Claims

1. A multi-well plate adaptor for use with a multi-well plate having wells, the multi-well plate adapter comprising:

two or more component parts, each component part comprising:

a top surface; and

hollow conical protrusions extending from the top surface, the conical protrusions having a shape that matches a corresponding well of the multi-well plate to allow the conical protrusions to be inserted within the corresponding well of the multi-well plate, an axis of each of the conical protrusions being substantially perpendicular to the top surface; and

each hollow conical protrusion comprising an angled tip at an end of the corresponding conical protrusion that is distal from the top surface, the angled tip comprising one or more holes, an outer surface, and one or more ridges on the outer surface of the angled tip.

2. The multi-well plate adaptor of claim 1, wherein the multi-well plate is a 96-well plate.

3. The multi-well plate adaptor of claim 2, comprising three component parts.

4. The multi-well plate adaptor of claim 3, wherein the top surface has a length of between about 75mm and about 95mm and a width of between about 20mm and about 30mm.

5. The multi-well plate adaptor of claim 1, wherein a distance that each hollow conical protrusion extends from the top surface is shorter than a depth of the wells of the multi-well plate.

6. The multi-well plate adaptor of claim 5, wherein the distance each hollow conical protrusion extends from the top surface is between about 15mm and about 30mm.

7. The multi-well plate adaptor of claim 1, wherein the hollow conical protrusions have an inner diameter that can accommodate a pipette tip.

8. The multi-well plate adaptor of claim 1, wherein the one or more holes of the angled tip has a dimension of between about 0.6mm and about 0.8mm.

9. The multi-well plate adaptor of claim 1, wherein the one or more holes of the angled tip comprises a central hole at the end and multiple longitudinal holes radiating symmetrically from the central hole, each of the longitudinal holes separated by a portion of the angled tip, and wherein the portion of the angled tip separating each of the longitudinal holes further comprises the one or more ridges on the outer surface of the angled tip, wherein the central hole has a diameter of between about 0.6mm and about 1mm and the longitudinal holes comprise a dimension of between about 0.6mm and about 1mm.

10. A well plate insert for use with a well plate having wells, the well plate insert, comprising:
two or more insert components, each insert component comprising:
a rectangular top surface;
hollow extensions protruding from the top surface, the hollow extensions having a shape that matches a corresponding well of the well plate to allow the hollow extensions to be inserted within the corresponding well of the well plate, wherein a main axis of each of the hollow extensions is at least substantially perpendicular to a plane of the rectangular top surface;
the hollow extensions having a distal tip with one or more perforations;
the distal tip further comprising an outer surface comprising one or more ridges extending away the distal tip; and
the rectangular top surface of one of the insert components having a long edge that is adapted to fit with a long edge of the rectangular top surface of another one of the insert components.

11. The well plate insert of claim 10, wherein the hollow extensions have a main body and a smaller diameter end, the main body is an elongate frusto-conical extension and the distal tip extends substantially conically from the smaller diameter end of the hollow extension.

12. The well plate insert of claim 11, wherein the main body of the hollow extensions comprises a solid surface.

13. The well plate insert of claim 11, wherein the one or more ridges do not extend beyond the distal tip onto the main body of the hollow extensions.

14. The well plate insert of claim 10, wherein the hollow extensions do not comprise a mesh or fiber insert.

15. The well plate insert of claim 10, wherein each perforation has a dimension of between about 0.6mm and about 0.8 mm.

16. The well plate insert of claim 10, wherein the one or more ridges of the distal tip are capable of piercing a seal of the well plate.

17. The well plate insert of claim 10, wherein the one or more perforations are sized to allow a lysate to flow through and to prevent passage of a particulate in a well of the well plate.

18. The well plate insert of claim 10, wherein the hollow extensions for each insert comprises 32 hollow extensions arranged in a grid with four hollow extensions along a short edge of the rectangular top surface and eight hollow extensions along the long edge of the rectangular top surface.

19. The well plate insert of claim 18, adapted to nest on top of a 96-well plate with the hollow extensions protruding into each individual well.

20. A lysate isolation plate adaptor for use with a multi-well plate having wells, the plate adapter comprising:

three identical components parts, each comprising;

a planar rectangular main body with 32 elongate extensions protruding in a grid pattern therefrom, the extensions having a shape that matches a corresponding well of the multi-well plate to allow the extensions to be inserted within the corresponding well of the multi-well plate,

wherein a main axis of each elongate extension is at least substantially perpendicular to the planar rectangular main body;

each elongate extension having a rounded tip comprising an exterior surface and a plurality of holes, each hole having a dimension of between about 0.6mm and about 0.8mm; and

one or more angled spines on the exterior surface of the rounded tip.

21. An apparatus, comprising:

a well plate having wells, each well having an opening;

liquid contained in the wells;

a seal covering the openings; and

a well plate adaptor comprising:

a top surface; and

hollow conical protrusions extending from the top surface, the conical protrusions having a shape that matches a corresponding well of the well plate to allow the conical protrusions to be inserted within the corresponding well of the well plate, each hollow conical protrusion comprising an angled tip that is distal from the top surface, the angled tip comprising one or more holes, an outer surface, and one or more ridges on the outer surface.

22. The apparatus of claim 21, wherein the well plate adapter is to nest with the well plate.

23. The apparatus of claim 21, wherein the ridges are to pierce or pass through the seal.

24. The apparatus of claim 21, wherein each of the angled tips has a central axis and wherein the one or more ridges of each of the conical protrusions comprises four ridges that extend axially away from the central axis.

25. The apparatus of claim 24, wherein the one or more openings of each of the conical protrusions comprise four openings and wherein one of the openings is positioned between pairs of the ridges.