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Test Report

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I. Objective of Study: The primary objective of this study was to evaluate platelet rich fibrin (PRF) product following an activation process. A secondary objective was to measure pH and platelet concentration of platelet rich plasma (PRP) products.

III. Study Parameters

Platelet Concentration

Complete blood counts (CBCs) were performed using a hematology analyzer for the baseline and concentrate samples.

pH

pH was measured for the PRP sample using a blood gas analyzer.

Platelet Derived Growth Factor Analysis

Growth Factor quantitation was performed by ELISA for untreated and activated PRP samples. A positive control sample prepared using $CaCl_2$ and bovine thrombin was also tested.

Table 3. Summary of Spin Protocols for 15mL PRP Tube

Spin Protocol	Centrifugation Speed, Time	Collection Method
Protocol	3500 rpm, 8 minutes	immediate removal of all but ~2 mL of plasma post-centrifugation from top of tube; 20-minute rest period with remaining 2mL; gentle mixing to resuspend platelets then collection of 2mL of PRP

Table 4. Hematology Data – 15 mL Tube

		Protocol	
Cell Count Parameters		**Whole Blood**	**PRP**
WBC	(x 10^6/mL)	3.4	0.75
RBC	(x 10^9/mL)	4.0	0.03
PLT	(x 10^6/mL)	161	548
LY	(x 10^6/mL)	1.42	0.66
MO	(x 10^6/mL)	0.26	0.04
NE	(x 10^6/mL)	1.62	0.03
EO	(x 10^6/mL)	0.10	0.01
BA	(x 10^6/mL)	0.02	0.00
PLT Recovery (%)			**84%**

pH		7.5

WBC – White Blood Cell; RBC – Red Blood Cell; PLT – Platelet; LY – Lymphocyte; MO – Monocyte; NE – Neutrophil; EO – Eosinophil; BA – Basophil

Table 5. Platelet Derived Growth Factor Concentration (pg/mL)

Test Samples	**PDGF** (pg/mL)
Untreated PRP	1536
Treated PRP	10844

V. Summary of Results

This study assessed parameters associated with PRP and PRF products prepared using Juventix PRP devices and the photoactivation/bio-incubation method. PRP products were prepared from 15mL and 30mL PRP tubes using several centrifugation protocols and platelet concentrate collection methods. Substantial platelet recoveries (84% - Table 4) were calculated for the 15mL PRP device, when whole blood was processed using centrifugation protocol, respectively. Both protocols included a 20-minute 'rest' period, which has been previously shown to improve platelet yields (*PN2006, July 2020 study*). The measured pH of platelet concentrates was ~7.5.

PDGF growth factor concentrations were determined for untreated PRP and photoactivated/bio-incubated PRP/PRF test samples. A $CaCl_2$-Thrombin generated releasate prepared from the same PRP product was included in the analysis as a positive control. Photoactivation and bio-incubation led to the transformation of the liquid PRP product to a gel-like PRF product, which indicates platelet activation occurred and the clotting cascade was initiated.