



advancells  
THE POWER TO CURE

PRP

Platelet Rich Plasma Concentrator

Advancells

The Power To Cure

# Advancells PRP: The Gold Standard

Advancells is the leader in developing Point-of care cellular platforms to isolate and concentrate autologous growth factors, stem cells, and accessory cells that may help optimize condition for healing. we have introduced the Advancells PRP platelet concentrate system, making the use of autologous growth factor practical in the hospital and clinic setting for the first time.

The Advancells PRP has been in thousands of procedures to date and counting today, Advancells PRP platform is on industry standard in PRP technology.



- Deliver The Optimal Composition of a concentrated platelet Product
- Recovers the highest percent of platelets and corresponding growth factors - up to 80% of available platelets.
- Contains increased concentration of stem cell
- Generates the great level of reproducibility - only a 5% coefficient of variance
- In the shortest amount of time 20 minutes or less from start to finish
- Considerer the simple and easiest system to use

Advancells mission is to further  
Expand and enhance the  
use of autologous bioactive  
cells to help optimize the  
conditions for healing and  
improved patient outcomes

# Advancells

Developing Cellular platforms that may help optimize conditions for healing

## Unlocking the Biologic Potential

What is the optimal composition of concentrated platelet product ( CPP)?

It has been documented in the literature that effective cellular therapy requires a scaffold for cell migration, progenitor cells which can be converted into bone or soft tissue, and signal proteins to modulate the repair and regeneration process. These key biologic cells are located in the “buffy coat” layer.

### Platelets

- ❖ Mediate cell to cell adhesion through the release of various adhesion molecules and growth factors.

### Growth Factors

- ❖ Platelet Derived Growth Factors (PDGF) chemoattractive for stem cells and endothelial cells
- ❖ Transforming growth factor Beta (TGFB) promotes cell mitosis and differentiation for connective tissue and bone
- ❖ Vascular Endothelial Growth factors (VEGF) stimulates angiogenesis and chemoattractive for osteoblasts

### White Blood Cells

- ❖ The WBC composition of the Advancells PRP is primarily mononuclear as compared to whole blood which contains primarily granulocytes.
- ❖ CD34+ cells as a stem cell marker have been identified in the Advancells concentrated platelet products (PRP)

### Cytokines and Adhesion Molecules

- ❖ Stromal Derived Factor-1 Alpha (SDF1  $\alpha$ ): Actively modulates migration and homing of stem cells to the wound site.

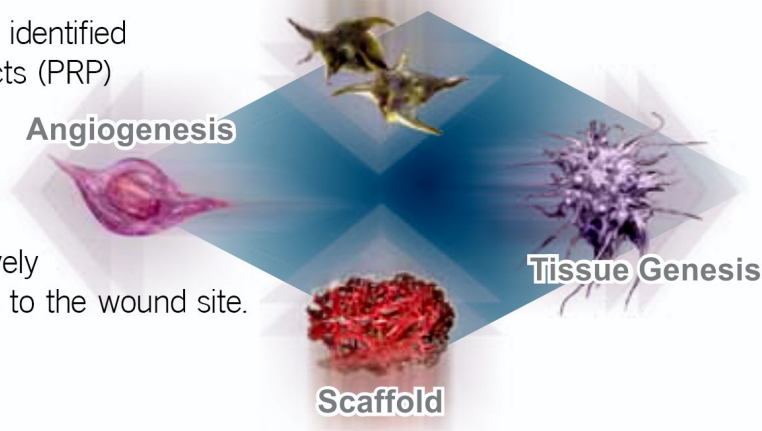
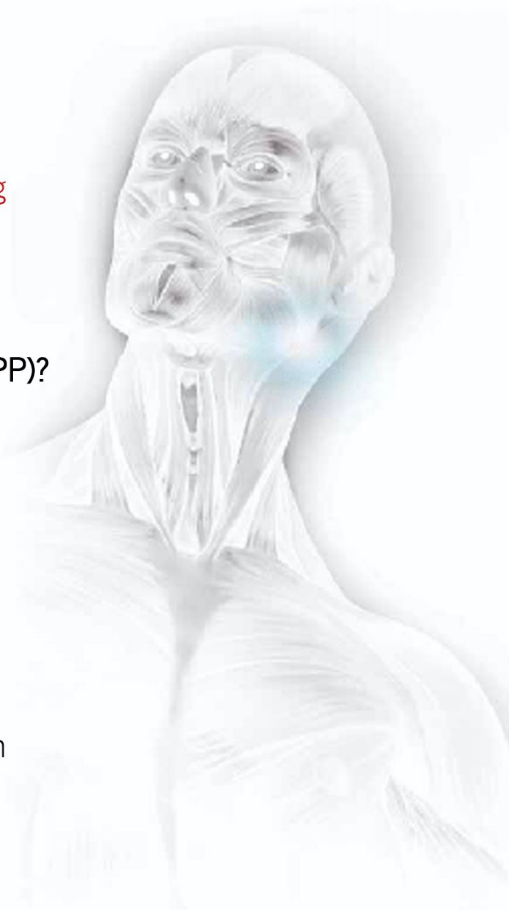
## Essential Healing Factors

Signal Proteins

Angiogenesis

Tissue Genesis

Scaffold







## What is the Optimal Platelet Concentration?

A concentrated platelet product not only accelerates migration of stem cells to the wound site but also stimulates proliferation in the microenvironment.

