CLAIMS

1. A device for transferring fluid, comprising:

a planar sheet having a first planar surface, a second planar surface, and a plurality of openings, wherein each opening of the plurality of openings extends between the first planar surface and the second planar surface;

a plurality of primary extensions, wherein each primary extension of the plurality of primary extensions protrudes from the first planar surface and comprises a primary lumen, wherein each primary extension is configured to reversibly couple to a donor well of a donor plate to form fluid-tight or leak-proof seal, and a pocket is formed between the primary extension and an interior surface of the donor well, and wherein the primary extension comprises a structure configured to fluidly connect the pocket to the primary lumen; and

a plurality of secondary extensions, wherein each secondary extension of the plurality of secondary extensions protrudes from the second planar surface and comprises a secondary lumen, wherein each secondary lumen is aligned with an opening and a primary lumen to create a continuous transfer lumen, and wherein each secondary extension is configured to reversibly couple to a receiver well of a receiver plate,

wherein fluid from the donor well that enters the pocket flows through the structure into the continuous transfer lumen and then into the receiver well.

2. The device of claim 1, wherein each primary extension of the plurality of primary extensions has an inner cross-sectional area and an outer cross-sectional area, and wherein the inner cross-sectional area is greater than the outer cross-sectional area; and/or wherein each primary extension has at least two regions, and wherein each of the at least two regions has a different angle relative to the planar sheet.

3. The device of claim 2, wherein each primary extension has at least two regions, the at least two regions comprise a first region proximal to the planar sheet and a second region distal to the planar sheet, and the angle of the first region relative to the planar sheet is greater than the angle of the second region relative to the planar sheet.

4. The device of any one of claims 1-3, wherein each primary extension of the plurality of primary extensions comprises at least one structure configured to fluidly connect to the primary lumen.

5. The device of claim 4, wherein the at least one structure comprises an aperture, a hole, a slit, a gap, a notch, a groove, or a channel; and/or wherein the primary extension comprises four slits configured to fluidly connect to the primary lumen.

6. A system for transferring fluid, comprising:

a transfer adapter comprising the device of claims 1-5; and

a receiver plate, wherein the receiver plate is configured to removably couple to the second side of the transfer adapter.

7. The system of claim 6, further comprising a donor plate comprising one well or a plurality of wells, wherein the donor plate is configured to removably couple to the first side of the transfer adapter.

8. The system of claim 7, wherein each opening of the plurality of openings aligns with a different well of the plurality of wells when the transfer adapter and the donor plate are removably coupled; and/or wherein the transfer adapter comprises a plurality of primary extensions, and wherein each primary extension of the plurality of primary extensions is configured to seal against an interior surface of a different well of the plurality of wells of the donor plate.

9. The system of any one of claims 6-8, comprising at least one of the following features:

(i) wherein the receiver plate comprises a plurality of receiver wells, and wherein each opening of the plurality of openings aligns with a different receiver well of the plurality of receiver wells when the transfer adapter and the receiver plate are removably coupled;

(ii) wherein the transfer adapter comprises a plurality of secondary extensions, and wherein each secondary extension of the plurality of secondary extensions is configured to be inserted into a different receiver well of the plurality of receiver wells;

(iii) wherein the transfer adapter comprises an adhesive on the first side and/or the second side;

(iv) wherein the transfer adapter comprises a plurality of leaflets adjacent to each opening of the plurality of openings, wherein at least one leaflet is moveable between an open position and a closed position; and/or

(v) wherein the transfer adapter is configured to allow the flow of a fluid through the plurality of openings only when an external force is applied to the fluid.

10. A method for transferring fluid, comprising:

coupling a transfer adapter comprising the device of claims 1-5, a donor plate, and a receiver plate to form a transfer assembly in a first position (*e.g.*, an upright position), wherein in the first position the transfer adapter is positioned below the receiver plate and above the donor plate; and

centrifuging the transfer assembly around an axis of rotation, wherein when the transfer assembly is centrifuged, the donor plate is positioned closer to the axis of rotation than the transfer adapter and the receiver plate,

wherein the transfer adapter comprises a plurality of openings and the donor plate comprises a plurality of wells, and wherein each opening of the plurality of openings is aligned with a different well of the plurality of wells when the transfer assembly is in the first position and when the transfer assembly is centrifuged.

11. The method of claim 10, further comprising uncoupling the donor plate from the transfer adapter; and/or

wherein a seal is formed between each well of the plurality of wells and the transfer adapter when the donor plate and the transfer adapter are coupled.

12. The method of claim 11, wherein a seal is formed, the seal allows fluid to flow from the plurality of wells through the plurality of openings but blocks the flow of fluid between wells of the plurality of wells.

13. The method of any one of claims 10-12, wherein each well of the plurality of wells comprises a target agent attached the well and a fluid.

14. The method of claim 13, wherein the target agent remains attached to the well after centrifuging; and/or

wherein the fluid is transferred to the receiver plate after centrifuging.

15. The method of any one of claims 10-14, wherein the receiver plate comprises a plurality of receiver wells, and wherein each opening of the plurality of openings is aligned with a different receiver well of the plurality of receiver wells when the transfer assembly is in the first position and when the transfer assembly is centrifuged.

16. The method of claim 15, wherein a seal is formed between each receiver well of the plurality of receiver wells and the transfer adapter when the receiver plate and the transfer adapter are coupled.

17. The method of claim 16, wherein the seal allows fluid to flow through the plurality of openings to the plurality of receiver wells but blocks the flow of fluid between receiver wells of the plurality of receiver wells.

18. A method of transferring fluid from and/or to wells of a donor plate using the device of claims 1-5, comprising a plurality of wells, wherein at least one well comprises a plurality of target agents attached to the well and a fluid, comprising: applying a fluid transfer force to the donor plate, wherein the fluid transfer force has a simultaneous and substantially uniform effect on the plurality of target agents in the at least one well.

19. The method of claim 18, wherein each of at least two wells of the plurality of wells comprises a plurality of target agents attached to the well and a fluid, and wherein the fluid transfer force has a simultaneous and substantially uniform effect on the plurality of target agents in every well of the at least two wells.