BRIEF SUMMARY

[0006] The present application provides a composition (such as pharmaceutical composition) comprising nanoparticles comprising albumin (such as human albumin) and paclitaxel, wherein no greater than about 2.4% (such as no greater than about 1.5%, or about 0%) of the total albumin in the composition is in the form of polymers.

[0006a] In one aspect, there is provided a pharmaceutical composition comprising nanoparticles comprising albumin and paclitaxel, wherein no greater than about 2.4% of the total albumin in the pharmaceutical composition is in the form of polymers, and wherein at least about 80% of the total albumin in the pharmaceutical composition is in the form of monomers.

In some embodiments, at least about 80% (such as at least about 92%) of the total albumin in the composition is in the form of monomers. In some embodiments according to any one of the compositions (such as pharmaceutical compositions) described above, no greater than about 10% of total albumin in the composition is in the form of dimers. In some embodiments, no greater than about 3% of total albumin in the composition is in the form of oligomers. The composition (such as pharmaceutical composition) described above may or may not comprise sucrose and/or edetate.

[0007] In some embodiments according to any one of the compositions (such as pharmaceutical compositions) described above, at least about 60% of the monomeric albumins in the composition have a free thiol group. In some embodiments, at least about 60% of the monomeric albumin in the composition has a blocked thiol group. In some embodiments, the composition is substantially free of albumin lacking C-terminal Leu and albumin lacking N-terminal Asp-Ala, and/or has an albumin glycosylation profile that is different from that of native albumin obtained from a human (for example in some embodiments the composition contains no glycosylated albumin). In some embodiments, the composition is substantially free of any one or more of the following: fatty acids, caprylate, tryptophan, blood component, virus, and/or prion.

[0008] In some embodiments according to any one of the compositions (such as pharmaceutical compositions) described above, no greater than about 0.5% of 7-epipaclitaxel is generated upon storage of the composition (such as pharmaceutical composition) at 55°C for about two weeks and/or no greater than about 0.7% of 7-epipaclitaxel is generated upon storage of the composition (such as pharmaceutical composition) at 55°C for about 1 month. In some embodiments, no greater than about 0.45% total impurities were generated upon storage of the composition (such as pharmaceutical composition) at 55°C for about two weeks and/or no greater than about 0.65% total impurities were generated upon storage of the composition (such as pharmaceutical composition) at 55°C for about 1 month.

[0009] In some embodiments according to any one of the compositions (such as pharmaceutical compositions) described above, no greater than about 1% additional albumin polymers are generated upon storage of the composition (such as pharmaceutical composition) at 55°C for about two weeks, no greater than about 1% additional albumin polymers are generated upon storage of the composition (such as pharmaceutical composition) at 55°C for about 1 month, no greater than about 10% albumin monomers are lost upon storage of the composition (such as pharmaceutical composition) at 55°C for about two weeks, and/or no greater than about 20% albumin monomers are lost upon storage of the composition (such as pharmaceutical composition) at 55°C for about 1 month.

[0010] In some embodiments according to any one of the compositions (such as pharmaceutical compositions) described above, at least about 80% of the total albumin in the composition is not associated with the nanoparticles. In some embodiments, the nanoparticles comprise paclitaxel coated with albumin. In some embodiments, the nanoparticles are substantially free of polymeric core matrix. In some embodiments, the nanoparticles in the composition have an average diameter of no greater than about 200 nm. In some embodiments, the weight ratio of the albumin and the paclitaxel in the composition is about 9:1 to about 1:1 (including for example about 8:1 to about 1:1). In some embodiments, the composition (such as pharmaceutical composition) has two or more (such as all) of these characteristics.

[0010a] In one aspect, there is provided a commercial batch of the pharmaceutical composition as described herein.

[0011] In some embodiments, there is provided a commercial batch of any one of the compositions (such as pharmaceutical compositions) described above.

[0011a] In one embodiment, there is provided use of an effective amount of the pharmaceutical composition as described herein in the manufacture of a medicament for treating a cancer in an individual.

[0012] In some embodiments, there is provided a method of treating a disease (such as cancer) in an individual (such as a human individual) comprising administering to the individual an effective amount of any one of the pharmaceutical compositions described above.

[0013] Also provided are kits, medicines, and articles of manufacture comprising any one of the compositions (such as pharmaceutical compositions) described above.

DETAILED DESCRIPTION

[0014] The present application provides albumin/paclitaxel nanoparticle compositions (such as pharmaceutical compositions) having a specific albumin profile. Specifically, the albumin/paclitaxel nanoparticle compositions described herein contain no greater than about

CLAIMS

What is claimed is:

1. A pharmaceutical composition comprising nanoparticles comprising albumin and paclitaxel, wherein no greater than about 2.4% of the total albumin in the pharmaceutical composition is in the form of polymers, and wherein at least about 80% of the total albumin in the pharmaceutical composition is in the form of monomers.

2. The pharmaceutical composition of claim 1, wherein at least about 92% of the total albumin in the pharmaceutical composition is in the form of monomers.

3. The pharmaceutical composition of any one of claims 1-2, wherein at least about 60% of the monomeric albumins in the pharmaceutical composition have a free thiol group.

4. The pharmaceutical composition of any one of claims 1-2, wherein at least about 60% of the monomeric albumin in the pharmaceutical composition have a blocked thiol group.

5. The pharmaceutical composition of any one of claims 1-4, wherein no greater than about 10% of the total albumin in the pharmaceutical composition is in the form of dimers.

6. The pharmaceutical composition of any one of claims 1-5, wherein no greater than about 3% of the total albumin in the pharmaceutical composition is in the form of oligomers.

7. The pharmaceutical composition of any one of claims 1-6, wherein the pharmaceutical composition is substantially free of albumin lacking C-terminal Leu and albumin lacking N-terminal Asp-Ala.

8. The pharmaceutical composition of any one of claims 1-7, wherein the albumin in the pharmaceutical composition has a glycosylation profile that is different from that of native albumin obtained from a human.

9. The pharmaceutical composition of any one of claims 1-8, wherein the albumin in the pharmaceutical composition has no glycosylation.

10. The pharmaceutical composition of any one of claims 1-9, wherein the pharmaceutical composition is substantially free of fatty acids.

11. The pharmaceutical composition of any one of claims 1-10, wherein the pharmaceutical composition is substantially free of caprylate.

12. The pharmaceutical composition of any one of claims 1-11, wherein the pharmaceutical composition is substantially free of tryptophan.

13. The pharmaceutical composition of any one of claims 1-12, wherein the pharmaceutical composition is substantially free of a blood component.

14. The pharmaceutical composition of any one of claims 1-13, wherein at least about 80% of the total albumin in the pharmaceutical composition is not associated with the nanoparticles.

15. The pharmaceutical composition of any one of claims 1-14, wherein the nanoparticles comprise paclitaxel coated with albumin.

16. The pharmaceutical composition of any one of claims 1-15, wherein the nanoparticles in the pharmaceutical composition have an average diameter of no greater than about 200 nm.

17. The pharmaceutical composition of any one of claims 1-16, wherein the weight ratio of the albumin and the paclitaxel in the composition is about 9:1 to about 1:1.

18. The pharmaceutical composition of any one of claims 1-17, wherein the albumin is human albumin.

19. A commercial batch of the pharmaceutical composition of any one of claims 1-19.