

## WHAT IS CLAIMED IS:

1. A method of diagnosing and/or monitoring traumatic brain injury (TBI) in a subject, the method comprising determining a level of at least one RNA biomarker in a saliva sample obtained from the subject, wherein the at least one RNA biomarker:
  - a. selected from the group consisting of hsa-miR-1246, hsa-miR-126-3p (miR-126\*), hsa-miR-144-3p (miR-144\*), hsa-miR-144-5p (=miR-144\*), hsa-miR-16-1-3p, hsa-miR-339-5p, hsa-miR-497-5p, put-miR-1204, put-miR-323, put-miR-325, put-miR-444, put-miR-465, put-miR-469, put-miR-594, put-miR-856, put-miR-893, put-miR-958, RNU4-6p, SNORA57, SNORD3B-2, tRNA120-AlaAGC, tRNA18-ArgCCT, tRNA27-MetCAT, tRNA2-LeuTAA, tRNA73-ArgCCG, tRNA8-ThrAGT, tRNA9-TyrGTA, U2.3, U4.64, U6.168, U6.601, UC022CJG1, YRNA-245, and YRNA-684, or any combination thereof; and/or
  - b. selected from the group consisting of put-miR-1003, put-miR-1080, put-miR-1084, put-miR-1146 (2), put-miR-1207, put-miR-1306, put-miR-188, put-miR-209, put-miR-468, put-miR-476, put-miR-6, put-miR-71, put-miR-742, put-miR-806, put-miR-92, put-miR-961, RNU6-4, RNU6-45, RNU6-6, RNU6-7, RNU6-73, U6.1249, U6.375, U6.428, and YRNA-255, or any combination thereof.
2. The method of claim 1, wherein either an upregulated level or a downregulated level of the at least one RNA biomarker is indicative of TBI.
3. The method of claim 1, wherein the subject is diagnosed as having TBI if the level of the at least one RNA biomarker is either above or below a predetermined threshold or increased or decreased relative to a control.
4. The method of claim 1, wherein the saliva sample is obtained during a period of time after injury selected from immediately after the injury to any period post-injury.
5. The method of claim 4, wherein the saliva sample is obtained during a period of time after injury selected from immediately after the injury until the expression level of at

least one of the RNA biomarkers returns to the predetermined threshold value or to the amount of the RNA biomarker in the control sample.

6. The method of claim 4, wherein the saliva sample is obtained during a period of time after injury selected from immediately after the injury to up to 1 year, up to 10 months, up to 8 months, up to 6 months, up to 5 months, up to 4 months, up to 3 months, up to 2 months, up to 1 month, up to 25 days, up to 20 days, up to 15 days, up to 7 days, up to 5 days, up to 3 days, up to 2 days, and/or up to 24 hours post-injury.
7. The method of claim 6, wherein the saliva sample is obtained during a period of time after injury selected from immediately after the injury to 15 days, from 1 hour to 15 days, from 24 hours to 15 days, from 24 hours to 7 days, and from 2 to 5 days.
8. The method of claim 1, further comprising obtaining one or more additional saliva samples from the subject at one or more additional times after the injury and repeating the detecting and amplifying steps for each additional sample.
9. The method of claim 8, wherein the one or more additional saliva sample is obtained during a period of time after injury selected from immediately after the injury to any period post-injury.
10. The method of claim 8, wherein the one or more additional saliva sample is obtained during a period of time after injury selected from immediately after the injury until the expression level of at least one of the RNA biomarkers returns to the predetermined threshold value or to the amount of the RNA biomarker in the control sample.
11. The method of claim 8, wherein the one or more additional saliva sample is obtained during a period of time after injury selected from immediately after the injury to up to 1 year, up to 10 months, up to 8 months, up to 6 months, up to 5 months, up to 4 months, up to 3 months, up to 2 months, up to 1 month, up to 25 days, up to 20 days, up to 15 days, up to 7 days, up to 5 days, up to 3 days, up to 2 days, and/or up to 24 hours post-injury.

