3. SUMMARY ~~OF THE INVENTION~~

[006] Provided herein in some ~~embodiment~~examples is a method of treating a coagulopathy in a subject, the method including administering to the subject in need thereof an effective amount of a composition including platelets or platelet derivatives and an incubating agent including one or more salts, a buffer, optionally a cryoprotectant, and optionally an organic solvent.

[007] In some ~~embodiment~~examples, provided herein is a method of treating a coagulopathy in a subject, the method including administering to the subject in need thereof an effective amount of a composition prepared by a process including incubating platelets with an incubating agent including one or more salts, a buffer, optionally a cryoprotectant, and optionally an organic solvent, to form the composition.

[007a] In one aspect, the present disclosure refers to use of a composition comprising freeze-dried platelet derivative particles (FDPDs) in the manufacture of a medicament for controlling bleeding in a subject, wherein the medicament is to be administered to the subject in need thereof because the subject has been treated or is being treated with an antiplatelet agent, wherein the freeze-dried platelets are rehydrated prior to administration, wherein the composition comprises an effective amount of the FDPDs and an incubating agent comprising one or more salts, a buffer, and a saccharide, and wherein the effective amount is between about 5.0×10^7 to about 1.0×10^8, about 1.0×10^8 to about 5.0×10^8, about 5.0×10^8 to about 1.0×10^9, about 1.0×10^9 to about 5.0×10^9, or about 5.0×10^9 to about 1.0×10^{10} FDPDs/kg weight of the subject.

[008] In some ~~embodiment~~examples, provided herein is a method of restoring normal hemostasis in a subject, the method including administering to the subject in need thereof an effective amount of a composition including platelets or platelet derivatives and an incubating agent including one or more salts, a buffer, optionally a cryoprotectant, and optionally an organic solvent.

[009] In some ~~embodiment~~examples, provided herein is a method of restoring normal hemostasis in a subject, the method including administering to the subject in need thereof an effective amount of a composition prepared by a process including incubating platelets with an incubating agent including one or more salts, a buffer, optionally a cryoprotectant, and optionally an organic solvent, to form the composition.

[0010] In some ~~embodiment~~examples, provided herein is a method of preparing a subject for surgery, the method including administering to the subject in need thereof an effective amount of a composition including platelets or platelet derivatives and an incubating agent including one or more salts, a buffer, optionally a cryoprotectant, and optionally an organic solvent. Implementations can include one or more of the following features. The surgery can be an emergency surgery. The surgery can be a scheduled surgery.

[0011] In some ~~embodiment~~examples, provided herein is a method of preparing a subject for surgery, the method including administering to the subject in need thereof an effective amount of a composition prepared by a process including incubating platelets with an incubating agent including one or more salts, a buffer, optionally a cryoprotectant, and optionally an organic

solvent, to form the composition. Implementations can include one or more of the following features. The surgery can be an emergency surgery. The surgery can be a scheduled surgery.

[0012] In some ~~embodiment~~examples of the above methods, the subject has been treated or is being treated with an antiplatelet agent. In some ~~embodiment~~examples, treatment with the antiplatelet agent can be stopped. In some ~~embodiment~~examples, treatment with the antiplatelet agent can be continued.

[0013] In some ~~embodiment~~examples, provided herein is a method of ameliorating the effects of an antiplatelet agent in a subject, the method including administering to the subject in need thereof an effective amount of a composition including platelets or platelet derivatives and an incubating agent including one or more salts, a buffer, optionally a cryoprotectant, and optionally an organic solvent.

[0014] In some ~~embodiment~~examples, provided herein is a method of ameliorating the effects of an antiplatelet agent in a subject, the method including administering to the subject in need thereof an effective amount of a composition prepared by a process including incubating platelets with an incubating agent including one or more salts, a buffer, optionally a cryoprotectant, and optionally an organic solvent, to form the composition.

