What is claimed is:

1. A method of (a) arresting cell growth in a mammalian cell culture expressing a recombinant protein, (b) increasing recombinant protein production in a mammalian cell culture expressing a recombinant protein, and/or (c) limiting a mammalian cell culture expressing a recombinant protein at a desired packed cell volume, comprising

establishing a mammalian cell culture in a serum-free culture medium in a bioreactor;

inducing cell growth-arrest by perfusion with a serum-free perfusion medium having an L-asparagine concentration of 5mM or less; wherein growth-arrest is initiated by said perfusion when the cell density of the culture reaches a level where the concentration of L-asparagine in the culture becomes limiting for continued growth or when the culture is starved of L-asparagine ;

maintaining the mammalian cells in a growth-arrested state by perfusion with a serum-free perfusion medium having an L-asparagine concentration of 5mM or less.

2. A method of culturing mammalian cells expressing a recombinant protein comprising;

establishing a mammalian cell culture in a serum-free culture medium in a bioreactor;

growing the mammalian cells during a growth phase and supplementing the culture medium with bolus feeds of a serum-free feed medium; and

maintaining the mammalian cells in a production phase by perfusion with a serum-free perfusion medium, wherein the packed cell volume during the production phase is less than or equal to 35%.

3. The method of claim 1, wherein the perfusion with a serum-free perfusion medium having an L-asparagine concentration of 5mM or less begins on or before day 3 of the culture.

4. The method according to claim 1, wherein induction of cell growth-arrest takes place prior to a production phase or during a production phase.

5. The method according to claim 1, wherein cell growth-arrest is induced by L-asparagine starvation.

6. The method according to claim 1, further comprising a temperature shift from 36°C to 31°C or from 36°C to 33°C.

7. The method according to claim6, wherein the temperature shift occurs at the transition between a growth phase and a production phase or during a production phase.