12. The method of claim 11, wherein the one or more additional saliva sample is obtained during a period of time after injury selected from immediately after the injury to 15 days, from 1 hour to 15 days, from 24 hours to 15 days, from 24 hours to 7 days, and from 2 to 5 days.
13. The method of claim 8, wherein the one or more additional saliva samples is obtained at day 1, 1.5, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, or 15 after the injury.
14. The method of any one of claims 1-13, wherein the detecting an amount of the at least one RNA biomarker is performed using a PCR-based assay, a light array assay, a laminar flow chip assay, or any assay suitable for detecting that at least one RNA biomarker.
15. The method of claim 14, wherein when using the PCR-based assay the predetermined threshold is equivalent to a fold change of 1.5 or more using the 2-delta delta CT ( $2^{-\Delta\Delta CT}$ ) method.
16. The method of claim 14, wherein the predetermined threshold is equivalent to a fold change of 2 or more using the 2-delta delta CT ( $2^{-\Delta\Delta CT}$ ) method.
17. The method of any one of claims 1-16, wherein the at least one RNA biomarker further comprises one or more miRNA:
  - a. selected from the group consisting of hsa-let-7i-5p, hsa-miR-107, hsa-miR-126-5p (=miR-126\*), hsa-miR-135b-5p, hsa-miR-142-3p, hsa-miR-142-5p, hsa-miR-143-3p (=miR-143), hsa-miR-148a-3p, hsa-miR-206, hsa-miR-29c-3p, hsa-miR-34b-3p, hsa-miR-425-5p, hsa-miR-449a, hsa-miR-671-3p, hsa-miR-6748-3p, and hsa-miR-934, or any combination thereof; and/or
  - b. selected from the group consisting of hsa-let-7a-5p, hsa-let-7b-5p, hsa-let-7f-5p, hsa-miR-103a-3p, hsa-miR-21-5p, and hsa-miR-92a-3p, or any combination thereof.
18. The method according to claim 33 further comprising identifying the human subject as being fit for normal activity after undergoing successful treatment for TBI.

19. The method of any one of claims 1-18, wherein the at least one RNA biomarker further comprises one or more miRNA:
  - a. selected from the group consisting of hsa-let-7i-5p, hsa-miR-107, hsa-miR-126-5p (=miR-126\*), hsa-miR-135b-5p, hsa-miR-142-3p, hsa-miR-142-5p, hsa-miR-143-3p (=miR-143), hsa-miR-148a-3p, hsa-miR-206, hsa-miR-29c-3p, hsa-miR-34b-3p, hsa-miR-425-5p, hsa-miR-449a, hsa-miR-671-3p, hsa-miR-6748-3p, and hsa-miR-934, or any combination thereof; and/or
  - b. selected from the group consisting of hsa-let-7a-5p, hsa-let-7b-5p, hsa-let-7f-5p, hsa-miR-103a-3p, hsa-miR-21-5p, and hsa-miR-92a-3p, or any combination thereof.
  
20. A sensor element for a detection system for diagnosing and/or monitoring traumatic brain injury (TBI), the sensor element comprising a substrate functionalized with a probe specific for at least one RNA biomarker:
  - a. selected from the group consisting of hsa-miR-1246, hsa-miR-126-3p (miR-126\*), hsa-miR-144-3p (miR-144\*), hsa-miR-144-5p (=miR-144\*), hsa-miR-16-1-3p, hsa-miR-339-5p, hsa-miR-497-5p, put-miR-1204, put-miR-323, put-miR-325, put-miR-444, put-miR-465, put-miR-469, put-miR-594, put-miR-856, put-miR-893, put-miR-958, RNU4-6p, SNORA57, SNORD3B-2, tRNA120-AlaAGC, tRNA18-ArgCCT, tRNA27-MetCAT, tRNA2-LeuTAA, tRNA73-ArgCCG, tRNA8-ThrAGT, tRNA9-TyrGTA, U2.3, U4.64, U6.168, U6.601, UC022CJG1, YRNA-245, and YRNA-684, or any combination thereof; and/or
  - b. selected from the group consisting of put-miR-1003, put-miR-1080, put-miR-1084, put-miR-1146 (2), put-miR-1207, put-miR-1306, put-miR-188, put-miR-209, put-miR-468, put-miR-476, put-miR-6, put-miR-71, put-miR-742, put-miR-806, put-miR-92, put-miR-961, RNU6-4, RNU6-45, RNU6-6, RNU6-7, RNU6-73, U6.1249, U6.375, U6.428, and YRNA-255, or any combination thereof.
  
