What is claimed:

1. A method for culturing cells comprising:

(a) culturing cells in a first cell culture,

(b) determining a metabolic shift to lactate consumption has occurred in the first cell culture, and

(c) transferring the cells to a second cell culture after the metabolic shift to lactate consumption in the cells has occurred, wherein lactate concentration in the second cell culture indicates net lactate consumption.

2. The method of claim 1, wherein the cells are transfected with DNA encoding a polypeptide of interest prior to culturing cells in a first cell culture, and comprising maintaining the second cell culture under conditions that allow the expression of the polypeptide of interest, and harvesting the polypeptide of interest from the second cell culture.

3. The method of claim 1 or 2, wherein the metabolic shift to lactate consumption is detected by pH, lactate or base measurements in the first cell culture.

4. The method of any one of claims 1-3, wherein the metabolic shift to lactate consumption is detected after pH increases in the first cell culture medium without addition of base.

5. The method of any one of claims 1-4, wherein the metabolic shift occurs when cells emerge from log phase or have reached stationary phase in the first cell culture.

6. The method of any one of claims 1-5, wherein the metabolic shift occurs when lactate levels plateau in the first cell culture.

7. The method of any one of claims 1-6, wherein the metabolic shift occurs in the first cell culture on or after 3 days of cell growth in the first cell culture.

8. The method of any one of claims 1-7, wherein the transferred cells have an inoculation cell density between about 0.5 x10^6 cells/mL to about 3.0 x10^6 cells/mL in the second cell culture.

9. The method of any one of claims 1-8, wherein the step of determining the metabolic shift comprises:

(a) measuring pH in the first cell culture,

(b) adding base to maintain pH above a predetermined lower limit,

(c) determining that the pH is above the predetermined lower limit for consecutive intervals, and

(d) ceasing the addition of base,

thereby determining that the metabolic shift to lactate consumption has occurred in the first cell culture.

10. The method of any one of claims 1-9, wherein the first cell culture is a seed train culture.

11. The method of any one of claims 1-10, wherein the second cell culture is a production culture.

12. The method of any one of claims 1-11, wherein transferring cells to a second cell culture comprises transferring cells to a production bioreactor.

13. The method of any one of claims 2-12, wherein the polypeptide of interest is selected from the group consisting of an antibody, an antigen-binding protein, and a fusion protein.

14. The method of any one of claims 1-12, wherein one or more nucleic acid sequences are stably integrated into the cellular genome of the cells, and wherein the nucleic acid sequences encode a polypeptide of interest.

15. The method of any one of claims 1 or 3-12, wherein the cells comprise one or more expression vectors encoding a polypeptide of interest.

16. The method of claim 14 or claim 15, wherein the polypeptide of interest is selected from the group consisting of an antibody, an antigen-binding protein, and a fusion protein.

17. The method of any one of claims 1-16, wherein the cells are selected from the group consisting of CHO, COS, retinal, Vero, CV1, HEK293, 293 EBNA, MSR 293, MDCK, HaK, BHK21, HeLa, HepG2, WI38, MRC 5, Colo25, HB 8065, HL-60, Jurkat, Daudi, A431, CV-1, U937, 3T3, L cell, C127 cell, SP2/0, NS-0, MMT, PER.C6, murine lymphoid, and murine hybridoma cells.