WHAT IS CLAIMED IS:

1. A method for labeling a region of a tissue or tissue sample, comprising:
   a) providing a three-dimensional tissue or tissue sample;
   b) clearing the sample;
   c) contacting the tissue or tissue sample with a photo-activatable label; and
   d) subjecting a region of the tissue or tissue sample to a multi-photon laser, thereby labeling the region.

2. The method of claim 1, wherein the region comprises a cell, a subcellular compartment, an aggregate, or a secreted aggregate.

3. The method of claim 1 or 2, further comprising imaging the tissue or tissue sample.

4. The method of any one of the above claims, wherein the photo-activatable label comprises a detectable moiety or a tag.

5. The method of any one of claims 1-4, wherein the sample clearing process comprises dehydrating the sample and transferring the sample into a medium with a refraction index similar to or matching the tissue.

6. The method of any one of claims 1-5, wherein the photo-activatable label is hydrophobic.

7. The method of any one of claims 1-6, further comprising isolating the labeled region or a portion of the labeled region from the tissue or tissue sample.

8. The method of claim 7, further comprising analyzing a composition of the isolated labeled region to create analysis data,
   wherein analyzing comprises determining a DNA, RNA, and/or protein composition of the isolated labeled region; and
   optionally wherein the RNA is analyzed by sequencing or SPLITseq, the protein is analyzed by mass spectrometry, and/or the DNA is analyzed by DNA sequencing.
9. The method of claim 7, wherein the tissue or tissue sample was imaged to create an image prior to isolating the labeled region, further comprising combining the image with the analysis data to create a 3-dimensional composition map of the region.

10. A method for 3-dimensional expression profiling of an intact tissue or tissue sample, comprising:
    a) providing a three-dimensional intact tissue or tissue sample;
    b) clearing the sample;
    c) contacting the tissue or tissue sample with photo-activatable label;
    d) subjecting a region of the tissue or tissue sample to a multi-photon laser, thereby labeling the region;
    e) imaging the labeled region to create an image;

f) isolating the labeled region from the tissue or tissue sample;

g) determining a DNA, RNA, and/or protein composition of the isolated labeled region;

h) combining the image with the DNA, RNA, and/or protein composition of the isolated labeled region to create a 3-dimensional expression profile of the intact tissue or tissue sample.

11. The method of claim 10, wherein the region is a cell, a subcellular compartment, an aggregate, or a secreted aggregate.

12. The method of claim 9, wherein an RNA composition, a protein composition, and/or a DNA composition of the isolated labeled region is determined, and

optionally wherein the RNA composition is determined by sequencing or SPLITseq, the protein composition is determined by mass spectrometry, and/or the DNA composition is determined by DNA sequencing.

13. A method for isolating a single cell or a nucleus, in a tissue or tissue sample, comprising:

a) providing a three-dimensional tissue or tissue sample;

b) clearing the sample;

c) contacting the tissue or tissue sample with photo-activatable label;

d) subjecting a cell to a multi-photon laser, thereby labeling the cell;

e) dissociating the labeled cell from the tissue or tissue sample; and

f) isolating the labeled cell or nucleus.

14. The method of claim 13, further comprising imaging the tissue or tissue sample.

15. The method of any one of claims 10 to 14, wherein the photo-activatable label comprises a detectable moiety or a tag.

16. The method of any one of claims 10 to 15, wherein the sample clearing process comprises dehydrating the sample and transferring the sample into medium with a refraction index similar to or matching the tissue.

17. The method of any one of claims 10 to 16, wherein the photo-activatable label is hydrophobic.

18. The method of any one of claims 13 to 17, further comprising isolating the labeled cell or nucleus.

19. The method of claim 18, further comprising analyzing the isolated labeled cell or nucleus,

wherein analyzing comprises determining a DNA composition , RNA composition, and/or protein composition of the isolated labeled cell or nucleus;

wherein the RNA composition is determined by sequencing , the protein composition is determined by mass spectrometry, and/or the DNA composition is determined by DNA sequencing.

20. The method of any one of claims 1-19, further comprising contacting the tissue or tissue sample with a second photo-activatable label and subjecting a second cell or nucleus in the tissue or tissue sample to a multi-photon laser, thereby labeling the second cell or nucleus.

21. A composition comprising a tissue sample, a medium having a refraction index similar to or matching the tissue, and a photo-activatable label,

wherein the tissue comprises a labeled region comprising a cell, subcellular compartment, an aggregate, or a secreted aggregate,

wherein the cell was labeled by a multi-photon method.