21. The sensor element of claim 20, wherein the probe comprises a nucleic acid able to bind to the at least one RNA biomarker.

22. The sensor element of claim 20 or 21, wherein the probe comprises a nucleic acid having at least 70% identity with a sequence which is the complement of the sequence of the target RNA biomarker.
23. The sensor element of claim 20 or 21, wherein the probe comprises a nucleic acid having at least 70% identity with a sequence which is the complement of SEQ ID NO: 1, 2, 14, 16, 23, 26, 27, 29, 39, 40, 48, 71, 72, 73, 74, 75, 77, 78, 79, 80, 81, 82, 84, 85, 86, 87, 89, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, and 150.
24. The sensor element of any one of claims 21-23, wherein the at least one RNA biomarker further comprises one or more miRNA:
- selected from the group consisting of hsa-let-7i-5p, hsa-miR-107, hsa-miR-126-5p (=miR-126\*), hsa-miR-135b-5p, hsa-miR-142-3p, hsa-miR-142-5p, hsa-miR-143-3p (=miR-143), hsa-miR-148a-3p, hsa-miR-206, hsa-miR-29c-3p, hsa-miR-34b-3p, hsa-miR-425-5p, hsa-miR-449a, hsa-miR-671-3p, hsa-miR-6748-3p, and hsa-miR-934, or any combination thereof; and/or
  - selected from the group consisting of hsa-let-7a-5p, hsa-let-7b-5p, hsa-let-7f-5p, hsa-miR-103a-3p, hsa-miR-21-5p, and hsa-miR-92a-3p, or any combination thereof.
25. A detection system for diagnosing and/or monitoring TBI, comprising a sensor element according to any one of claims 20-24, and a detection device capable of detecting the binding of a target RNA biomarker to the probe.
26. The detection system according to claim 25, further comprising means to determine whether the target RNA biomarker is upregulated or downregulated.
27. A method for determining a course of action for a subject suspected of having traumatic brain injury (TBI), comprising applying a saliva sample obtained from the subject to a detection system according to claim 25 or 26, wherein if an upregulated

level or a downregulated level of the at least one RNA biomarker is detected, a treatment for TBI is to be provided to the subject.

28. An RNA biomarker for use in the treatment of traumatic brain injury (TBI) in a subject with suspected TBI, wherein the RNA biomarker is
- a. selected from the group consisting of hsa-miR-1246, hsa-miR-126-3p (miR-126\*), hsa-miR-144-3p (miR-144\*), hsa-miR-144-5p (=miR-144\*), hsa-miR-16-1-3p, hsa-miR-339-5p, hsa-miR-497-5p, put-miR-1204, put-miR-323, put-miR-325, put-miR-444, put-miR-465, put-miR-469, put-miR-594, put-miR-856, put-miR-893, put-miR-958, RNU4-6p, SNORA57, SNORD3B-2, tRNA120-AlaAGC, tRNA18-ArgCCT, tRNA27-MetCAT, tRNA2-LeuTAA, tRNA73-ArgCCG, tRNA8-ThrAGT, tRNA9-TyrGTA, U2.3, U4.64, U6.168, U6.601, UC022CJG1, YRNA-245, and YRNA-684, or any combination thereof; and/or
  - b. selected from the group consisting of put-miR-1003, put-miR-1080, put-miR-1084, put-miR-1146 (2), put-miR-1207, put-miR-1306, put-miR-188, put-miR-209, put-miR-468, put-miR-476, put-miR-6, put-miR-71, put-miR-742, put-miR-806, put-miR-92, put-miR-961, RNU6-4, RNU6-45, RNU6-6, RNU6-7, RNU6-73, U6.1249, U6.375, U6.428, and YRNA-255, or any combination thereof, wherein
- if an upregulated level or a downregulated level of the RNA biomarker is detected in a saliva sample obtained from the subject, a treatment for TBI is to be provided to the subject.
29. The method of claim 28, wherein the at least one RNA biomarker further comprises one or more miRNA:
- a. selected from the group consisting of hsa-let-7i-5p, hsa-miR-107, hsa-miR-126-5p (=miR-126\*), hsa-miR-135b-5p, hsa-miR-142-3p, hsa-miR-142-5p, hsa-miR-143-3p (=miR-143), hsa-miR-148a-3p, hsa-miR-206, hsa-miR-29c-3p, hsa-miR-34b-3p, hsa-miR-425-5p, hsa-miR-449a, hsa-miR-671-3p, hsa-miR-6748-3p, and hsa-miR-934, or any combination thereof; and/or