[0014a] In one aspect, the present disclosure refers to use a composition comprising freeze-dried platelet derivative particles (FDPDs) in the manufacture of a medicament for ameliorating the effects of an antiplatelet agent in a subject, wherein the medicament is to be administered to the subject in need thereof because the subject has been treated or is being treated with an antiplatelet agent, wherein the freeze-dried platelets are rehydrated prior to administration, wherein the composition comprises an effective amount of the FDPDs and an incubating agent comprising one or more salts, a buffer, and a saccharide, and wherein the effective amount is between about 5.0×10^7 to about 1.0×10^8, about 1.0×10^8 to about 5.0×10^8, about 5.0×10^8 to about 1.0×10^9, about 1.0×10^9 to about 5.0×10^9, or about 5.0×10^9 to about 1.0×10^{10} FDPDs/kg weight of the subject.

[0015] In some ~~embodiment~~examples, the effects of the antiplatelet agent can be the result of an overdose of the antiplatelet agent.

[0016] In some ~~embodiment~~examples, the antiplatelet agent can be selected from the group consisting of aspirin, cangrelor, ticagrelor, clopidogrel, prasugrel, eptifibatide, tirofiban, abciximab, and a supplement.

[0017] Some ~~embodiment~~examples of any of the methods herein can include one or more of the following features. Administering can include administering topically. Administering can include administering parenterally. Administering can include administering intravenously. Administering can include administering intramuscularly. Administering can include administering intrathecally. Administering can include administering subcutaneously. Administering can include administering intraperitoneally. The composition can be dried prior to the administration step. The composition can be rehydrated following the drying step. The composition can be freeze-dried prior to the administration step. The composition can be rehydrated following the freeze-drying step. The incubating agent can include one or more salts selected from phosphate salts, sodium salts, potassium salts, calcium salts, magnesium salts, and

What is claimed is:

~~1. A method of restoring normal hemostasis in a subject, the method comprising administering to the subject in need thereof an effective amount of a composition comprising platelets or platelet derivatives and an incubating agent comprising one or more salts, a buffer, optionally a cryoprotectant, and optionally an organic solvent, wherein the subject has been treated or is being treated with an antiplatelet agent.~~

~~2. A method of restoring normal hemostasis in a subject, the method comprising administering to the subject in need thereof an effective amount of a composition prepared by a process comprising incubating platelets with an incubating agent comprising one or more salts, a buffer, optionally a cryoprotectant, and optionally an organic solvent, to form the composition, wherein the subject has been treated or is being treated with an antiplatelet agent.~~

~~3. A method of treating a coagulopathy in a subject, the method comprising administering to the subject in need thereof an effective amount of a composition comprising platelets or platelet derivatives and an incubating agent comprising one or more salts, a buffer, optionally a cryoprotectant, and optionally an organic solvent, wherein the subject has been treated or is being treated with an antiplatelet agent.~~

~~4. A method of treating a coagulopathy in a subject, the method comprising administering to the subject in need thereof an effective amount of a composition prepared by a process comprising incubating platelets with an incubating agent comprising one or more salts, a buffer, optionally a cryoprotectant, and optionally an organic solvent, to form the composition, wherein the subject has been treated or is being treated with an antiplatelet agent.~~

~~5. A method of preparing a subject for surgery, the method comprising administering to the subject in need thereof an effective amount of a composition comprising platelets or platelet derivatives and an incubating agent comprising one or more salts, a buffer, optionally a cryoprotectant, and optionally an organic solvent, wherein the subject has been treated or is being treated with an antiplatelet agent.~~

~~6. A method of preparing a subject for surgery, the method comprising administering to the subject in need thereof an effective amount of a composition prepared by a process comprising incubating platelets with an incubating agent comprising one or more salts, a buffer, optionally a cryoprotectant, and optionally an organic solvent, to form the composition, wherein the subject has been treated or is being treated with an antiplatelet agent.~~

~~7. The method of any one of claims 5-6, wherein the surgery is an emergency surgery.~~

~~8. The method of any one of claims 5-6, wherein the surgery is a scheduled surgery.~~

~~9. The method of any one of claims 1-8, wherein the subject is being treated with an antiplatelet agent.~~

~~10. The method of claim 9, wherein treatment with the antiplatelet agent is stopped.~~

~~11. The method of claim 9, wherein treatment with the antiplatelet agent is continued.~~

1. Use of a composition comprising freeze-dried platelet derivative particles (FDPDs) in the manufacture of a medicament for controlling bleeding in a subject, wherein the medicament is to be administered to the subject in need thereof because the subject has been treated or is being treated with an antiplatelet agent, wherein the freeze-dried platelets are rehydrated prior to administration, wherein the composition comprises an effective amount of the FDPDs and an incubating agent comprising one or more salts, a buffer, and a saccharide, and wherein the effective amount is between about 5.0×10^7 to about 1.0×10^8, about 1.0×10^8 to about 5.0×10^8, about 5.0×10^8 to about 1.0×10^9, about 1.0×10^9 to about 5.0×10^9, or about 5.0×10^9 to about 1.0×10^{10} FDPDs/kg weight of the subject.

