CLAIMS

WHAT IS CLAIMED IS:

1. A method of isolating cellular components from at least one region of interest on a planar tissue section on a solid substrate, comprising:

applying a chemical mask to the planar tissue section, wherein the chemical mask covers at least one region to be excluded in the planar tissue section and circumscribes the at least one region of interest in the planar tissue section; and

solubilizing cellular components by selectively lysing cells within the at least one region of interest;

wherein the chemical mask forms a barrier suitable for selective disruption of cells within the at least one region of interest and inhibits cell lysis and solubilization of the cellular components in the at least one region to be excluded.

2. The method of claim 1, wherein:

the method is capable of isolating regions of interest smaller than or equal to about 100 microns in diameter; and/or

the at least one region of interest has a diameter of less than 1 millimeter.

3. The method of claim 1 or 2, wherein the tissue section is an FFPE tissue section.

4. The method of any one of claims 1-3, further comprising detecting a plurality of proteins and/or nucleic acids liberated in situ from the cells within the region of interest.

5. The method of any one of claims 1-4, further comprising isolating at least one solubilized cellular component from the at least one region of interest.

6. The method of any one of claims 1-5, wherein the chemical mask comprises an acrylate.

7. The method of claim 6, wherein the chemical mask further comprises a photoinitiator.

8. The method of any one of claims 1-7, wherein the chemical mask is applied to the tissue section using an ink-jet delivery device.

9. The method of any one of claims 1-8, wherein the at least one region of interest is defined by a computer.

10. The method of claim 9, wherein the at least one region of interest is defined by a user of the computer.