- b. selected from the group consisting of hsa-let-7a-5p, hsa-let-7b-5p, hsa-let-7f-5p, hsa-miR-103a-3p, hsa-miR-21-5p, and hsa-miR-92a-3p, or any combination thereof.
30. A method of detecting an RNA biomarker in a saliva sample, the method comprising obtaining a saliva sample from a human subject, contacting the saliva sample with at least one oligonucleotide primer complementary to at least one RNA biomarker:
  - a. selected from the group consisting of hsa-miR-1246, hsa-miR-126-3p (miR-126\*), hsa-miR-144-3p (miR-144\*), hsa-miR-144-5p (=miR-144\*), hsa-miR-16-1-3p, hsa-miR-339-5p, hsa-miR-497-5p, put-miR-1204, put-miR-323, put-miR-325, put-miR-444, put-miR-465, put-miR-469, put-miR-594, put-miR-856, put-miR-893, put-miR-958, RNU4-6p, SNORA57, SNORD3B-2, tRNA120-AlaAGC, tRNA18-ArgCCT, tRNA27-MetCAT, tRNA2-LeuTAA, tRNA73-ArgCCG, tRNA8-ThrAGT, tRNA9-TyrGTA, U2.3, U4.64, U6.168, U6.601, UC022CJG1, YRNA-245, and YRNA-684, or any combination thereof; and/or
  - b. selected from the group consisting of put-miR-1003, put-miR-1080, put-miR-1084, put-miR-1146 (2), put-miR-1207, put-miR-1306, put-miR-188, put-miR-209, put-miR-468, put-miR-476, put-miR-6, put-miR-71, put-miR-742, put-miR-806, put-miR-92, put-miR-961, RNU6-4, RNU6-45, RNU6-6, RNU6-7, RNU6-73, U6.1249, U6.375, U6.428, and YRNA-255, or any combination thereof;

amplifying the at least one RNA biomarker using a polymerase chain reaction;

and

detecting the amplified RNA biomarker.
31. The method of claim 30, wherein the at least one RNA biomarker further comprises one or more miRNA:
  - a. selected from the group consisting of has-let-7i-5hashsa-miR-107, hsa-miR-126-5p (=miR-126\*), hsa-miR-135hasp, hsa-miR-142-3p, hsa-miR-142-5p, hsa-miR-143-3p (=mhas143), hsa-mhas148a-3phassa-miR-206hassa-miR-

