CLAIMS

1. A biological fluid treatment system, comprising:

a first treatment chamber configured to receive a first biological fluid;

a second treatment chamber configured to receive a second biological fluid;

a first platform configured to carry the first biological fluid and to be positioned in the first treatment chamber;

a second platform configured to carry the second biological fluid and to be positioned in the second treatment chamber;

a first array of light sources positioned to illuminate the first biological fluid in the first treatment chamber and a second array of light sources positioned to illuminate the second biological fluid in the second treatment chamber;

a display;

one or more processors; and

a memory including instructions, which when executed by the one or more processors, cause the one or more processors to perform a method comprising providing for display, on the display, a graphical user interface (GUI) including a plurality of GUI objects associated with treatment of the first biological fluid by illumination from the first array of light sources or associated with treatment of the second biological fluid by illumination from the second array of light sources.

wherein the biological fluid treatment system further comprises a first panel movable between a closed position and an open position, wherein the first panel covers a first opening to the first treatment chamber in the closed position, wherein the first panel uncovers the first opening to the first treatment chamber in the open position; and

wherein the biological fluid treatment system further comprises a second panel movable between a closed position and an open position, wherein the second panel covers a second opening to the second treatment chamber in the closed position, wherein the second panel uncovers the second opening to the second treatment chamber in the open position.

2. The system of claim 1, wherein the first array of light sources and the second array of light sources are configured to illuminate the first biological fluid and the second biological fluid, respectively, with ultraviolet light.

3. The system of claim 1 or claim 2, wherein each of the arrays of light sources comprises a respective first light source channel configured to emit ultraviolet light with a first peak wavelength of the array of from 315 nm to 350 nm.

4. The system of claim 1 or claim 2, wherein each of the arrays of light sources comprises a respective first light source channel configured to emit ultraviolet light with a first peak wavelength of the array of from 330 nm to 350 nm.

5. The system of claim 1 or claim 2, wherein each of the arrays of light sources comprises a respective first light source channel configured to emit ultraviolet light with a first peak wavelength of the array of from 340 nm to 350 nm.

6. The system of claim 1 or claim 2, wherein each of the arrays of light sources comprises a respective first light source channel configured to emit ultraviolet light with a first peak wavelength of the array within a range of 345 nm $\pm$ 5 nm.

7. The system of claim 1 or claim 2, wherein each of the arrays of light sources comprises a respective first light source channel configured to emit ultraviolet light with a first peak wavelength of the array of from 315 nm to 335 nm.

8. The system of any one of claims 2-7, wherein each of the arrays of light sources, comprises a respective first light source channel comprising one or more light sources, each of which emits light having a full-width half-maximum (FWHM) spectral bandwidth of less than 20 nanometers.

9. The system of any one of claims 1-8, further comprising:

a third array of light sources facing an opposite direction as the first array of light sources and positioned to illuminate the first biological fluid in the first treatment chamber, and;

a fourth array of light sources facing an opposite direction as the second array of light sources and positioned to illuminate the second biological fluid in the second treatment chamber;

wherein the method further comprises providing for display, on the display, a graphical user interface (GUI) including a plurality of GUI objects associated with treatment of the first biological fluid by illumination from the third array of light sources or associated

with treatment of the second biological fluid by illumination from the fourth array of light sources.

10. The system of claim 9, wherein each of the third and fourth arrays of light sources comprises a respective first light source channel configured to emit ultraviolet light with a first peak wavelength of the array of from 315 nm to 350 nm.

11. The system of claim 10, wherein, for each of the third and fourth arrays of light sources, the respective first light source channel comprises one or more light sources, each of which emits light having a full-width half-maximum (FWHM) spectral bandwidth of less than 20 nanometers.

12. The system of any one of claims 2-11, wherein each of the arrays of light sources comprises one or more light sources, each of which is a light-emitting diode, and

wherein, for each of the arrays of light sources, an ultraviolet light is emitted by the respective one or more light sources.

13. The system of any one of claims 1-12, wherein the first platform is slideably moveable for introducing and removing the first biological fluid into and out of the first treatment chamber and the second platform is slideably moveable for introducing and removing the second biological fluid into and out of the second treatment chamber.

14. The system of any one of claims 1-13, further comprising a housing, wherein:

the housing is configured to enclose the first treatment chamber, the second treatment chamber, the first platform, the second platform, the first array of light sources, the second array of light sources, the display, the one or more processors, and the memory.

15. The system of any one of claims 1-14, further comprising:

a scanner configured to obtain identifying information associated with the first biological fluid, the second biological fluid, or both the first biological fluid and the second biological fluid.

