In one embodiment, the patient has not received any previous intravitreal treatment, retinal surgery or other retinal therapeutic procedures in the study eye.

[0026] In one embodiment, the disclosure provides a kit for genotyping in a biological sample from a degenerative disease patient, wherein the kit comprises oligonucleotides for polymerase chain reaction or sequencing for detection of a risk allele. In another embodiment, there is provided a kit for determining the presence of at least two AMD-associated polymorphisms in a biological sample, comprising reagents and instructions for detecting the genotype of the biological sample for the presence of at least two AMD-associated polymorphisms, wherein the AMD-associated polymorphisms are the SNP rs4698775 and a SNP selected from the group consisting of SNP rs17440077, rs10737680, rs1329428, rs429608, and rs2230199, or a SNP that is in linkage disequilibrium with SNP rs4698775 and a SNP that is in linkage disequilibrium with a SNP selected from the group consisting of SNP rs17440077, rs10737680, rs1329428, rs429608 and rs2230199. In one embodiment, the biological sample is a blood sample, saliva, cheek swab, tissue sample or a sample of bodily fluids. In one embodiment, the biological sample is a nucleic acid sample.

C2, CFB, C3 or CFH respectively, selected from the group consisting of the G genotype at the SNP rs4698775, SNP rs17440077, SNP rs1329428, SNP rs429608 or SNP rs2230199 or the A genotype at the SNP rs10737680. In one embodiment, the anti-factor D antibody, or antigen-binding fragment thereof, comprises HVRH1, HVRH2, HVRH3, HVRL1, HVRL2, HVRL3, and HVRL3, wherein the respective HVRs have the amino acid sequence of SEQ ID NO: 1, SEQ ID NO: 2, SEQ ID NO: 3, SEQ ID NO: 4, SEQ ID NO: 5 and SEQ ID NO: 6.

[0028] In one embodiment of the disclosure, the anti-factor D antibody, or antigen-binding fragment thereof, comprises the variable heavy chain of SEQ ID NO: 7 and/or the variable light chain of SEQ ID NO: 8..

[0029] In one embodiment of the disclosure, the polymorphism is a CFI polymorphism. In one embodiment, the CFI polymorphism is present in combination with one or more additional polymorphisms selected from the group consisting of a CFH polymorphism, a C2 polymorphism, a C3 polymorphism or a CFB polymorphism.

[0030] In one embodiment, there is provided the use of an agent that specifically binds to at least two AMD-associated polymorphisms, wherein the polymorphisms are SNP rs4698775 and a SNP selected from the group consisting of SNP rs17440077, rs10737680, rs1329428, rs429608, and rs2230199, or a SNP that is in linkage disequilibrium with SNP rs4698775 and a SNP that is in linkage disequilibrium with a SNP selected from the group consisting of SNP rs17440077, rs10737680, rs1329428, rs429608 and rs2230199, for the manufacture of a diagnostic for diagnosing AMD. In one embodiment, the CFI allele is an equivalent allele thereof, the CFH allele is an equivalent allele thereof, the C2 allele is an equivalent allele thereof, the CFB allele is an equivalent allele thereof, or the C3 allele is an equivalent allele thereof. In one embodiment, the CFI allele comprises a G at the single nucleotide polymorphism (SNP) rs4698775 or rs17440077, the CFH allele comprises an A at the single nucleotide polymorphism (SNP) rs10737680 or a G at the single nucleotide polymorphism (SNP) rs1329428, the C2 allele comprises a G at the single nucleotide polymorphism (SNP) rs429608, the CFB allele comprises a G at the single nucleotide polymorphism (SNP) rs429608, and the C3 allele comprises a G at the single nucleotide polymorphism (SNP) rs2230199. In one embodiment, at least one polymorphism is detected by a technique selected from the group consisting of scanning probe and nanopore DNA sequencing, pyrosequencing, Denaturing Gradient Gel Electrophoresis (DGGE), Temporal Temperature Gradient Electrophoresis (TTGE), Zn(II)-cyclen polyacrylamide gel electrophoresis, homogeneous fluorescent PCR-based single nucleotide polymorphism analysis, phosphate-affinity polyacrylamide gel electrophoresis, high-throughput SNP genotyping

factor D antibody, or an antigen-binding fragment thereof, when the risk allele G at SNP rs4698775 for CFI allele is present along with at least one risk allele G at either SNP rs1329428 for CFH allele or SNP rs429608 for C2/CFB allele.

28. The method of claim 27, wherein the set of oligonucleotides include a forward primer selected from SEQ ID NOs. 17, 18, 25, 26, 34 and 35; a reverse primer selected from the group consisting of SEQ ID NOs. 19, 20, 27, 28, 36 and 37 and a labeled probe selected from the group consisting of SEQ ID NOs. 21-24, 29-33, and 38-41, according to Table 9.