~~12.~~2. Use of a composition comprising freeze-dried platelet derivative particles (FDPDs) in the manufacture of a medicament for ~~A method of~~ ameliorating the effects of an antiplatelet agent in a subject, wherein the medicament is to be administered to the subject in need thereof because the subject has been treated or is being treated with an antiplatelet agent, wherein the freeze-

dried platelets are rehydrated prior to administration, wherein the composition comprises an effective amount of the FDPDs and an incubating agent comprising one or more salts, a buffer, and a saccharide, and wherein the effective amount is between about 5.0 x 10^7 to about 1.0 x 10^8, about 1.0 x 10^8 to about 5.0 x 10^8, about 5.0 x 10^8 to about 1.0 x 10^9, about 1.0 x 10^9 to about 5.0 x 10^9, or about 5.0 x 10^9 to about 1.0 x 10^{10} FDPDs/kg weight of the subject~~the method comprising administering to the subject in need thereof an effective amount of a composition comprising platelets or platelet derivatives and an incubating agent comprising one or more salts, a buffer, optionally a cryoprotectant, and optionally an organic solvent~~.

3. The use of any one of claims 1 or 2, wherein the effective amount is about 5.0 x 10^8 to about 1.0 x 10^9, about 1.0 x 10^9 to about 5.0 x 10^9, or about 5.0 x 10^9 to about 1.0 x 10^{10} FDPDs/kg weight of the subject.

4. The use of any one of claims 1 or 2, wherein the effective amount is about 1.0 x 10^9 to about 5.0 x 10^9, or about 5.0 x 10^9 to about 1.0 x 10^{10} FDPDs/kg weight of the subject.

5. The use of any one of claims 1 or 2, wherein the effective amount is about 5.0 x 10^9 to about 1.0 x 10^{10} FDPDs/kg weight of the subject.

6. The use of any of the preceding claims, wherein the subject is being treated with an antiplatelet agent.

7. The use of any of the preceding claims, wherein the subject is in need thereof because the subject has been treated or is being treated with two antiplatelet agents.

8. The use of any of the preceding claims, wherein the saccharide is trehalose in an amount in the range of 10 mM to 500 mM.

9. The use of any of the preceding claims, wherein the composition further comprises polysucrose in an amount in the range of 3 % to 7% and ethanol from 0.1% to 5.0% (v/v).

10. The use of any of the preceding claims, wherein the composition is prepared by a process comprising incubating platelets with an incubating agent comprising one or more salts, a buffer, and a saccharide to form incubated platelets, and freeze-drying the incubated platelets.

11. The use of any of the preceding claims, wherein a surgery is to be performed on the subject after administration of the medicament to the subject, wherein the dose of the antiplatelet agent is not reduced before the surgery.

12. The use of any of the preceding claims, wherein the FDPDs have a particle size of at least about 0.6 µm, the FDPDs have a particle size of at least 1 µm, or at least 50% of the FDPDs have a particle size of about 0.5 µm to 2.5 µm.

13. The use of any of the preceding claims, wherein at least 90% of the FDPDs have a particle size of about 0.5 µm to 2.5 µm.

~~13. A method of ameliorating the effects of an antiplatelet agent in a subject, the method comprising administering to the subject in need thereof an effective amount of a composition prepared by a process comprising incubating platelets with an incubating agent comprising one or more salts, a buffer, optionally a cryoprotectant, and optionally an organic solvent, to form the composition.~~

~~14. The method of claim 12 or claim 13, wherein the effects of the antiplatelet agent are the result of an overdose of the antiplatelet agent.~~

~~15. The method of any one of claims 1-14, wherein the composition further comprises an anti-fibrinolytic agent.~~

~~16.~~14. The use of any of the preceding claims~~method of claim 15~~, wherein the FDPDs are loaded with an anti-fibrinolytic agent ~~is~~ selected from the group consisting of ε-aminocaproic acid (EACA), tranexamic acid, aprotinin, aminomethylbenzoic acid, ~~fibrinogen,~~ and a combination thereof.