16. The system of claim 15, wherein the scanner is one of a barcode scanner, a QR code scanner, and an RFID scanner.

17. The system of claim 15 or claim 16, wherein:

the identifying information is in a visible form of a barcode or a QR code on a container for containing the first biological fluid or the second biological fluid or on at least one of one or more containers of a multi-container assembly for containing the first biological fluid or the second biological fluid, and

the method further comprises obtaining, by the scanner, the barcode or the QR code on the container for containing the first biological fluid or the second biological fluid or on the at least one of the one or more containers of the multi-container assembly.

18. The system of any one of claims 15-17, wherein the scanner is configured to obtain the identifying information in a visible form on a container for containing the first biological fluid or the second biological fluid when the container for containing the first biological fluid or the second biological fluid is positioned on the first platform or the second platform or on at least one of one or more containers of a multi-container assembly for containing the first biological fluid or the second biological fluid when the one or more containers of the multi-container assembly is positioned on the first platform or the second platform.

19. The system of any one of claims 15-18, wherein:

the identifying information is multiple sets of identifying information in a visible form on a container for containing the first biological fluid or the second biological fluid or on one or more containers of a multi-container assembly for containing the first biological fluid or the second biological fluid or conveyed in a transmittable form from tags on the container for containing the first biological fluid or the second biological fluid or on the one or more containers of the multi-container assembly for containing the first biological fluid or the second biological fluid, and

the scanner is a multi-scan scanner configured to obtain the multiple sets of identifying information in a multi-scan operation.

20. The system of any one of claims 15-19, wherein the scanner is integrated or embedded in a fixed position in the housing and coupled to the one or more processors.

21. The system of any one of claims 15-20, wherein the scanner is located inside the first treatment chamber, the second treatment chamber, or both the first and the second treatment chambers.

22. The system of any one of claims 15-20, wherein the scanner is located at a first opening of the first treatment chamber or at a second opening of the second treatment chamber.

23. The system of any one of claims 15-20, wherein the scanner is located external to the first treatment chamber and the second treatment chamber.

24. The system of any one of claims 15-19, wherein the scanner is a handheld scanner that is wirelessly coupled to the one or more processors.

25. The system of any one of claims 15-19, wherein the scanner is a handheld scanner that is coupled to the one or more processors by wired connection.

26. The system of any one of claims 1-25, wherein:

the first treatment chamber and the second treatment chamber are arranged horizontally such that the first biological fluid and the second biological fluid, when positioned on the first platform and on the second platform, respectively, are within a same plane.

27. The system of any one of claims 1-25, wherein:

the first treatment chamber and the second treatment chamber are arranged vertically such that the first biological fluid and the second biological fluid, when positioned on the first platform and on the second platform, respectively, are in parallel planes.

28. The system of any one of claims 1-27, wherein an exterior of the first panel and an exterior of the second panel includes one or more of a protruding handle and a recess handle.

29. The system of any one of claims 1-27, wherein the entire exterior of the first panel and the entire exterior of the second panel lacks any handle.

30. The system of any one of claims 28-29, wherein the first panel is configured to be locked to remain in the closed position, and configured to be unlocked in response to an input.

31. The system of any one of claims 28-30, wherein the first platform comprises the first panel.

32. The system of any one of claims 28-31, wherein the first platform comprises:

an outer region comprising:

the first panel movable between a closed position and an open position, the outer region configured to remain in a fixed position when the first panel is in the closed position, and

first support structure; and

an inner region configured to move to agitate the first biological fluid during a time period in which the outer region is in a fixed position,

wherein the first support structure of the outer region structurally supports the inner region.

33. The system of claim 32, wherein the outer region comprises a motor configured to generate motion, wherein the inner region is configured to agitate the first biological fluid based on the motion generated by the motor.

34. The system of claim 33, wherein the motor is located at a position on the right or on the left of where the first biological fluid is to be carried by the first platform.

35. The system of claim 33, wherein the motor is located at a position in front of or to the rear of where the first biological fluid is to be carried by the first platform.

36. The system of any one of claims 1-35, wherein an exterior of the second panel includes one or more of a protruding handle and a recess handle or the entire exterior of the second panel lacks any handle.

37. The system of any one of claims 32-36, wherein the second platform comprises:

an outer region comprising:

the second panel movable between a closed position and an open position, the outer region configured to remain in a fixed position when the second panel is in the closed position,

second support structure; and

an inner region configured to move to agitate the second biological fluid during a time period in which the outer region is in a fixed position,

wherein the second support structure of the output region structurally supports the inner region.

