What is claimed is:

1. A process of growing adherent cells in a containment box of a multiparallel bioreactor comprising:

Seeding the adherent cells on a carrier held in a culture dish;

Transferring the adherent cells on the carrier to a containment box of the multiparallel bioreactor;

Growing the adherent cells at a containment box while agitating the media at an impeller speed between 200 rpm to a 1200 rpm.

2. A process of claim 1, wherein the carrier is a PET strip.

3. A process of claim 1 or 2, wherein the culture dish is a 6-well plate.

4. A process of optimizing cell growth of adherent cells in a containment box of a multiparallel bioreactor in claim 1 or 2 further comprising:

Harvesting the adherent cells 3-10 days after the transfer of the adherent cells on the carrier to the containment box of the multiparallel bioreactor.

5. A process of growing adherent cells in a containment box of a multiparallel bioreactor in claim 1 or 2 further comprising:

Infecting the adherent cells on the carrier with at least one virus or virus particles;

Incubating the adherent cells on the carrier with the virus; and

Harvesting the virus.

6. A process of growing adherent cells in a containment box of a multiparallel bioreactor in claim 1 or 2 further comprising:

Treating the cell with at least one vector that produces a biological agent;

Incubating the adherent cells on the carrier with vector;

Harvesting the biological agent.

8. A process of claim 6 wherein the vector is a viral vector selected from a group of a modified vaccinia virus Ankara (MVA), Vascular Stomatitis Virus (VSV), adeno-associated virus (AAV), lentivirus, retrovirus, and adenovirus.

9. The process of claims 1, 2, 3, 4, and 5 wherein the adherent cells are selected from the group consisting of Madin-Darby Canine Kidney Epithelial Cells (MDCK), Madin-Darby Bovine Kidney Epithelial (MDBK) cells, chicken cells or quail cells, PerC6 cells, 3T3 cells, NTCT cells, CHO cells, PK15 cells, MDBK cells, LLC-MK2, MRC-5, HEK293, Hela cells, or a combination or modification thereof.

10. The process of claims 1-9, wherein the adherent cells are Vero cells.

11. The process of claims 1-9, wherein the adherent cells are HEK293 cells.

12. The process of claim 1, wherein the impeller speed ranges from 300 rpm to 1000 rpm.

13. The process of claim 1 or claim 12, wherein the impeller speed is 300 rpm.

14. The process of claim 2, where the growth area of PET strips ranges from 10 cm^2 to 15 cm^2.

15. The process of claim 2, where the growth area of PET strips is 13.9 cm^2.

16. The process of claim 2, wherein the PET strips are made of interwoven fibers.

17. The process in claims 1-17, wherein the adherent cells are grown in a close loop manufacturing system.

18. The process in claims 1-17, wherein the multiparallel bioreactor has at least two containment boxes.

19. The process in claims 1-18, wherein the multiparallel bioreactor has 24 containment boxes.

20. The process in claim 1-16, wherein the multiparallel bioreactor is selected from a group including the AMBR 15, AMBR 250, Solida Biotech parallel bioreactor, and xCubio bioreactor.

21. The process in claims 1-16, wherein the process is used to perform DOE studies or small-scale bioreactor campaigns for production process optimization.

22. The process in claim 21, wherein the production processes optimized are cell propagation, virus production, antibody production.

What is claimed is:

1. A method of producing virus in a bioreactor comprising the following steps:

a) providing host cells in the bioreactor;

b) growing host cells in a constant first dO2 level, pH, and temperature;

c) decreasing a dO2 to 20-90% of the first dO2 level;

d) infecting the host cells with at least one virus or virus particle 2-24 hours after step c);

e) incubating said host cells infected with said virus or virus particle to propagate said virus; and

f) harvesting the virus,

wherein the dO2 is decreased prior to infection and maintained at a second level thereafter.