- 29chas, hsa-miR-has-3p, hsahasR-425-5p, has-miR-449a, hsa-has-671-3p, hsa-miR-6748-3p, and hsa-miR-934, or any combination thereof; and/or
- b. selected from the group consisting of hsa-let-7a-5p, hsa-let-7b-has hsa-let-7f-5hashsa-miR-103a-3p, hsa-miR-21-5p, and hsa-miR-92a-3p, or any combination thereof.
32. A kit for use in a method of diagnosing and/or monitoring traumatic brain injury (TBI) in saliva from a human subject, the kit comprising at least one probe specific for at least one RNA biomarker:
- a. selected from the group consisting of hsa-miR-1246, hsa-miR-126-3p (miR-126\*), hsa-miR-144-3p (miR-144\*), hsa-miR-144-5p (=miR-144\*), hsa-miR-16-1-3p, hsa-miR-339-5p, hsa-miR-497-5p, put-miR-1204, put-miR-323, put-miR-325, put-miR-444, put-miR-465, put-miR-469, put-miR-594, put-miR-856, put-miR-893, put-miR-958, RNU4-6p, SNORA57, SNORD3B-2, tRNA120-AlaAGC, tRNA18-ArgCCT, tRNA27-MetCAT, tRNA2-LeuTAA, tRNA73-ArgCCG, tRNA8-ThrAGT, tRNA9-TyrGTA, U2.3, U4.64, U6.168, U6.601, UC022CJG1, YRNA-245, and YRNA-684, or any combination thereof; and/or
- b. selected from the group consisting of put-miR-1003, put-miR-1080, put-miR-1084, put-miR-1146 (2), put-miR-1207, put-miR-1306, put-miR-188, put-miR-209, put-miR-468, put-miR-476, put-miR-6, put-miR-71, put-miR-742, put-miR-806, put-miR-92, put-miR-961, RNU6-4, RNU6-45, RNU6-6, RNU6-7, RNU6-73, U6.1249, U6.375, U6.428, and YRNA-255, or any combination thereof.
33. The kit of claim 32, wherein the probe comprises a nucleic acid able to bind to the at least one RNA biomarker.
34. The kit of claim 32 or 33, wherein the probe comprises a nucleic acid having at least 70% identity with a sequence which is the complement of the sequence of the target RNA biomarker.
35. The kit of claim 32 or 33, wherein the probe comprises a nucleic acid having at least 70% identity with a sequence which is the complement of SEQ ID NO: 1, 2, 14, 16,

23, 26, 27, 29, 39, 40, 48, 71, 72, 73, 74, 75, 77, 78, 79, 80, 81, 82, 84, 85, 86, 87, 89, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, and 150.

36. The kit of any one of claims 32-35, wherein the at least one RNA biomarker further comprises one or more miRNA:
- selected from the group consisting of hsa-let-7i-5p, hsa-miR-107, hsa-miR-126-5p (=miR-126\*), hsa-miR-135b-5p, hsa-miR-142-3p, hsa-miR-142-5p, hsa-miR-143-3p (=miR-143), hsa-miR-148a-3p, hsa-miR-206, hsa-miR-29c-3p, hsa-miR-34b-3p, hsa-miR-425-5p, hsa-miR-449a, hsa-miR-671-3p, hsa-miR-6748-3p, and hsa-miR-934, or any combination thereof; and/or
  - selected from the group consisting of hsa-let-7a-5p, hsa-let-7b-5p, hsa-let-7f-5p, hsa-miR-103a-3p, hsa-miR-21-5p, and hsa-miR-92a-3p, or any combination thereof.
37. A composition for use in a method of diagnosing and/or monitoring traumatic brain injury (TBI) in saliva from a human subject, the composition comprising at least one probe specific for at least one RNA biomarker:
- selected from the group consisting of hsa-miR-1246, hsa-miR-126-3p (miR-126\*), hsa-miR-144-3p (miR-144\*), hsa-miR-144-5p (=miR-144\*), hsa-miR-16-1-3p, hsa-miR-339-5p, hsa-miR-497-5p, put-miR-1204, put-miR-323, put-miR-325, put-miR-444, put-miR-465, put-miR-469, put-miR-594, put-miR-856, put-miR-893, put-miR-958, RNU4-6p, SNORA57, SNORD3B-2, tRNA120-AlaAGC, tRNA18-ArgCCT, tRNA27-MetCAT, tRNA2-LeuTAA, tRNA73-ArgCCG, tRNA8-ThrAGT, tRNA9-TyrGTA, U2.3, U4.64, U6.168, U6.601, UC022CJG1, YRNA-245, and YRNA-684, or any combination thereof; and/or
  - selected from the group consisting of put-miR-1003, put-miR-1080, put-miR-1084, put-miR-1146 (2), put-miR-1207, put-miR-1306, put-miR-188, put-miR-209, put-miR-468, put-miR-476, put-miR-6, put-miR-71, put-miR-742, put-miR-806, put-miR-92, put-miR-961, RNU6-4, RNU6-45, RNU6-6,

RNU6-7, RNU6-73, U6.1249, U6.375, U6.428, and YRNA-255, or any combination thereof.

