CLAIMS:

1. A method for microbial bioburden reduction of a chromatography matrix, comprising contacting the chromatography matrix with a composition comprising from about 0.1 M to about 0.5 M acetic acid, wherein the contacting step is performed for about 1 hour to about 4 hours.

2. The method of claim 1, wherein:

(a) the contacting step is performed for at least about 4 hours; and/or

(b) the composition comprises about 0.1 M acetic acid or about 0.5 M acetic acid.

3. A method for microbial bioburden reduction of a chromatography matrix, comprising contacting the chromatography matrix with a composition comprising from about 0.1 M to about 1.0 M acetic acid, wherein the contacting step results in one or more of a reduction in the amount of spore forming bacteria by at least 3 $\log_{10}$, a reduction in the amount of gram positive bacteria by at least 5 $\log_{10}$, and a reduction in the amount of gram negative bacteria by at least 5 $\log_{10}$ in the chromatography matrix.

4. The method of any one of claims 1 to 3, wherein the composition further comprises an alcohol.

5. The method of claim 4, wherein the alcohol is ethanol or benzyl alcohol, optionally wherein the composition comprises about 20% ethanol, or from about 1% to about 2% benzyl alcohol.

6. The method of claim 3, wherein the contacting step results in a reduction in the amount of one or more of spore forming bacteria, gram positive bacteria, and gram negative bacteria, in the chromatography matrix, to below the limit of detection as determined by an assay selected from the group consisting of (1) a biofiltration assay, (2) microscopic bacterial staining, (3) IR/FTIR spectroscopy method, (4) a sterility test, and (5) a bacterial identification test, optionally wherein the spore forming bacteria are

Bacillus pseudofirmus, the gram positive bacteria are *Microbacterium* spp., and the gram negative bacteria are *Stenotrophomonas maltophilia*.

7. The method of any of claims 1-6, wherein:

(a) the composition further comprises an acetate salt;

(b) the composition has pH between about 2 and about 3; and/or

(c) said chromatography matrix is selected from the group consisting of MabSelect™, MabSelect™ Xtra, MabSelect™ SuRe, MabSelect™ SuRe pcc, MabSelect™ SuRe LX, MabCapture™ A, nProtein A Sepharose 4 Fast Flow, Protein A Sepharose 4 Fast Flow, Protein A Mag Sepharose, Protein A Sepharose CL-4B, rmp Protein A Sepharose Fast Flow, rProtein A Sepharose 4 Fast Flow, Capto™ L, ProSep™-A, ProSep Ultra Plus, AbSolute™ , CaptivA™ PriMab™, Protein A Diamond, Eshmuno™ A, Toyopearl™ AF-rProtein A, Amsphere™ Protein A, KanCapA™, Protein G Mag Sepharose Xtra, and Protein G Sepharose 4 Fast Flow.

8. A method for microbial bioburden reduction of a chromatography matrix, comprising contacting the chromatography matrix with a composition comprising from about 4.0 M to about 12.0 M urea, wherein the contacting step is performed for at least about 30 minutes.

9. The method of claim 8, wherein:

(a) the contacting step is performed for at least about 1 hour; and/or

(b) the composition comprises about 8 M urea.

10. A method for microbial bioburden reduction of a chromatography matrix, comprising contacting the chromatography matrix with a composition comprising from about 4.0 M to about 12.0 M urea, wherein the contacting step results in one or more of a reduction in the amount of spore forming bacteria by at least 2 $\log_{10}$, a reduction in the

amount of gram positive bacteria by at least 5 $\log_{10}$, and a reduction in the amount of gram negative bacteria by at least 5 $\log_{10}$ in the chromatography matrix.

11. The method of any one of claims 8-10, wherein the composition further comprises an alcohol.

12. The method of claim 11, wherein the alcohol is ethanol or benzyl alcohol, optionally wherein the composition comprises about 20% ethanol, or from about 1% to about 2% benzyl alcohol.

13. The method of claim 10, wherein the contacting step results in a reduction in the amount of one or more of spore forming bacteria, gram positive bacteria, and gram negative bacteria, in the chromatography matrix, to below the limit of detection as determined by an assay selected from the group consisting of (1) a biofiltration assay, (2) microscopic bacterial staining, (3) IR/FTIR spectroscopy method, (4) a sterility test, and (5) a bacterial identification test, optionally wherein the spore forming bacteria are *Bacillus pseudofirmus*, the gram positive bacteria are *Microbacterium* spp., and the gram negative bacteria are *Stenotrophomonas maltophilia*.

14. The method of any one of claims 1-13, wherein the contacting step is conducted at a temperature between 15°C and 30°C, or between 20°C and 25°C.

15. A method for reducing microbial load before applying a composition comprising a pharmaceutical agent for purification comprising

providing a chromatography matrix;

performing the method of claim 1; and

applying the composition comprising the pharmaceutical agent to the chromatography matrix.