

## CLAIMS

1. A computer implemented method of correlating a local tissue diagnostic measurement with archival tissue analysis data for use in pathology data analysis, the method comprising:

obtaining local tissue diagnostic data associated with one or more local tissue diagnostic measurements performed on a region of interest of a subject;

accessing archival local tissue diagnostic data and tissue analysis data associated with one or more prior local tissue analyses;

comparing, according to pre-selected similarity criteria, the local tissue diagnostic data associated with the one or more local tissue diagnostic measurements and the archival local tissue diagnostic data associated with the one or more prior local tissue analyses;

identifying one or more similar prior local tissue analyses having archival local tissue diagnostic data satisfying the pre-selected similarity criteria; and

providing tissue analysis data associated with the one or more similar prior local tissue analyses;

wherein two or more similar prior local tissue analyses are identified, the method further comprising:

ranking the tissue analysis data associated with the similar prior local tissue analyses according to pre-selected ranking criteria; and

displaying the local tissue diagnostic data and the local tissue analysis data to a user;

wherein the obtaining of the local tissue diagnostic data is performed with a tracked diagnostic device via in-vivo diagnostic measurements of the region of interest.

2. The method according to claim 1 wherein the tissue analysis data comprises pathology data.

3. The method according to claim 1 or 2 further comprising accessing outcome data associated with the prior local tissue analyses, and providing outcome data associated with the one or more similar prior local tissue analyses.

4. The method according to any one of claims 1 to 3 wherein the outcome data comprises outcome information associated with defects or impairments resulting from a time-dependent medical procedure data.

5. The method according to any one of claims 1 to 4 further comprising:

accessing outcome data associated with the prior local tissue analyses; and wherein the ranking criteria is based on outcome.

6. The method according to any one of claims 1 to 5 wherein the tissue analysis data associated with the one or more similar prior local tissue analyses are ranked according to the medical institutions at which the prior local tissue analyses were performed.

7. The method according to any one of claims 1 to 6 further comprising providing archival local tissue diagnostic data associated with one or more similar prior local tissue analyses.

8. The method according to any one of claims 1 to 7 wherein one or more of the local tissue analyses is associated with a local diagnostic measurement.

9. The method according to claim 8 wherein the diagnostic measurement is performed ex-vivo on a tissue sample.

10. The method according to claim 9 wherein the diagnostic modality associated with the diagnostic measurement is selected from a group consisting of an optical modality, an optical imaging modality, Raman spectroscopy, hyperspectral analysis

11. The method according to any one of claims 1 to 10 further comprising:

obtaining additional information pertaining to the subject, and accessing corresponding additional information associated with subjects associated with the one or more prior local tissue analyses; and

wherein the pre-selected similarity criteria further comprise criteria associated with the additional information.

12. The method according to claim 11 wherein the additional information is selected from a group comprising demographic information, genetic information, medical history information.

13. The method according to any one of claims 1 to 12 wherein one or more of the prior local tissue analyses is associated with the subject.

14. The method according to any one of claims 1 to 13 wherein the archival local tissue diagnostic data and tissue analysis data are obtained from a database.

15. The method according to any one of claims 1 to 14 wherein the database further comprises prior location data associated with one or more of the similar prior local tissue analyses, wherein the prior location data is spatially registered to a patient reference frame having a prescribed orientation;

the method further comprising:

obtaining a medical image of at least a portion of the subject and displaying the medical image on a user interface; and

for each similar prior local tissue analysis having prior location data associated therewith,

spatially registering the prior location data to the medical image; and

displaying a reference marker associated with the similar prior local tissue analysis.

16. The method according to claim 15 wherein at least one prior local tissue analysis having prior location data associated therewith pertains to the subject.