WHAT IS CLAIMED IS:

1. A method for testing for the presence of a contaminant in a first or second liquid culture medium, a raw material used to generate a first or second liquid culture medium, or a source of a mammalian cell comprising a nucleic acid encoding a recombinant protein, the method comprising:

providing a multi-well plate comprising at least one well comprising the mammalian cell comprising the nucleic acid encoding the recombinant protein disposed in a first liquid culture medium, wherein the first liquid culture medium occupies 5% to 70% of the volume of the well;

incubating the multi-well plate for a period of time at 31 °C to 40 °C and with a rotary agitation of 320 revolutions per minute (RPM) to 500 RPM;

continuously or periodically, during the period of time, removing a first volume of the first liquid culture medium and adding to the first liquid culture medium a second volume of a second liquid culture medium, wherein the first and second volumes are equal, and the first volume of the first liquid culture medium is substantially free of mammalian cells;

detecting the recombinant protein in the mammalian cell or in the first and/or second liquid culture medium;

comparing the amount of the recombinant protein present in the mammalian cell or in the first and/or second liquid culture medium to a reference level of the recombinant protein produced by a different method that uses one or more of a different first or second liquid culture medium, a different raw material to generate the first or second liquid culture medium, or a different source of the mammalian cell; and

identifying the first or second liquid culture medium, the raw material used to generate the first or second liquid culture medium, or the source of the mammalian cell as containing a contaminant when the level of the recombinant protein produced is less than the reference level.

2. The method of claim 1, wherein the mammalian cell is a CHO cell.

3. The method of claim 1, wherein the contaminant is a biological contaminant.

4. The method of claim 3, wherein the biological contaminant is selected from the group consisting of: mycobacterium, a fungus, a bacterium, a virus, and an undesired mammalian cell.

5. The method of any one of claims 1-4, wherein the multi-well plate is a 6-well plate, a 12-well plate, a 24-well plate, a 48-well plate, or a 96-well plate.

6. The method of any one of claims 1-4, wherein the multi-well plate is a deep-well plate.

7. The method of any one of claims 1-4, wherein the diameter of the bottom of the well is between 6.0 mm and 35 mm.

8. The method of any one of claims 1-4, wherein the height of the wall is 12 mm to 50 mm.

9. The method of any one of claims 1-4, wherein the well has a volume of 1 mL to 18 mL of the first liquid culture medium.

10. The method of claim 9, wherein the well has a volume of between 1 mL and 7 mL.

11. The method of claim 10, wherein the well has a volume of 1 mL and 3.5 mL.

12. The method of any one of claims 1-4, wherein the mammalian cell is suspended in 150 µL to 15 mL of the first liquid culture medium.

13. The method of claim 12, wherein the mammalian cell is suspended in 150 µL to 10 mL of the first liquid culture medium.

14. The method of claim 13, wherein the mammalian cell is suspended in 150 µL to 1 mL of the first liquid culture medium.

15. The method of any one of claims 1-4, wherein the first liquid culture medium occupies 10% to 60% of the volume of the well.

16. The method of any one of claims 1-4, wherein the rotary agitation is 320 RPM to 400 RPM.

17. The method of any one of claims 1-4, wherein the first liquid culture medium and/or second liquid culture medium is selected from the group consisting of: a chemically-defined liquid culture medium, a serum-free liquid culture medium, a serum-containing liquid culture medium, an animal-derived component free liquid culture medium, and a protein-free liquid culture medium.

18. The method of any one of claims 1-4, wherein the multi-well plate is sealed with a gas-permeable disposable membrane.

19. The method of any one of claims 1-4, wherein the multi-well plate is sealed with a gas-permeable silicone layer.

20. The method of any one of claims 1-4, wherein the well has a flat bottom.

21. The method of any one of claims 1-4, wherein the well has a round bottom.

22. The method of any one of claims 1-4, wherein after the first 24 to 48 hours of the period of time, in each 24-hour period, the first volume of the first liquid culture medium removed and the second volume of the second liquid culture medium added is 30% to 150% of the volume of the first liquid culture medium.

23. The method of any one of claims 1-4, wherein the agitation is ceased for a period of time of at least 30 seconds prior to removing the first volume of the first liquid culture medium.

24. The method of any one of claims 1-4, further comprising periodically adding an additional volume of second liquid culture medium to each of the plurality of wells in order to offset any decrease in the volume of the first liquid culture medium due to evaporation.

25. The method of any one of claims 1-4, wherein removing of the first volume of the first liquid culture medium and adding to the first liquid culture medium the second volume of the second liquid culture medium is performed using an automated device.

26. The method of any one of claims 1-4 wherein the removing of the first volume of the first liquid culture medium and the adding of the second volume of the second liquid culture medium is performed simultaneously.

27. The method of any one of claims 1-4, wherein the removing of the first volume of the first liquid culture medium and the adding of the second volume of the second liquid culture medium is performed continuously.

28. The method of any one of claims 1-4, wherein the removing of the first volume of the first liquid culture medium and the adding of the second volume of the second liquid culture medium is performed periodically.

29. The method of any one of claims 1-4, wherein the first volume of the first liquid culture medium and the second volume of the second liquid culture medium added are increased over time.

30. The method of any one of claims 1-4, wherein:

the multi-well plate is incubated for a period of time greater than 7 days, and on days 1 through 3 of incubation, in each 24-hour period, the first volume of the first liquid culture medium removed and the second volume of the second liquid culture medium added is between 30% to 50% of the volume of the first liquid culture medium;

on days 4 through 6 of the incubation, in each 24-hour period, the first volume of the first liquid culture medium removed and the second volume of the second liquid culture medium added is between 40% and 70% of the volume of the first liquid culture medium; and

on day 7 and onwards of incubation, in each 24-hour period, the first volume of the first liquid culture medium removed and the second volume of the second liquid culture medium added is 90% to 150% of the volume of the first liquid culture medium.

31. The method of any one of claims 1-4, wherein the recombinant protein is an immunoglobulin.

32. The method of any one of claims 1-4, wherein the recombinant protein is an enzyme.

33. The method of claim 32, wherein the enzyme is a galactosidase.

34. The method of claim 33, wherein the galastosidase is an alpha-galactosidase.

35. The method of any one of claims 1-4, wherein the recombinant protein is a growth factor, a protein fragment, or an engineered protein.

36. The method of any one of claims 1-4, wherein the method results in a viable cell density of between 15 x 10^6 cells/mL and 60 x 10^6 cells/mL in the well.