Pplus Medical

Platelet Digital Storage Device (DSD)

The DSD is a patented, CE marked Medical Device that provides optimal storage and transportation conditions for platelets at room temperature. The DSD is currently utilized by both PRP Clinicians and Scientists in areas such as Hematology, Cardiovascular, Drug discovery, Drug delivery, Rare Blood Diseases, Platelet Disease Thrombocytopenia and more.

Figure 1

Scientific Applications

PRP or isolated platelets can be stored inside the DSD at room temperature. The DSD:

- Provides optimal storage conditions for platelets, keeping them functional for up to 7 days.
- Removes the need for cooling or freezing.
- Can reduce the number of blood donors for drug discovery applications.
- Is suitable for storing PRP and isolated platelets from both human & murine sources.
- Streamlines the process and reduces the time taken by keeping multiple aliquots of platelet rich plasma in suspension and ready for use prior to analysis.
- Can be used for transporting samples at optimal conditions, due to its inbuilt battery.

Clinical Applications

The use of the DSD for PRP/PRF storage removes the time pressure doctors sometimes encounter when:

- Offering PRP treatments in isolation, in applications such as skin rejuvenation, alopecia treatments, dentistry, wound care and more.
- Using PRP in conjunction with other invasive treatments and surgeries to accelerate post-operative healing and reduce pain.

High platelet count was maintained when PRP was stored in the DSD for 7 days.

PRP from one single donor was stored in the DSD for 7 days and platelet counts were recorded daily,showing only a slight day to day decrease. Graph shows the standard deviation.

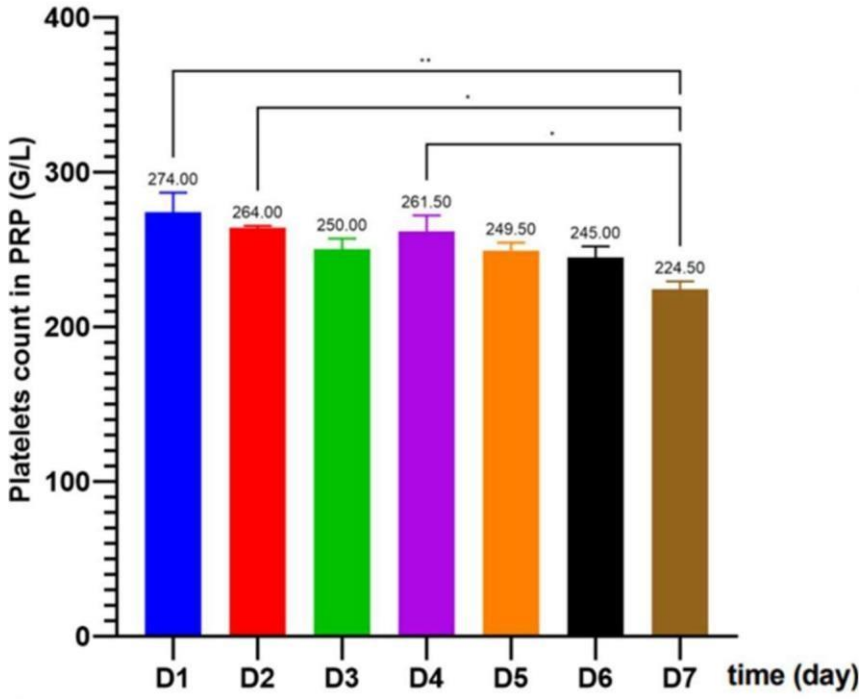
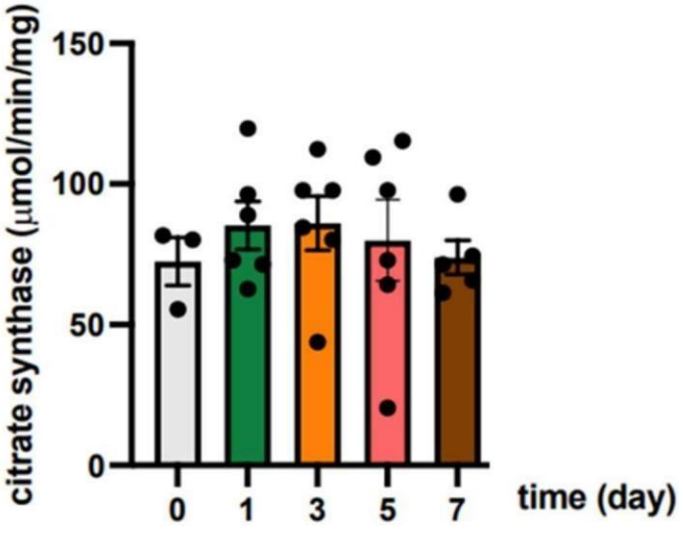


Figure 2

Platelets stored for 7 days in the DSD maintained their cell activity.

