CLAIMS:

1. A neural response system, including:

a plurality of filters for each receiving and filtering a plurality of tilt response signals obtained from a person;

a segmenter for segmenting the filtered response signals into time segments; and

a neural event extractor for performing a neural event extraction process on each of the time segments to obtain and generate biomarker data representing a plurality of biomarkers for each segment.

2. A neural response system as claimed in claim 1, wherein the tilt response signals are obtained from at least one electrode connected to at least one ear of the person subjected to a plurality of tilt sequences in a tilt chair.

3. A neural response system as claimed in claim 1, wherein the filters include at least one of a notch filter to substantially pass all frequencies, a first high pass filter and a second high pass filter.

4. A neural response system as claimed in claim 3, wherein the cut-off frequency for the first filter is about 5 Hz and the cut-off frequency for the second filter is about 120 Hz.

5. A neural response systems as claimed in any one of the preceding claims, wherein the neural event extractor generates curve data representing a Sp/ Ap field potential curve for each segment.

6. A neural response system as claimed in claim 5, wherein the biomarker data is determined using the curve data and the biomarkers represent relationships and constants associated with the field potential curve.

7. A neural response system as claimed in claim 5 or 6, wherein the biomarker data is determined using the curve data and the biomarkers represent spike rates, and time and

voltage measurements of the field potential curve.

8. A neural response system as claimed in claims 5, 6 or 7, wherein the biomarker data is determined using the curve data and the biomarkers represent ratios, angles and areas associated with the field potential curve.

9. A neural response system as claimed in any one of the preceding claims, including a diagnostic tool for comparing the biomarker data of each segment with fingerprint data for a condition, and recording deviation measures between said the fingerprint data and the biomarker data.

10. A neural response system as claimed in claim 9, wherein recording the deviations includes summing the deviations, and the diagnostic tool compares sums with the fingerprint data for the biomarkers.

11. A neural response system as claimed in claim 1, wherein the biomarkers represent a comparison between a background phase and an acceleration or deceleration phase of the response signals.

12. A neural response system as claimed in any one of the preceding claims, including a tilt chair for subjecting the person to a plurality of tilt sequences, and at least one electrode connected to at least one ear of the person and an amplifier circuit to record the tilt response signals produced in response to each tilt sequence.

13. A neural response system as claimed in claim 12, wherein the tilt sequences include at least one of up/down, front/back, ipsilateral, contralateral, and rotation.

14. A neural response system as claimed in claim 13, wherein the up/down and rotation sequences includes sequences with the patient upright and sequences with the person prone.

15. A neural response system as claimed in claim 14, wherein electrodes are connected to each ear of the person to record the tilt response signals produced in response to each tilt sequence for the left ear and the right ear.

16. A neural response system as claimed in any one of the preceding claims, wherein the biomarker data indicates whether the person has at least one condition being a neurological disorder and/or neurodegenerative disease.

17. A neural response system as claimed in claim 16, wherein the condition includes one of benign positional paroxysmal vertigo (BPPV), Meniere's disease, Parkinson's disease, Schizophrenia, depression, BiPolar Affective Disorder, Alzheimers, Dementia, Attention Deficit and Hyperactivity Disorder, Multiple Sclerosis, Huntington's Chorea and Creutzfeldt Jakob disease.

18. A neural response system as claimed in any one of the preceding claims, wherein the biomarker data indicates an effect arising from administration of a pharmaceutical and/or physical therapy.

19. A neural response system as claimed in any one of the preceding claims, wherein the biomarker data is used to differentiate a diagnosis between conditions having similar symptoms.

20. A neural response system as claimed in claim 19, wherein the conditions are benign positional paroxysmal vertigo (BPPV) and Meniere's disease.

21. A neural response system as claimed in claim 19, wherein the conditions are clinical depression and a depressive phase of a BiPolar Affective Disorder.

22. A neural response process, including:

receiving and filtering, using a plurality of filters, a plurality of tilt response signals obtained from a person;

segmenting the filtered response signals into time segments; and

processing each of the time segments using a neural event extraction process to obtain and generate biomarker data representing a plurality of biomarkers for each segment.

23. A neural response process as claimed in claim 22, wherein the tilt response signals are obtained from at least one electrode connected to at least one ear of the person subjected to a plurality of tilt sequences in a tilt chair.

24. A neural response process as claimed in claim 22, wherein the filters include at least one of a notch filter to substantially pass all frequencies, a first high pass filter and a second high pass filter.

25. A neural response process as claimed in claim 24, wherein the cut-off frequency for the first filter is about 5 Hz and the cut-off frequency for the second filter is about 120 Hz.

26. A neural response process as claimed in any one of claims 22 to 25, wherein said processing generates curve data representing a Sp/Ap field potential curve for each segment.

27. A neural response process as claimed in claim 26, wherein the biomarker data is determined using the curve data and the biomarkers represent relationships and constants associated with the field potential curve.

28. A neural response process as claimed in claim 26 or 27, wherein the biomarker data is determined using the curve data and the biomarkers represent spike rates, and time and voltage measurements of the field potential curve.

29. A neural response process as claimed in claims 26, 27 or 28, wherein the biomarker data is determined using the curve data and the biomarkers represent ratios, angles and areas associated with the field potential curve.

30. A neural response process as claimed in any one of claims 22 to 29, including comparing the biomarker data of each segment with fingerprint data for a condition, and recording deviation measures between said the fingerprint data and the biomarker data.

31. A neural response process as claimed in claim 30, wherein recording the deviations includes summing the deviations, and the sums are compared with the fingerprint data for the biomarkers to determine whether said person has said condition.

32. A neural response process as claimed in claim 22, wherein the biomarkers represent a comparison between a background phase and an acceleration or deceleration phase of the response signals.

33. A neural response process as claimed in any one of claims 22 to 32, wherein the tilt sequences include at least one of up/down, front/back, ipsilateral, contralateral, and rotation.

34. A neural response process as claimed in claim 33, wherein the up/down and rotation sequences includes sequences with the person upright and sequences with the person prone.

35. A neural response process as claimed in claim 34, including connecting electrodes to each ear of the person to record the tilt response signals produced in response to each tilt sequence for the left ear and the right ear.

36. A neural response process as claimed in any one of claims 22 to 35, wherein the biomarker data indicates whether the person has at least one condition being a neurological disorder and/or neurodegenerative disease.

37. A neural response process as claimed in claim 36, wherein the condition includes one of benign positional paroxysmal vertigo (BPPV), Meniere's disease, Parkinson's disease, Schizophrenia, depression, BiPolar Affective Disorder, Alzheimers, Dementia,

Attention Deficit and Hyperactivity Disorder, Multiple Sclerosis, Huntingdon's Chorea and Creutzfeldt Jakob disease.

38. A neural response process as claimed in any one of claims 22 to 37, wherein the biomarker data indicates an effect arising from administration of a pharmaceutical and/or physical therapy.

39. A neural response process as claimed in any one of claims 22 to 38, wherein the biomarker data is used to differentiate a diagnosis between conditions having similar symptoms.

40. A neural response process as claimed in claim 39, wherein the conditions are benign positional paroxysmal vertigo (BPPV) and Meniere's disease.

41. A neural response process as claimed in claim 39, wherein the conditions are clinical depression and a depressive phase of a BiPolar Affective Disorder.

42. A neural response system or process substantially as hereinbefore described with reference to the accompanying drawings.~~, including:~~

~~a neural response processor for processing time segments of tilt response signals obtained from a person to obtain biomarker data representing a dynamic phase of each tilt response signal; and~~

~~a diagnostic tool for processing the biomarker data to determine whether said person has a neurological condition.~~