~~17. The method of claim 15 or claim 16, wherein the platelets or platelet derivatives are loaded with the anti-fibrinolytic agent.~~

~~18.~~15. The ~~method~~ use of any of the preceding claims~~one of claims 1-17~~, wherein the antiplatelet agent is selected from the group consisting of aspirin, cangrelor, ticagrelor, clopidogrel, prasugrel, eptifibatide, tirofiban, abciximab, terutroban, picotamide, elinogrel, ticlopidine, ibuprofen, vorapaxar, atopaxar, cilostazol, prostaglandin E1, epoprostenol, dipyridamole, treprostinil sodium, sarpogrelate, ~~a supplement,~~ and a combination thereof.

~~19.~~16. The use of any of the preceding claims~~method of any one of claims 1-17~~, wherein the antiplatelet agent is selected from the group consisting of aspirin, cangrelor, ticagrelor, clopidogrel, prasugrel, eptifibatide, tirofiban, abciximab, ~~terutroban, picotamide, elinogrel, ticlopidine, ibuprofen, vorapaxar, atopaxar~~a supplement, and a combination thereof.

17. The use of any of the preceding claims, wherein the antiplatelet agent is a non-reversible antiplatelet agent.

~~20. The method of any one of claims 1-17, wherein the antiplatelet agent is selected from the group consisting of aspirin, cangrelor, ticagrelor, clopidogrel, prasugrel, eptifibatide, tirofiban, abciximab, terutroban, picotamide, elinogrel, ticlopidine, ibuprofen, vorapaxar, atopaxar, cilostazol, prostaglandin E1, epoprostenol, dipyridamole, treprostinil sodium, sarpogrelate, and a combination thereof.~~

~~21. The method of any one of claims 1-20, wherein administering comprises administering topically.~~

~~22.~~18. The use of any of the preceding claims~~method of any one of claims 1-20~~, wherein the medicament is to be administered ~~administering comprises administering~~ parenterally.

~~23.~~19. The use of any of the preceding claims~~method of any one of claims 1-20~~, wherein the medicament is to be administered ~~administering comprises administering~~ intravenously.

~~24.~~20. The use of any of one of claims 1 to 17~~method of any one of claims 1-20~~, wherein the medicament is to be administered topically~~administering comprises administering intramuscularly~~.

~~25. The method of any one of claims 1-20, wherein administering comprises administering intrathecally.~~

~~26. The method of any one of claims 1-20, wherein administering comprises administering subcutaneously.~~

~~27. The method of any one of claims 1-20, wherein administering comprises administering intraperitoneally.~~

~~28. The method of any one of claims 1-27, wherein the composition is dried prior to the administration step.~~

~~29. The method of claim 28, wherein the composition is rehydrated following the drying step.~~

~~30. The method of any one of claims 1-28, wherein the composition is freeze-dried prior to the administration step.~~

~~31. The method of claim 30, wherein the composition is rehydrated following the freeze-drying step.~~

~~32. The method of any one of claims 1-31, wherein the incubating agent comprises one or more salts selected from phosphate salts, sodium salts, potassium salts, calcium salts, magnesium salts, and a combination of two or more thereof.~~

~~33. The method of any one of claims 1-32, wherein the incubating agent comprises a carrier protein.~~

~~34. The method of any one of claims 1-33, wherein the buffer comprises HEPES, sodium bicarbonate ($NaHCO_3$), or a combination thereof.~~

~~35. The method of any one of claims 1-34, wherein the composition comprises one or more saccharides.~~

~~36. The method of claim 35, wherein the one or more saccharides comprise trehalose.~~

~~37. The method of claim 35 or claim 36, wherein the one or more saccharides comprise polysucrose.~~

~~38. The method of any one of claims 35-37, wherein the one or more saccharides comprise dextrose.~~

~~39. The method of any one of claims 1-38, wherein the composition comprises an organic solvent.~~

~~40. The method of any of claims 1-39, wherein the platelets or platelet derivatives comprise thrombosomes.~~