CLAIMS:

1. A method of analyzing tissue features based on multiplexed biometric image data comprising:

storing cell profile data comprising multiplexed biometric images capturing the expression of a plurality of biomarkers by at least one tissue sample from a patient with respect to at least one field of view in which individual cells are delineated and segmented into compartments;

calculating at least one cell feature based on the cell's expression of each of the plurality of biomarkers, wherein the at least one cell feature comprises a ratio based on a respective concentration level of each biomarker between the compartments;

calculating a first moment for each of the at least one cell feature for each of the at least one field of view; and

examining the calculated first moments for an association with a diagnosis, a prognosis, or a response to treatment of a condition or a disease.

2. The method of claim 1 further comprising obtaining the at least one tissue sample from the patient.

3. The method of claim 1 further comprising delineating individual cells of the at least one tissue sample from the patient based on multiplexed images capturing the expression of each of the plurality of biomarkers.

4. The method of claim 1 further comprising segmenting individual cells of the at least one tissue sample from the patient into compartments based on multiplexed images capturing the expression of each of the plurality of biomarkers.

5. The method of claim 1 further comprising:

calculating at least two cell features based on the cell's expression of each of the plurality of non-morphological biomarkers; and

calculating a first moment for each of the at least two cell features for each of the at least one field of view.

6. The method of claim 5 wherein each of the at least two cell features is calculated by comparing the cell's expression of a biomarker in at least two of a nucleus, a membrane, and a cytoplasm, for each of the plurality of biomarkers.

7. The method of claim 1 further comprising:

calculating at least three cell features based on the cell's expression of each of the plurality of non-morphological biomarkers; and

calculating a first moment for each of the at least three cell features for each of the at least one field of view.

8. The method of claim 1 further comprising:

calculating a second moment for each of the plurality of fields of view from each of the at least one cell feature; and

examining the calculated first and second moments for an association with a diagnosis, a prognosis, or a response to treatment of a condition or a disease.

9. The method of claim 1 further comprising

calculating a third moment for each of the plurality of fields of view from each of the at least one cell feature; and

examining the calculated first, second, and third moments for an association with a diagnosis, a prognosis, or a response to treatment of a condition or a disease.

10. The method of claim 9 wherein the moments comprise mean, standard deviation and skewness.

11. The method of claim 1 wherein examining the calculated first moments further comprises examining the calculated first moments for a univariate association with a diagnosis, a prognosis, or a response to treatment of a condition or a disease.

12. The method of claim 1 wherein examining the calculated first moments further comprises examining the calculated first moments for a multivariate association with a diagnosis, a prognosis, or a response to treatment of a condition or a disease.

13. The method of claim 1 wherein the association with the diagnosis or the prognosis of the disease comprises a cell grade.

14. The method of claim 1 wherein the association with the diagnosis of the condition or the disease comprises a survival time.

15. A system for analyzing tissue features based on multiplexed biometric image data comprising:

a storage device for storing cell profile data comprising multiplexed biometric images capturing the expression of a plurality of biomarkers by at least one tissue sample from a patient

with respect to at least one field of view in which individual cells are delineated and segmented into compartments; and

at least one processor for executing code that causes the at least one processor to perform the steps of:

calculating at least one cell feature based on the cell's expression of each of the plurality of biomarkers, wherein the at least one cell feature comprises a ratio based on a respective concentration level of each biomarker between the compartments;

calculating a first moment for each of the at least one cell feature for each of the at least one field of view; and

examining the calculated first moments for an association with a diagnosis, a prognosis, or a response to treatment of a condition or a disease.

16. The system of claim 15 further comprising a camera for digitally imaging the at least one tissue sample from the patient.

17. The system of claim 15 wherein the at least one processor further executes code that causes the at least one processor to perform the step of delineating individual cells of the at least one tissue sample from the patient based on multiplexed images capturing the expression of each of the plurality of biomarkers.

18. The system of claim 15 wherein the at least one processor further executes code that causes the at least one processor to perform the step of segmenting individual cells of the at least one tissue sample from the patient into compartments based on multiplexed images capturing the expression of each of the plurality of biomarkers.

19. The system of claim 15 wherein the at least one processor further executes code that causes the at least one processor to perform the steps of:

calculating at least two cell features based on the cell's expression of each of the plurality of non-morphological biomarkers; and

calculating a first moment for each of the at least two cell features for each of the at least one field of view.

20. The system of claim 15 wherein the at least one processor further executes code that causes the at least one processor to perform the steps of:

calculating at least three cell features based on the cell's expression of each of the plurality of non-morphological biomarkers; and

calculating a first moment for each of the at least three cell features for each of the at least one field of view.

21. The system of claim 15 wherein the at least one processor further executes code that causes the at least one processor to perform the steps of:

calculating a second moment for each of the plurality of fields of view from each of the at least one cell feature; and

examining the calculated first and second moments for an association with a diagnosis, a prognosis, or a response to treatment of a condition or a disease.

22. The system of claim 15 wherein the at least one processor further executes code that causes the at least one processor to perform the steps of:

calculating a third moment for each of the plurality of fields of view from each of the at least one cell feature; and

examining the calculated first, second, and third moments for an association with a diagnosis, a prognosis, or a response to treatment of a condition or a disease.

23. The system of claim 15 wherein examining the calculated first moments further comprises examining the calculated first moments for a univariate association with a diagnosis, a prognosis, or a response to treatment of a condition or a disease.

24. The system of claim 15 wherein examining the calculated first moments further comprises examining the calculated first moments for a multivariate association with a diagnosis, a prognosis, or a response to treatment of a condition or a disease.

25. The system of claim 22 wherein the moments comprise mean, standard deviation and skewness.

26. The system of claim 15 wherein the association with the diagnosis or the prognosis of the disease comprises a cell grade.

27. The system of claim 15 wherein the association with the diagnosis of the condition or the disease comprises a survival time.