What is claimed is:

1. A method for batch culturing eukaryote cells comprising:

providing cell culture inoculant comprising eukaryotic cells in a bicarbonate-containing culture liquid to a vessel,

said vessel having walls that encapsulate said cell culture and a gas phase head space above said cell culture, and wherein said vessel comprises at least one port that provides an entrance and an egress of gas to and from said head space;

agitating said vessel; and

providing gas to said head space through said port wherein said gas contains an amount of CO_2, and wherein said amount of CO_2 in said gas is modulated over time to adjust the pH of said cell culture in order to maintain a predetermined pH of said cell culture,

wherein said CO_2 is provided in an amount of 8% (v/v) of said gas on day 1, in an amount of 5% (v/v) of said gas on day 2, and in an amount of 2% (v/v) of said gas thereafter.

2. The method of claim 1 wherein said agitation is by rocking said vessel at a rock rate of 15 to 30 rpm and a rock angle of 5° to 15°.

3. The method of claim 2, wherein the rock rate is between 19 and 25 rpm and the rock angle is between 8° to 12°.

~~4. The method of claim 1 wherein said CO_2 is provided in an amount of between 10% and 0% (v/v) of said gas.~~

~~5. The method of claim 4 wherein said CO_2 is provided in an amount of between 8% and 2% (v/v) of said gas.~~

~~6. The method of claim 5 wherein said CO2 is provided in an amount of 8% (v/v) of said gas on day 1, in an amount of 5% (v/v) of said gas on day 2, and in an amount of 2% (v/v) of said gas thereafter.~~

~~7.~~4. The method of claim 1 wherein the flow rate of said gas is between 0 to 1.0 hvm.

~~8.~~5. The method of claim ~~7~~ 4 wherein the flow rate of said gas is between 0.001 and 0.002 hvm.

~~9.~~6. The method of claim ~~8~~ 5 wherein the flow rate of said gas is 0.007 hvm.

~~10.~~7. The method of claim 1 wherein said eukaryotic cells are vertebrate cells.

~~11.~~8. The method of claim ~~10~~ 7 wherein said vertebrate cells are selected from the group consisting of frog cells, rabbit cells, rodent cells, sheep cells, goat cells, dog cells, cat cells, cow cells, horse cells, non-human primate cells and human cells.

~~12.~~9. The method of claim 1 wherein said vessel is a rigid container.

~~13.~~10. The method of claim 1 wherein said vessel is a pliable container.

~~14.~~11. The method of claim ~~13~~ 10 wherein said vessel is a disposable culture bag.

~~15.~~12. The method of claim 1 further comprising a pH monitor for continuously or intermittently monitoring the pH of the cell culture.

~~16.~~13. The method of claim 1 wherein said gas is provided to said head space such that the cell culture maintains a partial pressure of dissolved CO_2 at a level of about 1 to 200 mmHg.

~~17.~~14. The method of claim ~~16~~ 13 wherein said gas is provided to said head space such that the cell culture maintains a partial pressure of dissolved CO_2 at a level of about 10 to 150 mmHg.

~~18.~~15. The method of claim ~~17~~ 14 wherein said gas is provided to said head space such that the cell culture maintains a partial pressure of dissolved CO_2 at a level of about 20 to 120 mmHg.

~~19.~~16. The method of claim 1 wherein said gas is provided to said head space such that the cell culture maintains a partial pressure of dissolved CO_2 at a level of about 20 to 80 mmHg.

~~20.~~17. A method for batch culturing eukaryote cells comprising:

providing cell culture comprising eukaryotic cells in a bicarbonate-containing culture liquid to a vessel,

said vessel having walls that encapsulate said cell culture and a gas phase head space above said cell culture, and wherein said vessel comprises at least one port that provides an entrance and an egress of gas to and from said head space;

agitating said vessel; and

providing gas to said head space through said port wherein said gas contains 8% CO_2 (v/v) of gas during the first day, 5% CO_2 (v/v) of gas the second day and 2% CO_2 (v/v) of gas thereafter.

~~21.~~18. The method of claim ~~20~~17 wherein said vessel is agitated on a rocker at a rock rate of 21-23 rpm.

~~22.~~19. The method of claim ~~20~~17 wherein said vessel is agitated on a rocker at a rock angle of 8-12°.

~~23.~~20. The method of claim ~~22~~17 wherein said vessel is agitated on a rocker at a rock angle of 10°.