What is claimed is

1. A method of reducing the ammonium ion concentration in a mammalian cell culture, comprising steps of:

a. growing the cells in a cell culture medium, and

b. contacting or administering an effective amount of a tricarboxylic acid ("TCA") intermediate composition to the cell culture medium, wherein the TCA intermediate composition comprises about 3 mM to about 45 mM malic acid and about 3 mM to about 45 mM pyruvic acid.

2. A method of maintaining or increasing cell productivity of cells engineered to express therapeutic proteins in a mammalian cell culture, wherein the ammonium ion generation is reduced, comprising steps of:

a. growing the cells in a cell culture medium, and

b. contacting or administering an effective amount of a TCA intermediate composition to the cell medium, wherein the TCA intermediate composition comprises about 3 mM to about 45 mM malic acid and about 3 mM to about 45 mM pyruvic acid.

3. A method of maintaining or increasing cell growth in a mammalian cell culture, wherein ammonium ion generation is reduced, comprising steps of:

a. growing the cells in a cell culture medium, and

b. contacting or administering an effective amount of a TCA intermediate composition to the cell culture medium, wherein the TCA intermediate composition comprises about 3 mM to about 45 mM malic acid and about 3 mM to about 45 mM pyruvic acid.

4. A method of reducing the influence of ammonium ion accumulation on antibody glycosylation patterns in a cell culture, wherein ammonium ion generation is reduced, comprising steps of:

a. growing the cells in a cell culture medium, and

b. contacting or administering an effective amount of a TCA intermediate composition to the cell culture medium, wherein the TCA intermediate composition comprises about 3 mM to about 45 mM malic acid and about 3 mM to about 45 mM pyruvic acid.

5. A method according to any of Claims 1-4, wherein the cells are engineered to express therapeutic proteins and wherein cell-specific productivity of the cells is also maintained.

6. A cell culture medium comprising about 3 mM to about 45 mM malic acid and about 3 mM to about 45 mM pyruvic acid.