

CLAIMS

1. Method for determining the likelihood of a user being at or beyond a certain rate and/or risk of visual field progression (VFP), comprising the following steps:
 - 5 - a measuring step (S101) comprising measuring ocular biomechanical properties (OBP) through a continuous-wear sensor placed on or implanted in the eye, with said measurement comprising repeated data capture at regular time intervals;
 - a recording step (S102) comprising recording the user's ocular biomechanical properties in the form of at least one OBP time series plot in a recorder;
 - 10 - a processing step (S103) wherein at least one of a plurality of OBP parameters are extracted from the recorded OBP time series plot;
 - a calculation step (S104) wherein the at least one of a plurality of OBP parameters are associated to VFP, and
 - a determining step (S105) wherein one determines whether the visual field
15 progression is at or beyond a certain VFP threshold and/or the probability that the said visual field progression is comprised within a specific range.
2. The method according to claim 1, wherein in the determining step (S105), the visual field progression threshold is 0 dB/year or less.
3. The method according to claim 1 or 2, wherein the processing step (S103)
20 extracts a first number of first order parameters which are then combined to provide a second number, lower than the first number, of second order parameters.
4. The method according to any one of claims 1-3, wherein the extracted OBP parameters are at least one taken from the group comprising amplitude, minimum, maximum, standard-deviation, number of peaks, slopes, fitted cosinor curve of a 24-hour
25 OBP profile, number of large peaks, mean peak ratio, amplitude of the cosine curve, wake-to-sleep slope, variability from the mean and area under the curve, or a combination thereof.

5. The method according to any one of claims 1-4, wherein in the calculation (S104) step, the extracted OBP parameters are combined with additional user metadata.
6. The method according to claim 5, wherein the extracted OBP parameters and additional user metadata are combined through a logistic model.
- 5 7. The method according to claim 5 or 6, wherein the additional user metadata are taken from the group comprising latest IOP data, age, a number of medications taken during past 5 years, latest visual field mean defect.
8. The method according to any one of claims 1-7, wherein the continuous-wear sensor is a wireless Contact Lens Sensor.
- 10 9. The method according to claim 8, wherein the continuous-wear sensor is implanted in the eye.
10. The method according to any one of claims 1-9, further comprising an OBP data downloading step (S106) comprising transferring the OBP data from the recorder to a computer.
- 15 11. The method according to claim 10, wherein the downloading step consists in a wireless data transfer.
12. The method according to any one of claims 1-11, further comprising a cleaning step (S107) prior to the processing step (S103) and adapted to clean the OBP time data by deleting the bad quality measured data.
- 20 13. The method according to any one of claims 1-12, further comprising a result communicating step (S108) after the determining step (S105), adapted to send a signal to a receiver, said signal indicating the likelihood of being at or beyond a certain rate and/or risk of visual field progression.
- 25 14. The method according to any one of claims 1-13, characterized in that it is a computer-implemented method.

15. The method according to claim 1, wherein the determining step (S105) determines the likelihood of being at or beyond a certain rate and/or risk of RNFL progression.

16. A system for predicting visual field progression in a user by carrying out the
5 process of any one of claims 1-14, the system comprising:

- a continuous-wear sensor placed on or implanted in the eye adapted to measure ocular biomechanical properties with repeated data capture at regular time intervals;
- a recorder adapted to record the user's ocular biomechanical properties in
10 the form of at least one OBP time series plot,
- a processing unit for extracting at least one of a plurality of OBP parameters from the recorded OBP time series plot;
- a calculation unit for associating the at least one of a plurality of OBP parameters to VFP, and
- 15 - a determining unit for determining whether the visual field progression is at or beyond a certain VFP threshold and/or the probability that the said visual field progression is comprised within a specific range.