38. The system of any one of claims 1-37, wherein the first platform and second platform each comprises a first compartment and a second compartment, the first and second compartments configured to carry a multi-container assembly containing the biological fluid of a respective platform,

wherein the first compartment of the first platform is configured to carry a first container of a first multi-container assembly, the first container containing the first biological fluid, and wherein the first compartment is positioned such that the first array of light sources is configured to illuminate the first container when the first platform is positioned in the first treatment chamber;

wherein the second compartment of the first platform is configured to carry one or more additional containers of the first multi-container assembly, the one or more additional containers not containing the first biological fluid, and wherein the second compartment is positioned such that the first array of light sources is not configured to illuminate the one or more additional containers when the first platform is positioned in the first treatment chamber;

wherein the first compartment of the second platform is configured to carry a first container of a second multi-container assembly, the first container containing the second biological fluid, and wherein the first compartment is positioned such that the second array of light sources is configured to illuminate the first container when the second platform is positioned in the second treatment chamber; and

wherein the second compartment of the second platform is configured to carry one or more additional containers of the second multi-container assembly, the one or more additional containers not containing the second biological fluid, and wherein the second compartment is positioned such that the second array of light sources is not configured to

illuminate the one or more additional containers when the second platform is positioned in the second treatment chamber.

39. The system of claim 38, wherein the first platform and the second platform each comprises a removable tray that sets into the platform and wherein each removable tray comprises the first compartment and the second compartment of the respective platform.

40. The system of any one of claims 1-39, wherein the display is a touchscreen configured to display the GUI including the plurality of GUI objects, and the GUI objects are responsive to touch inputs on the touchscreen.

41. The system of any one of claims 1-40, wherein the method further comprises:

receiving an input associated with a selection of a GUI object; and

in response to receiving the input, performing a biological fluid treatment operation.

42. A system of any one of claims 1-41, wherein:

1) each of the one or more first light sources emits light having a full-width half-maximum (FWHM) spectral bandwidth of less than 20 nanometers, or

2) each of the one or more first light sources is a light-emitting diode (LED), and

wherein the method further comprises: illuminating the first biological fluid with ultraviolet light emitted by a set of one or more first light sources,

wherein the first biological fluid is admixed with a pathogen inactivation compound,

wherein illuminating the first biological fluid occurs for a duration and at an intensity sufficient to inactivate a pathogen in the first biological fluid.

43. A system of claim 42, wherein:

1) each of the one or more second light sources emits light having a full-width half-maximum (FWHM) spectral bandwidth of less than 20 nanometers, or

2) each of the one or more second light sources is a light-emitting diode (LED), and

wherein the method further comprises: illuminating the second biological fluid with ultraviolet light emitted by a set of one or more second light sources,

wherein the second biological fluid is admixed with a pathogen inactivation compound,

wherein illuminating the second biological fluid occurs for a duration and at an intensity sufficient to inactivate a pathogen in the second biological fluid.

44. The system of any one of claims 1-43, wherein each of the first platform and the second platform is configured to carry the first and second biological fluids respectively in a first flexible container and a second flexible container respectively, each with a volume capacity up to 1500 mL.

45. The system of any one of claims 1-44, wherein the system comprises a heating and/or a cooling unit configured to adjust or set a temperature of the first treatment chamber, wherein the method further comprises:
controlling the heating and/or cooling unit to maintain the temperature of the first biological fluid within 2^{o} C during treatment of the first biological fluid by illumination from the first array of light sources.

46. The system of any one of claims 1-45, wherein the method further comprises:
controlling the system to maintain the temperature of the first biological fluid within 2^{o} C during treatment of the first biological fluid by illumination from the first array of light sources.

47. The system of any one of claims 1-46, further comprising one or more fans positioned in the rear of the first treatment chamber and/or the second treatment chamber and configured to draw in air through an inlet on an exterior housing of the system and to expel the air through an outlet exhaust on the back of the exterior housing, wherein optionally the inlet comprises air venting on the first panel and/or the second panel.

48. The system of any one of claims 14-47, wherein a housing of the system has a maximum horizontal width within a range of 30-45 cm.

49. The system of any one of claims 14-48, wherein the system is configured to operate within a target operating space such that there are empty spaces of 20 cm or less on both left and right sides of a housing of the system.

50. The system of any one of claims 1-49, further comprising one or more access panels configured to provide access to one or more of the first array of light sources, the second array of light sources, and the one or more processors.

51. The system of any one of claims 1-50, further comprising:

control circuitry operatively coupled to both of the first array of light sources and the second array of light sources, wherein the control circuitry is associated with the one or more processors.

52. A method of treating a biological fluid comprising:

providing the biological fluid in admixture with a pathogen inactivation compound, and

illuminating the biological fluid with a system of any one of claims 1-51, for a duration and at an intensity sufficient to inactivate a pathogen in the biological fluid.

53. The method of claim 52, wherein the biological fluid is a blood product.