2. The method of claim 1, wherein the host cells are adherent cells.

3. The method of claims 1 to 2, wherein the bioreactor is a flat-bed bioreactor.

4. The method of claims 1 to 3, wherein the height of the fixed-bed is 2 cm to 10 cm.

5. The method of claims 1 to 4, wherein the bioreactor is a single-use flat-bed bioreactor.

6. The method of claims 1 to 5, wherein said dO2 level in step c is decreased to 20-50%.

7. The method of claims 1 to 6, wherein said dO2 level in step c is decreased when the conductivity is 60 mS/cm to 80 mS/cm.

8. The method of claims 1 to 7, wherein the host cell in step d is infected with a virus when the conductivity is 90 mS/cm to 110 mS/cm.

9. The method of claims 1 to 8, wherein the infection of the host cells with the virus is at multiplicity of infection (MOI) of about 0.1 to 0.05.

10. The method of claims 1 to 9, wherein, the infection of the host cells with the virus is at MOI of 0.05.

11. The method of claims 1 to 10, wherein the dO2 in step c is decreased 12 to 24 hours prior to infecting the host cell in step d.

12. The method of claims 1 to 11 , wherein the virus is selected from a group consisting of VSV, adenovirus, Influenza virus, Ross River virus, Hepatitis A virus, Vaccinia virus and recombinant Vaccinia virus, Herpes Simplex virus, Japanese Encephalitis virus, Herpes Simplex virus, West Nile virus, Yellow Fever virus, and chimeras thereof, as well as Rhino virus and Reovirus.

13. The method of claims 1 to 12, wherein the virus is a viral vector.

14. The method of claims 1 to 13, wherein the virus is the VSV vector.

15. The method of claims 1 to 14, wherein the host cells are selected from the group consisting of Vero cells, MBCK cells, MDBK cells, MRC-5 cells, BSC-1 cells, LLC-MK cells, CV-1 cells, CHO cells, COS cells, murine cells, human cells, avian cells, insect cells, HeLa cells, 293 cells, MDOK cells, CRFK cells, RAF cells, TCMK cells, LLC-PK cells, PK 15 cells, Wl-38 cells, T-FLY cells, BHK cells, SP2/0 cells, NS0 cells, and PerC6 cells.

16. The method of claims 1 to 15, wherein the host cells are Vero cells.

17. The method of claims 1 to 16, further comprising the step of determining the virus titer by plaque assay method.

18. The method of claims 1 to 17, further comprising the step of purifying and or characterizing of the virus.

19. The method of claims 1 to 18, further comprising the step of producing a vaccine with said virus.

20. The method of claims 1 to 19, wherein the bioreactor has a capacity of 700 to 800 mL.

21. The method of claims 1 to 20, wherein the bioreactor has a capacity of 50 to 80 L.

22. The method of claims 1 to 21, wherein the bioreactor includes protein-free media.

23. A method of producing virus in a bioreactor comprising the following steps:

a) providing host cells in the bioreactor;

b) growing host cells in a constant initial dO2 level, pH, and temperature to confluence;

c) decreasing the dO2 to 20-50% of initial dO2 level;

d) infecting the host cells with at least one virus or virus particle;

e) incubating said host cells infected with said virus or virus particle to propagate said virus; and

e) harvesting the virus.

24. The method of claims 1 to 23 wherein said dO2 is decreased from about 85% dO2 to about 40% dO2.

25. The method of claim 24, wherein decreasing the dO2 level increases the propagation of said virus by about 5x as compared to the initial dO2 level.

26. The method of claims 1 to 23 wherein said dO2 is decreased from about 85% dO2 to about 20% dO2.

27. The method of claim 26, wherein decreasing the dO2 level increases the propagation of said virus by about 5x as compared to the initial dO2 level.

28. The method of claims 1 to 23 wherein said dO2 is decreased from about 85% dO2 to about 10% dO2.

29. The method of claim 28, wherein decreasing the dO2 level increases the propagation of said virus by about 10x as compared to the initial dO2 level.

30. The method of claims 1 to 29, wherein the method results in production of at least 1 x 10^7 viral titers (pfu/ml).