Isolated platelets from PRP preparation from 6 single donors were stored for 7 days in the DSD. Mean data measurement of the citrate synthetase activity indicates mitochondrial density which demonstrates platelet functionality.



Figure

Platelets stored in the DSD remained functional and capable of releasing high levels of growth factors when activated.

PRP from 1 single donor was stored in the DSD for 7 days and was activated daily with CRP-A at 1 µg/ml, an innovative new collagen related peptide and highly potent platelet activator developed by Pplus. PDGF-bb growth factors released were measured daily in both activated and non-activated PRP.Both groups were capable of releasing PDGF-bb but the CRP-A activated platelets released higher concentrations of growth factors.

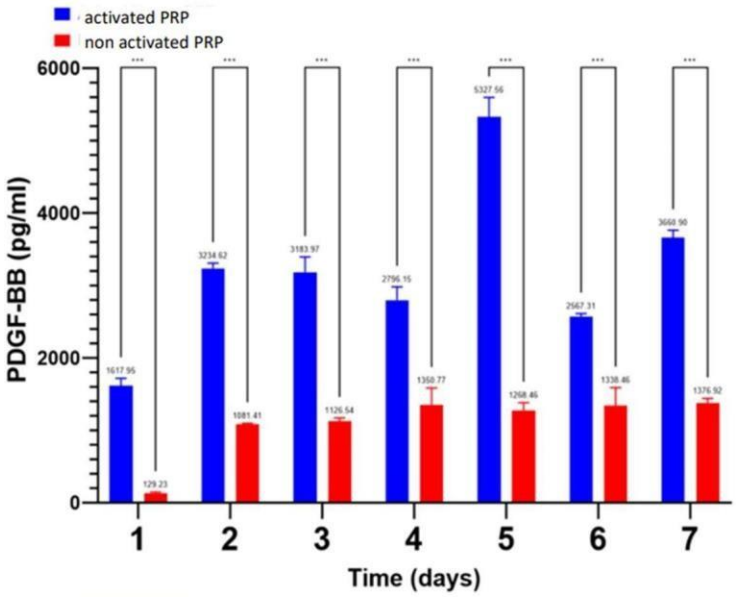


Figure 4

Aggregation in response to TRAP-6 and CRP-A remained relatively consistent between day 1 and day 7

Platelet rich plasma (PRP) stored in the DSD was sampled on day 1 and day 7 to measure platelet aggregation in response to a range of agonists:- PBS (unstimulated), TRAP-6 (1µM), TRAP-6 (10µM), CRP-A (1µg/ml), CRP-A (10µg/ml), U46619 (1µM), U46619 (10µM), ADP (1µM) and ADP (10µM) Optimal plate platelet aggregation was performed, stimulating aggregation on a BioShake at 1200rpm, 5 minutes, 37°C. Light absorbance was measured using a plate reader measuring absorbance at 595nm. Percentage platelet aggregation was calculated relative to the light absorbance of platelet rich plasma and platelet poor plasma. This data highlights that the aggregation in response to our strong platelet agonist CRP-A is largely retained across storage, however U46619 and ADP aggregation is significantly reduced at day 7.

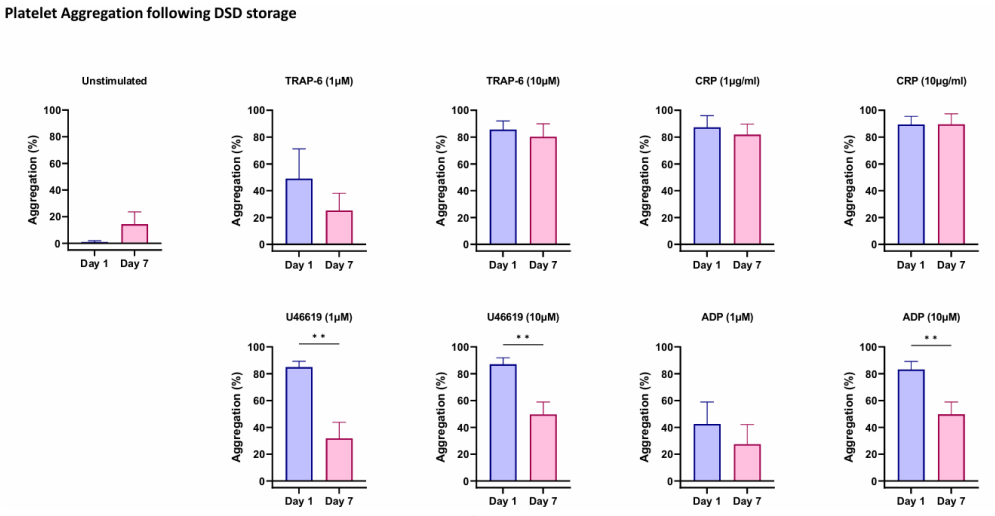


Figure 5