38. The composition of claim 37, wherein the probe comprises a nucleic acid able to bind to the at least one RNA biomarker.
39. The composition of claim 37 or 38, wherein the probe comprises a nucleic acid having at least 70% identity with a sequence which is the complement of the sequence of the target RNA biomarker.
40. The composition of claim 37 or 38, wherein the probe comprises a nucleic acid having at least 70% identity with a sequence which is the complement of SEQ ID NO: 1, 2, 14, 16, 23, 26, 27, 29, 39, 40, 48, 71, 72, 73, 74, 75, 77, 78, 79, 80, 81, 82, 84, 85, 86, 87, 89, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, and 150.
41. The composition of any one of claims 37-40, wherein the at least one RNA biomarker further comprises one or more miRNA:
  - a. selected from the group consisting of hsa-let-7i-5p, hsa-miR-107, hsa-miR-126-5p (=miR-126\*), hsa-miR-135b-5p, hsa-miR-142-3p, hsa-miR-142-5p, hsa-miR-143-3p (=miR-143), hsa-miR-148a-3p, hsa-miR-206, hsa-miR-29c-3p, hsa-miR-34b-3p, hsa-miR-425-5p, hsa-miR-449a, hsa-miR-671-3p, hsa-miR-6748-3p, and hsa-miR-934, or any combination thereof; and/or
  - b. selected from the group consisting of hsa-let-7a-5p, hsa-let-7b-5p, hsa-let-7f-5p, hsa-miR-103a-3p, hsa-miR-21-5p, and hsa-miR-92a-3p, or any combination thereof.
42. A probe comprising a nucleic acid able to bind to at least one RNA biomarker for use in the diagnosis and treatment of traumatic brain injury (TBI) in a human subject in need thereof, wherein  
the at least one RNA biomarker is:

- a. selected from the group consisting of hsa-miR-1246, hsa-miR-126-3p (miR-126\*), hsa-miR-144-3p (miR-144\*), hsa-miR-144-5p (=miR-144\*), hsa-miR-16-1-3p, hsa-miR-339-5p, hsa-miR-497-5p, put-miR-1204, put-miR-323, put-miR-325, put-miR-444, put-miR-465, put-miR-469, put-miR-594, put-miR-856, put-miR-893, put-miR-958, RNU4-6p, SNORA57, SNORD3B-2, tRNA120-AlaAGC, tRNA18-ArgCCT, tRNA27-MetCAT, tRNA2-LeuTAA, tRNA73-ArgCCG, tRNA8-ThrAGT, tRNA9-TyrGTA, U2.3, U4.64, U6.168, U6.601, UC022CJG1, YRNA-245, and YRNA-684, or any combination thereof; and/or
- b. selected from the group consisting of put-miR-1003, put-miR-1080, put-miR-1084, put-miR-1146 (2), put-miR-1207, put-miR-1306, put-miR-188, put-miR-209, put-miR-468, put-miR-476, put-miR-6, put-miR-71, put-miR-742, put-miR-806, put-miR-92, put-miR-961, RNU6-4, RNU6-45, RNU6-6, RNU6-7, RNU6-73, U6.1249, U6.375, U6.428, and YRNA-255, or any combination thereof;

the probe is contacted with a saliva sample obtained from the subject and the amount of the at least one RNA biomarker in the saliva sample is determined;

the subject is identified as having TBI where the amount of the at least one RNA biomarker is increased or decreased relative to a predetermined threshold value or relative to the amount of the RNA biomarker in a control sample;

one or more neuroprotective therapies is to be administered to the subject identified as having TBI.

