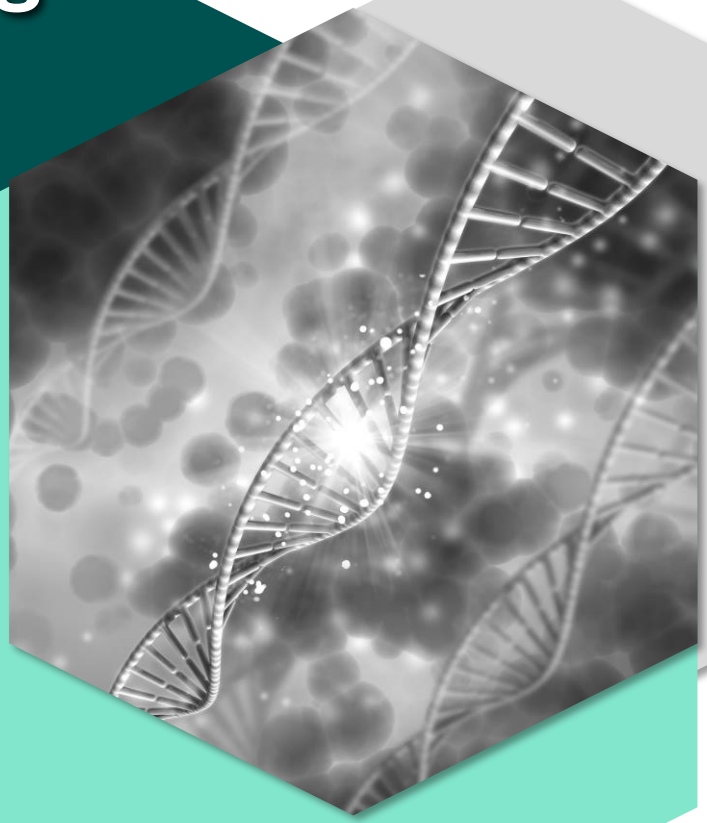
Neo Genesis PRP Series

The Simplest and Easiest Way to Collect the Most Concentrated PRP (Platelet Rich Plasma)



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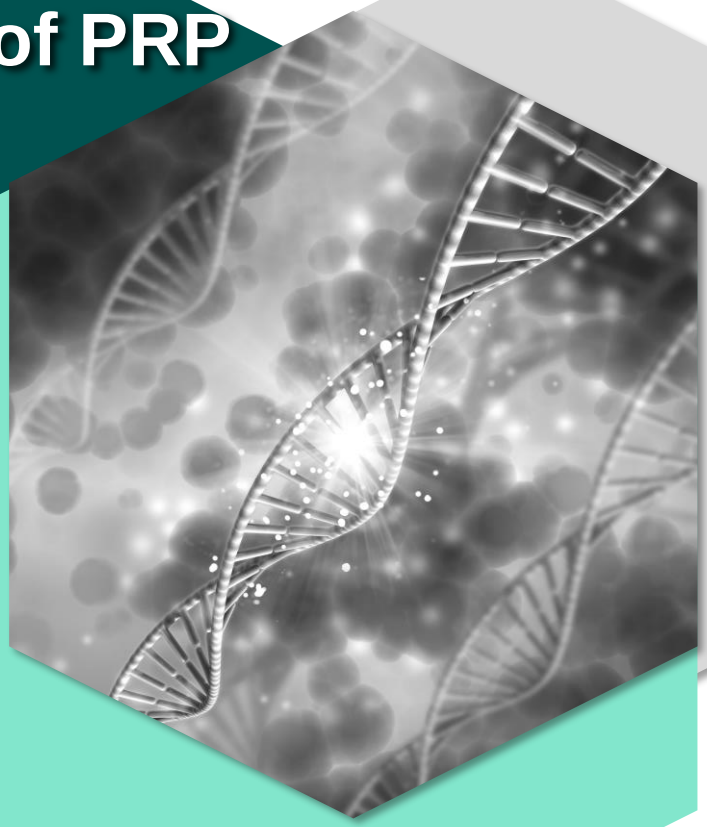
Basic Concept of PRP

(Platelet Rich Plasma)



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Components and Functions of Blood

Plasma(55%)		Blood Cells(45%)		
Components	Functions	Types	(Numbers/1㎕)	Functions
Water	Solvent	**Red Blood Cells** (Erythrocytes)	5~6 Million	Carry Oxygen and Carbon dioxide
Ion(Salts in blood) Sodium, Potassium, Magnesium, Chloride Ion, Bicarbonate Ion	Osmosis balance, pH buffer, Control membrane permeability	**White Blood Cells** (Leukocyte)	5,000~10,000	Defense, Immune reaction
Plasma Proteins Albumin, Fibrinogen, Immunoglobulin	Osmosis balance, pH buffer, Anticoagulant, Defense	**Platelets (Thrombocytes)**	**25~400,000**	**Coagulation, Many Growth Factors** **TGF, PDGF, EGF, VEGF, CTGF, etc.**
Components carried in blood Nutrients (Glucose, Fatty acid, Amino acid, etc.), Metabolic wastes, Respiratory gas (Oxygen, Carbon dioxide), Hormones				