29. The method of claim 28, wherein the genotype at rs4698775 is detected using a forward primer of SEQ ID NO:17 or 18 combined with a reverse primer of SEQ ID NO:19 or 20 and a labeled probe selected from SEQ ID NOs. 21-24; the genotype at rs429608 (C2) is detected using a forward primer of SEQ ID NO:25 or 26 combined with a reverse primer of SEQ ID NO:27 or 28 and a labeled probe selected from SEQ ID NOs. 29-33; and the genotype at rs1329428 (CFH) is detected using a forward primer of SEQ ID NO:34 or 35 combined with a reverse primer of SEQ ID NO:36 or 37 and a labeled probe selected from SEQ ID NOs. 38-41.

30. In vitro use of an agent that binds to at least two AMD-associated polymorphisms, wherein the polymorphisms are SNP rs4698775 and a SNP selected from the group consisting of SNP rs17440077, rs10737680, rs1329428, rs429608, and rs2230199, or a SNP that is in linkage disequilibrium with SNP rs4698775 and a SNP that is in linkage disequilibrium with a SNP selected from the group consisting of SNP rs17440077, rs10737680, rs1329428, rs429608 and rs2230199, for identifying a patient having an AMD likely to respond to a therapy comprising an anti-factor D antibody, or antigen binding fragment thereof, wherein the presence of said polymorphisms identifies that the patient is more likely to respond to the therapy.

31. The use of claim 30 wherein the CFI allele comprises a G at the single nucleotide polymorphism (SNP) rs4698775 or rs17440077, the CFH allele comprises an A at the single nucleotide polymorphism (SNP) rs10737680 or a G at the single nucleotide polymorphism (SNP) rs1329428, the C2 allele comprises a G at the single nucleotide polymorphism (SNP) rs429608, the CFB allele comprises a G at the single nucleotide polymorphism (SNP) rs429608, and the C3 allele comprises a G at the single nucleotide polymorphism (SNP) rs2230199.

32. The use of claim 30 wherein at least one polymorphism is detected by a technique selected from the group consisting of scanning probe and nanopore DNA sequencing, pyrosequencing, Denaturing Gradient Gel Electrophoresis (DGGE), Temporal Temperature Gradient Electrophoresis (TTGE), Zn(II)-cyclen polyacrylamide gel electrophoresis, homogeneous fluorescent PCR-based single nucleotide polymorphism analysis, phosphate-affinity polyacrylamide gel electrophoresis, high-throughput SNP genotyping platforms, molecular beacons, 5' nuclease reaction, Taqman assay, MassArray (single base primer extension coupled with matrix-assisted laser desorption/ionization time-of-flight mass spectrometry), trityl mass tags, genotyping platforms (such as the Invader Assay®), single base primer extension (SBE) assays, PCR amplification (e.g. PCR amplification on magnetic nanoparticles (MNPs), restriction enzyme analysis of PCR products (RFLP methods), allele-specific PCR, multiple primer extension (MPEX), and isothermal smart amplification.
33. The use of claim 30 wherein at least one polymorphism is detected by amplification of a target region containing at least one polymorphism, and hybridization with at least one sequence-specific oligonucleotide that hybridizes under stringent conditions to at least one polymorphism and detecting the hybridization.
34. The use of claim 30 wherein the presence of one or two alleles of the G genotype at the SNP rs4698775, SNP rs17440077, SNP rs1329428, SNP rs429608 or SNP rs2230199 or one or two alleles of the A genotype at the SNP rs10737680 in the individual indicates an increased risk for AMD progression.
35. The use of claim 31 wherein a polymorphism that is in linkage disequilibrium with at least one single nucleotide polymorphism selected from the group consisting of single nucleotide polymorphism (SNP) rs4698775, rs17440077, rs10737680, rs1329428, rs429608, and rs2230199 is detected.
36. The use of any one of claims 30-35 wherein the AMD is dry AMD.
37. The use of any one of claims 30-36 wherein the age related macular degeneration is early, intermediate or advanced AMD.
38. The use of claim 37 wherein the advanced AMD is geographic atrophy.
39. Use of an anti-factor D antibody, or antigen-binding fragment thereof in the manufacture of a medicament for treating a patient who has been identified as a patient

having an AMD who is more likely to respond to a therapy comprising the anti-factor D antibody, or antigen-binding fragment thereof, according to the method of claim 2.

40. The use of claim 39, wherein the anti-factor D antibody, or antigen-binding fragment thereof, comprises HVRH1, HVRH2, HVRH3, HVRL1, HVRL2, HVRL3, and HVRL3, wherein the respective HVRs have the amino acid sequence of SEQ ID NO:1, SEQ ID NO:2, SEQ ID NO:3, SEQ ID NO:4, SEQ ID NO:5 and SEQ ID NO:6.

41. The use of claim 39, wherein the anti-factor D antibody, or antigen-binding fragment thereof, comprises the variable heavy chain of SEQ ID NO:7 and/or the variable light chain of SEQ ID NO:8.

42. The use of claim 39, wherein the anti-factor D antibody, or fragment thereof is lampalizumab.

43. The use of any one of claims 39-42 wherein the AMD is dry AMD.

44. The use of any one of claims 39-43 wherein the age related macular degeneration is early, intermediate or advanced AMD.

45. The use of claim 44 wherein the advanced AMD is geographic atrophy.