need in the art to overcome this donor-to-donor and lot-to-lot or batch-to-batch variability in cryopreserved platelets, or cryopreserved platelet compositions.

[0006] It is known that stringent freezing temperature conditions are required for storing cryopreserved platelets, for example, ultra-freezers are required to maintain temperatures at ≤ -65°C in order to have a functional platelet product for applications such as in a battlefield, or in a hospital or other patient treatment center. However, depending on geographical locations, such battlefields or hospitals may not be equipped with ultra-freezers due to the size of the freezer unit the cost of one or especially more such freezer units, and/or the lack of an adequate electrical power supply, thereby, making it difficult to store the cryopreserved platelets at such temperatures. Accordingly, there is a long-felt need in the art to have a cryopreserved platelet composition that is effective at controlling bleeding, is readily manufacturable without highly specialized equipment and is capable of being stored in standard -20°C freezers for months or even years.

SUMMARY

[0006a] In one aspect, provided herein is a process for preparing a batch of cryopreserved platelets, comprising: a) pooling at least 2 platelet units into one vessel and at least another platelet unit into another vessel, wherein there are at least 5 platelet units, and the platelet units are from more than one donor; b) centrifuging each vessel to obtain a supernatant comprising plasma, and a pellet comprising platelets; c) resuspending the pellet in each vessel to form a resuspension wherein the resuspension has a target weight based on a number of units pooled or provided in the vessel; d) pooling the resuspension from each vessel to form a pooled resuspension in a pooled resuspension vessel; e) adding dimethyl sulfoxide (DMSO) to the pooled resuspension vessel having the pooled resuspension until a target weight of DMSO is added based on a weight of the pooled resuspension, to obtain a pooled resuspension having DMSO; f) distributing the pooled resuspension having DMSO from the pooled resuspension vessel among a number of cryo-vessels; and g) freezing the pooled resuspension having DMSO in the cryo-vessels, to form the batch of cryopreserved platelets, wherein the distributing is performed to a number of cryo-vessels that are equivalent to a total number of platelet units provided in step a), and

wherein the freezing is performed by subjecting the pooled resuspension having DMSO to a temperature of less than or equal to -60°C.

[0006b] In another aspect, provided herein is a collection of cryo-vessels, comprising a plurality of cryo-vessels, wherein each cryo-vessel in the collection comprises frozen platelets, wherein the frozen platelets in each cryo-vessel have a set of biomolecule profiles indicative of more than 1 platelet donor, wherein a batch of cryo-vessels has an identical set of biomolecule profiles, and wherein each batch of the collection has a different set of biomolecule profiles than any other batch in the collection, wherein the collection

comprises at least 2 batches of cryo-vessels, wherein each batch of cryo-vessels comprises at least 5 cryo-vessels, wherein the coefficient of variance of a mean dimethyl sulfoxide (DMSO) concentration in the cryo-vessels across the batches is less than 0.5%.

[0007] To overcome the above-mentioned and additional problems in the art, the present disclosure provides aspects and embodiments that include frozen platelets, frozen platelet derivatives, cryopreserved platelets, and/or cryopreserved platelet derivatives. In some aspects and embodiments, pooled cryopreserved platelets (CPP) are provided that can be aliquoted into multiple doses of a final product from a starting material that typically includes multiple platelet units. Improved processes of the present disclosure create a final product that exhibits decreased lot to lot variability, when compared to the donor-to-donor variability of current standard of care products (single donor CPP or apheresis platelet units). The novel process aspects and embodiments herein allow for increased in-process controls (IPCs) and reduces variability in the processing compared to single donor CPP processes. The processes provided herein facilitate increased control of the excipients and freezing volume compared to single donor process and prior CPP processes. This increased control reduces variation of the DMSO content, dosage volume, and total cell number that is administered to a patient, which increases the safety profile of a CPP product provided herein. The ability to create multiple doses, such as multiple cryo-vessels of a batch of CPPs from a pool of platelet units allows for quality control testing of the final product for release of lots which is not achievable for single donor CPP.

[0008] Further, in some aspects, provided herein is a process for preparing a cryopreserved platelet composition that can be stored at a temperature higher than -65°C, for example, at a temperature in the range of -10°C to -30°C for a time period of at least 1 month, 3 months, 12 months, or until the