[0022] Another aspect of the present disclosure provides a non-transitory computer readable medium comprising machine executable code that, upon execution by one or more computer processors, implements any of the methods above or elsewhere herein.

[0023] Another aspect of the present disclosure provides a system comprising one or more computer processors and computer memory coupled thereto. The computer memory comprises machine executable code that, upon execution by the one or more computer processors, implements any of the methods above or elsewhere herein.

[0024] Additional aspects and advantages of the present disclosure will become readily apparent to those skilled in this art from the following detailed description, wherein only illustrative embodiments of the present disclosure are shown and described. As will be realized, the present disclosure is capable of other and different embodiments, and its several details are capable of modifications in various obvious respects, all without departing from the disclosure. Accordingly, the drawings and description are to be regarded as illustrative in nature, and not as restrictive.

[0024a] Another aspect of the present disclosure provides an assembly comprising: a stage having a sample positioning surface configured to receive a sample cassette; a lid comprising an aperture, wherein the lid and the stage have a coupled configuration and an uncoupled configuration such that, when in the coupled configuration, a recess is formed by at least an interior wall of the lid and the sample positioning surface, and wherein the aperture defines an opening to the recess; and one or more light sources positioned at an edge of the recess and configured to direct light within the recess.

[0024b] Another aspect of the present disclosure provides a method comprising: providing the assembly as described herein; positioning the sample cassette on the sample positioning surface, wherein the sample cassette comprises a glass support; and coupling the lid to the stage thereby securing the sample cassette in the recess.

INCORPORATION BY REFERENCE

[0025] All publications, patents, and patent applications mentioned in this specification are herein incorporated by reference to the same extent as if each individual publication, patent, or patent application was specifically and individually indicated to be incorporated by reference. To the extent publications and patents or patent applications incorporated by reference contradict the disclosure contained in the specification, the specification is intended to supersede and/or take precedence over any such contradictory material.

BRIEF DESCRIPTION OF THE DRAWINGS

[0026] The novel features of the invention are set forth with particularity in the appended claims. A better understanding of the features and advantages of the present invention will be obtained by reference to the following detailed description that sets forth illustrative embodiments, in which the principles of the invention are utilized, and the accompanying drawings (also "Figure" and "FIG." herein), of which:

[0027] **FIG. 1**. shows a schematic of using methacryloxymethyltrimethoxysilane to functionalize glass slide.

[0028] **FIG. 2A** shows an example result of using the contact angle test to verify the hydrophilicity change of the support after plasma cleaning.

CLAIMS

WHAT IS CLAIMED IS:

1. An assembly comprising:

a stage having a sample positioning surface configured to receive a sample cassette;

a lid comprising an aperture, wherein the lid and the stage have a coupled configuration and an uncoupled configuration such that, when in the coupled configuration, a recess is formed by at least an interior wall of the lid and the sample positioning surface, and wherein the aperture defines an opening to the recess; and

one or more light sources positioned at an edge of the recess and configured to direct light within the recess.

2. The assembly of claim 1, wherein the one or more light sources comprise one or more light emitting diodes (LEDs).

3. The assembly of claim 1, wherein the one or more light sources are configured to edge light the sample cassette.

4. The assembly of claim 3, further comprising the sample cassette positioned on the sample positioning surface, wherein the sample cassette comprises a glass support.

5. The assembly of claim 4, wherein the one or more light sources are positioned such that emitted light from the one or more light sources is guided to a sample on the glass support.

6. The assembly of claim 5, wherein the one or more light sources are positioned such that the emitted light from the one or more light sources is guided through the glass support to the sample.

7. The assembly of claim 1, wherein the lid extends from a first end to a second end, and wherein the lid is rotatably coupled to the stage via a hinge at the first end.

8. The assembly of claim 7, further comprising a catch, wherein the lid further comprises a latch at the second end, and wherein the latch is configured to releasably couple to the catch when the lid is in the coupled configuration.

9. The assembly of claim 7, wherein the one or more light sources are disposed adjacent to the hinge.

10. The assembly of claim 7, further comprising a cam plate, wherein the recess is further formed by at least a portion of the cam plate.

11. The assembly of claim 7, further comprising a cam pusher operably coupled to the hinge, wherein the cam pusher is configured to translate when the hinge is actuated.

12. The assembly of claim 11, wherein the cam pusher translates within a cam plate.

13. The assembly of claim 11, further comprising one or more cams rotatably coupled to a cam plate, wherein the sample positioning surface defines a plane, and wherein each cam is operably coupled to the cam pusher and configured to rotate about an axis perpendicular to the plane.

14. The assembly of claim 13, wherein the plane is defined by an x-direction and a y-direction, wherein at least one of the one or more cams is configured to provide a force on the sample cassette in the x-direction.

15. The assembly of claim 14, wherein at least one of the one or more cams is configured to provide a force on the sample cassette in the y-direction.

16. The assembly of claim 15, wherein the cam plate comprises one or more pins configured to restrict motion of the sample cassette in at least one of the x-direction and the y-direction.

17. The assembly of claim 16, wherein the lid comprises one or more pins configured to restrict motion of the sample cassette in a z-direction, and wherein the z-direction is perpendicular to the plane.

18. The assembly of claim 17, further comprising a riser module, wherein the riser module is operatively coupled to the sample positioning surface and is configured to provide a force against the sample cassette in the z-direction when the sample cassette is positioned on the sample positioning surface and the lid is in the coupled configuration.

19. The assembly of claim 18, wherein the riser module comprises at least one spring.

20. The assembly of claim 1, further comprising one or more temperature control apparatuses coupled to the stage and configured to adjust a temperature of the stage.

21. The assembly of claim 20, wherein the one or more temperature control apparatuses comprise one or more thermoelectric modules.

22. A method comprising:

providing the assembly of claim 1;

positioning the sample cassette on the sample positioning surface, wherein the sample cassette comprises a glass support; and

coupling the lid to the stage thereby securing the sample cassette in the recess.