Claims:

1. A method for predicting a molecular weight distribution of a blended biopolymer composition comprising:

providing a plurality of input biopolymer compositions having substantially differing molecular weight distributions;

obtaining concentration data as a function of molecular weight for each of the plurality of input biopolymer compositions;

for each input biopolymer composition, normalizing the concentration data as a function of molecular weight to provide normalized concentration data; and

combining the normalized concentration data for each input biopolymer composition at a selected number of matching molecular weight values to obtain a predicted biopolymer molecular weight distribution corresponding to the plurality of input biopolymer compositions.

2. The method of claim 1 wherein the concentration data comprises a refractive index measurement signal indicating the concentration of input biopolymer composition as a function of molecular weight.

3. The method of claim 1 wherein the concentration data comprises at least one of a) an ultra-violet absorption measurement signal indicating the concentration of input biopolymer composition as a function of molecular weight, b) an infrared absorption measurement signal indicating the concentration of input biopolymer composition as a function of molecular weight, c) a fluorescence measurement signal indicating the concentration of input biopolymer composition as a function of molecular weight, d) an electrochemical measurement signal indicating the concentration of input biopolymer composition as a function of molecular weight, e) a conductivity measurement signal indicating the concentration of input biopolymer composition as a function of molecular weight, f) chemiluminescence measurement signal indicating the concentration of input biopolymer composition as a function of molecular weight, g) a radiometric measurement signal indicating the concentration of input biopolymer composition as a function of molecular weight, or h) an evaporative light scattering measurement signal indicating the concentration of input biopolymer composition as a function of molecular weight.

4. The method of claim 1 wherein obtaining the concentration data comprises size exclusion chromatography.

5. The method of claim 1 wherein obtaining the concentration data comprises gel electrophoresis chromatography.

6. The method of claim 1 wherein obtaining the concentration data comprises ion exchange chromatography.

7. The method of any of claims 4 to 6 wherein the chromatography comprises first collecting concentration data as a function of retention time and converting the retention time values to molecular weight values using a molecular weight-retention time calibration curve.

8. The method of any of claims 1 to 7 wherein combining the normalized concentration data comprises combining the normalized concentration data at a predetermined weighting.

9. The method of claim 8 wherein the predetermined weighting is based on multiple simulations comprising combining the normalized concentration data for the plurality of input biopolymer compositions to provide at least one of a desired weight average molecular weight, number average molecular weight and peak molecular weight.

10. The method of claim 8 wherein the predetermined weighting is obtained by solving for at least one of a desired weight average molecular weight, number average molecular weight and peak average molecular weight.

11. The method of claim 8 wherein the predetermined weighting is based on a predetermined formula.

12. The method of claim 8 further comprising blending the plurality of input biopolymer compositions according to the predetermined weighting to obtain a blended biopolymer composition.

13. The method of any of claims 1 to 12 wherein the method further comprises, before obtaining the concentration data, removing unwanted impurities from the input biopolymer composition.

14. The method of any of claims 1 to 13 wherein the predicted biopolymer molecular weight distribution is within 6% of a real blend of the input biopolymer compositions having the substantially differing molecular weight distributions.

15. The method of any of claims 1 to 13 wherein the predicted biopolymer molecular weight distribution is within 4% of a real blend of the input biopolymer compositions having the substantially differing molecular weight distributions.

16. A method for predicting a unimodal molecular weight distribution of a blended biopolymer composition comprising:

providing a first plurality of input biopolymer compositions having substantially differing molecular weight distributions;

obtaining concentration data as a function of molecular weight for each of the first

plurality of input biopolymer compositions;

for each of the first plurality of input biopolymer compositions, normalizing the concentration data as a function of molecular weight to provide respective normalized concentration data;

determining molecular weight distribution standard deviations and number average molecular weights for each of the first plurality of input biopolymer compositions;

identifying from among the first plurality of input biopolymer compositions a base input biopolymer composition;

selecting from among the first plurality of biopolymer compositions a second plurality of input biopolymer compositions having number average molecular weights that differ from the number average molecular weight of the base input biopolymer composition by less than twice the molecular weight distribution standard deviation of the base input biopolymer composition; and

combining the respective normalized concentration data of each of the second plurality of input biopolymer compositions and the base input biopolymer composition at a selected number of matching molecular weight values to obtain a predicted unimodal blended biopolymer molecular weight distribution.

17. The method of claim 16 wherein the predicted unimodal biopolymer molecular weight distribution is within 6% of a real blend of the base input biopolymer composition and the second plurality of input biopolymer compositions.

18. The method of claim 16 wherein the predicted unimodal biopolymer molecular weight distribution is within 4% of a real blend of the base input biopolymer composition and the second plurality of input biopolymer compositions.