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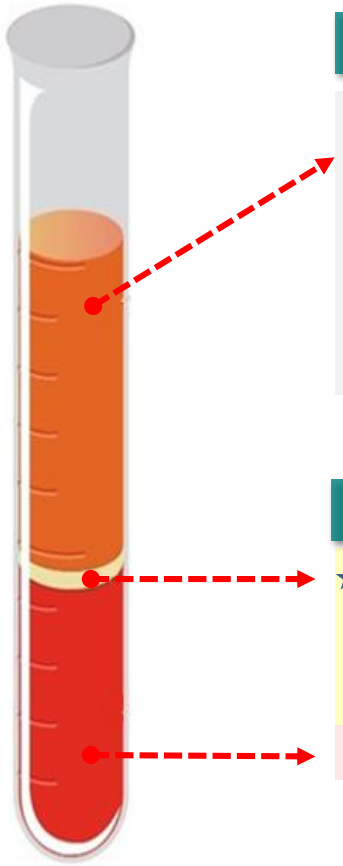
What is PRP (Platelet Rich Plasma)?



Plasma – 55% of Total Blood Volume

- **91% Water**
  → Solvent
- **7% Blood Proteins** (Fibrinogen, Albumin, Globulin, etc.)
  → Osmosis balance, pH buffer, Anticoagulant, Defense
- **2% Nutrients** (Amino acids, Sugars, Lipids, etc.)
  Hormones (Erythropoietin, Insulin, etc.)
  Electrolytes (Sodium, Potassium, Calcium, etc.)
  → Osmosis balance, pH buffer, control membrane permeability

Cellular Components – 45% of Total Blood Volume

★ **Buffy coat layer (1%)**

- Platelets (~400,000/1µl of blood) → Coagulation / Growth Factors
- **White Blood Cells** (~10,000/1µl of blood) → Defense, Immune reaction

- **Red Blood Cells (44%)** (~6,000,000/1µl of blood) → Carry O_2 and CO_2

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What is PRP (Platelet Rich Plasma)?

PRP Therapy is…

Platelet is one of the blood elements that usually flows along the blood stream as an inactivated form.
But when it gets activated by wounds or damages of tissues, it performs its original functions of blood clotting and wound healing.
A method that maximizes these abilities by concentrating the platelets and applying it to treatments is called **PRP therapy**.

Since there are a lot of Growth Factors in platelets, PRP can be used for various types of treatments by triggering cellular proliferation, collagen production, hyaluronic acid production, epidermal cell growth, angiogenesis, and etc.

Where to Apply PRP?

- **DERMATOLOGY INTERNAL MEDICINE GERONTOLOGY**

  Cutaneous reconstruction and transplantation, Re-implantation of Autologous cells, extemporaneous or cultivated in-vitro, Ulcer and chronic wound therapy (e.g. after radio therapy)

- **SURGERY**

  Pain relief, Cardio-vascular surgery, Abdominal surgery, Maxillo-facial surgery, Orthopedic surgery, Plastic & cosmetic surgery/dermatology, Treatment of severe burns

- **RESEARCH & DEVELOPMENT**

  Healing remodeling, Autologous cell culture, Autologous stem cell culture, Cell differential, Tissue regeneration, Cell Separation