Physicians recognize that re-establishing blood flow is critical for healing. Platelets, WBC's and accessory cells contain critical cytokines such as VEGF which is well known to stimulate angiogenesis and SDF-1  $\alpha$  which actively mobilizes and navigates stem cells to the site of injury.

Recent studies indicate the optimal platelet concentration to stimulate angiogenesis ranged from 1.5 to 3.0 x 10<sup>6</sup> platelets/ $\mu$ L (1.5 million to 3.0 million platelets per microliter)

Furthermore, proliferative assays showed:

- ❖ No PRP device can achieve platelet concentrations that inhibits angiogenesis
- ❖ WBC's do not inhibit cell proliferation
- ❖ Platelet concentrations less than 500 x 10<sup>3</sup> / $\mu$ L support proliferation no better than platelet poor plasma PPP).



## What is the value of White Blood Cells?

Some contend that concentrated WBC's may produce an unintended inflammatory response or inhibit cell proliferation. not true. What most fail to recognize is the importance of the composition of the WBC fraction in... the concentrated platelet products.

Unlike other systems, the Advancells PRP separation process produces a WBC composition that contains 100% more mononuclear (lymphocytes and monocytes) cells while reducing the granulocytes cells by 60%.

- ❖ This composition may help optimize conditions for healing
- ❖ Lower than baseline granulocyte levels limit inflammation while delivering a proportionately greater number of stem cells
- ❖ More importantly, CD34+ cells are markers for stem cells and these cells reside in the mononuclear fraction.
- ❖ The predominance of mononuclear and CD34+ cells found in the Advancells PRP concentrated platelet products indicates the presence as well as the concentration of stem cells.

Advancells PRP System		
	Whole Blood	SmartPReP PRP
Platelets	250 x 10 <sup>3</sup> $\mu$ L	1,500 x 10 <sup>3</sup> $\mu$ L
SDF-1 $\alpha$ pg/ml	1,000	2,663
PDGF-AB ng/ml	30	398
TGF- $\beta$ 1 ng/ml	43	319
VEGF pg/ml	55	600
WBC Count	5.7 x 10 <sup>3</sup> $\mu$ L	20.1 x 10 <sup>3</sup> $\mu$ L
Mononuclear	37.5%	75.1%
Granulocyte	62.5%	24.5%
CD34 <sup>+</sup> (Total Cells Delivered)		171,571 (64% Yld.)

In addition to the significant reduction of granulocytes, Advancells PRP have also been shown to significantly suppress inflammation by generating endogenous anti-inflammatory compounds such as lipoxins.



How do stem cells find the wound site?

Clinically effective concentrated platelet products contain both stem cells and their homing agent.

Migration of stem cells throughout the body requires active navigation, a process called homing. Homing is a multistep process modulated by SDF1  $\alpha$



What about “Closed Systems” and Product Sterility?

Biologic closed system- “A chemical or biological system that exchanges no matter or energy with the outside environment”

### AABB and FDA/CBER Guidelines for Transfusion Therapy

While no system is completely closed, the Advancells PRP system was designed to follow AABB guidelines for cell separation.

Instead of using luer connectors that can be easily contaminated and cannot be disinfected Advancells PRP incorporates re-sealable injection ports that can be aseptically disinfected with alcohol prior to needle entry. The Advancells PRP is the closest system, to a closed system on the market today.

### Sterility Testing

Advancells PRP went beyond FDA requirements for sterility testing. Prepared with the Advancells PRP system, PRP aliquots were incubated, cultured and sub-cultured over 18 days aerobically and anaerobically. All cultures were negative. Advancells has documented sterility of the concentrated platelet product when following the manufacturer’s instructions for use.

## All PRP is not created Equal

The technique used for isolating and concentrating platelets has a direct impact on growth factors availability and functionality

Test tube systems, lab centrifuges and many other so called “PRP “systems fail to achieve the threshold of platelet concentration and white blood cell composition required.

The Advancells PRP system consistently and reproducibly generates the optimal platelet concentration that may help optimize the conditions for healing. While no system is fully automated, Advancells PRP is as simple as 1, 2, 3.

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In less than **20 minutes**, 20 mL of peripheral blood provides **2 mL of a concentrated platelet product** with the optimal cellular composition and concentration



# Advancells PRP: A System You Can Trust to Consistently Deliver

## Advancells PRP

- ❖ Bullet proof multifunction, point-of-care platform for concentration autologous cells
- ❖ One-button operation
- ❖ 20-minute automated process



## PRP Procedure Packs:

Advanced PRP Concentrator

5 mL and 20 mL Syringe

Anticoagulant

Blood Collection Needle

To arrange an evaluation or more information,  
visit us at [www.advancellsgroup.com](http://www.advancellsgroup.com) or write to us at [info@advancells.com](mailto:info@advancells.com)