43. The method of claim 42, wherein the saliva sample is obtained during a period of time after injury selected from immediately after the injury to any period post-injury.
44. The method of claim 43, wherein the saliva sample is obtained during a period of time after injury selected from immediately after the injury until the expression level of at least one of the RNA biomarkers returns to the predetermined threshold value or to the amount of the RNA biomarker in the control sample.
45. The method of claim 43, wherein the saliva sample is obtained during a period of time after injury selected from immediately after the injury to up to 1 year, up to 10

months, up to 8 months, up to 6 months, up to 5 months, up to 4 months, up to 3 months, up to 2 months, up to 1 month, up to 25 days, up to 20 days, up to 15 days, up to 7 days, up to 5 days, up to 3 days, up to 2 days, and/or up to 24 hours post-injury.

46. The method of claim 45, wherein the saliva sample is obtained during a period of time after injury selected from immediately after the injury to 15 days, from 1 hour to 15 days, from 24 hours to 15 days, from 24 hours to 7 days, and from 2 to 5 days.
47. The method of claim 42, further comprising obtaining one or more additional saliva samples from the subject at one or more additional times after the injury and repeating the detecting and amplifying steps for each additional sample.
48. The method of claim 47, wherein the one or more additional saliva sample is obtained during a period of time after injury selected from immediately after the injury to any period post-injury.
49. The method of claim 47, wherein the one or more additional saliva sample is obtained during a period of time after injury selected from immediately after the injury until the expression level of at least one of the RNA biomarkers returns to the predetermined threshold value or to the amount of the RNA biomarker in the control sample.
50. The method of claim 47, wherein the one or more additional saliva sample is obtained during a period of time after injury selected from immediately after the injury to up to 1 year, up to 10 months, up to 8 months, up to 6 months, up to 5 months, up to 4 months, up to 3 months, up to 2 months, up to 1 month, up to 25 days, up to 20 days, up to 15 days, up to 7 days, up to 5 days, up to 3 days, up to 2 days, and/or up to 24 hours post-injury.
51. The method of claim 50, wherein the one or more additional saliva sample is obtained during a period of time after injury selected from immediately after the injury to 15 days, from 1 hour to 15 days, from 24 hours to 15 days, from 24 hours to 7 days, and from 2 to 5 days.

52. The method of claim 47, wherein the one or more additional saliva samples is obtained at day 1, 1.5, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, or 15 after the injury.
53. The method of any one of claims 42-52, wherein the detecting an amount of the at least one RNA biomarker is performed using a PCR-based assay, a light array assay, a laminar flow chip assay, or any assay suitable for detecting that at least one RNA biomarker.
54. The method of claim 53, wherein when using the PCR-based assay the predetermined threshold is equivalent to a fold change of 1.5 or more using the 2-delta delta CT ( $2^{-\Delta\Delta CT}$ ) method.
55. The method of claim 53, wherein the predetermined threshold is equivalent to a fold change of 2 or more using the 2-delta delta CT ( $2^{-\Delta\Delta CT}$ ) method.
56. The method of any one of claims 42-55, wherein the at least one RNA biomarker further comprises one or more miRNA:
- a. selected from the group consisting of hsa-let-7i-5p, hsa-miR-107, hsa-miR-126-5p (=miR-126\*), hsa-miR-135b-5p, hsa-miR-142-3p, hsa-miR-142-5p, hsa-miR-143-3p (=miR-143), hsa-miR-148a-3p, hsa-miR-206, hsa-miR-29c-3p, hsa-miR-34b-3p, hsa-miR-425-5p, hsa-miR-449a, hsa-miR-671-3p, hsa-miR-6748-3p, and hsa-miR-934, or any combination thereof; and/or
  - b. selected from the group consisting of hsa-let-7a-5p, hsa-let-7b-5p, hsa-let-7f-5p, hsa-miR-103a-3p, hsa-miR-21-5p, and hsa-miR-92a-3p, or any combination thereof.
57. The method according to claim 42 further comprising identifying the human subject as being fit for normal activity after undergoing successful treatment for TBI.