- **DENTAL MEDICINE**

  Dental extraction, Dental implantation

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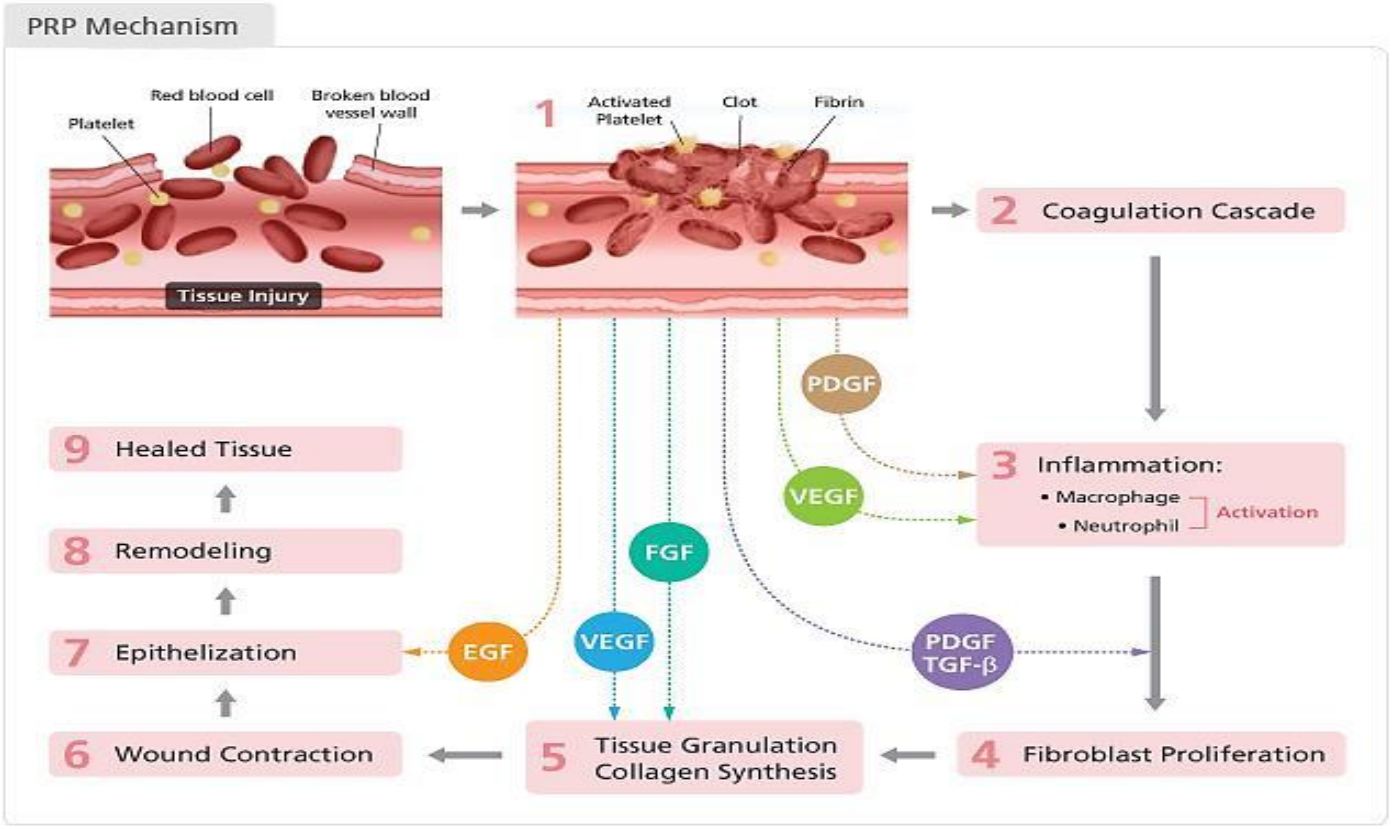
Growth Factors Present in PRP

Growth Factor	Source	Function
Transforming Growth Factor-beta **(TGF-β)**	Platelets, extracellular matrix of bone, cartilage matrix, activated TH_1 cells and natural killer cells, macrophages/ monocytes and neutrophils	Stimulates undifferentiated mesenchymal cell proliferation; regulates endothelial, fibroblastic and osteoblastic mitogenesis; regulates collagen synthesis and collagenase secretion; regulates mitogenic effects of other growth factors; stimulates endothelial chemotaxis and angiogenesis; inhibits macrophage and lymphocyte proliferation
Basic Fibroblast Growth Factor **(bFGF)**	Platelets, macrophages, mesenchymal cells, chondrocytes, osteoblasts	Promotes growth and differentiation of chondrocytes and osteoblasts; mitogenetic for mesenchymal cells, chondrocytes and osteoblasts
Platelet Derived Growth Factor **(PDGFa-b)**	Platelets, osteoblasts, endothelial cells, macrophages, monocytes, smooth muscle cells	Mitogenetic for mesenchymal cells and osteoblasts; stimulates chemotaxis and mitogenesis in fibroblast/glial/smooth muscle cells; regulates collagenase secretion and collagen synthesis; stimulates macrophage and neutrophil chemotaxis
Epidermal Growth Factor **(EGF)**	Platelets, macrophages, monocytes	Stimulates endothelial chemotaxis/angiogenesis; regulates collagenase secretion; stimulates epithelial/mesenchymal mitogenesis
Vascular Endothelial Growth Factor **(VEGF)**	Platelets, endothelial cells	Increases angiogenesis and vessel permeability, stimulates mitogenesis for endothelial cells
Connective Tissue Growth Factor **(CTGF)**	Platelets through endocytosis from extracellular environment in bone marrow	Promotes angiogenesis, cartilage regeneration, fibrosis and platelet adhesion

Growth Factors Present in PRP



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Neo Genesis PRP Series

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Why is Genesis PRP necessary?

The Most Important Point of PRP Therapy is…

You have to concentrate Platelets as much as possible and make high-quality PRP.

There are about 100,000-200,000 Platelets per 1μl of blood, and you need **4-6times** concentrated platelets to conduct an effective therapy. In other words, **more than 1,000,000 platelets** per 1μl of PRP must be concentrated to be called as **"High-Quality PRP."**

The Reason Why You Must Use NeoGenesis PRP

Ideal PRP should have **maximum** amount of **Platelets** and **minimum** amount of **Plasma and RBCs**. But it is not possible to extract the PRP layer without using a proper PRP kit.

With **NeoGenesis PRP**, however, it is possible to extract only the buffy coat layer, concentrated platelets, with appropriate amount of plasma and without any RBCs, by only one time centrifugation, which allows users to treat patients with maximized effect of PRP in the easiest and simplest way.

Furthermore, **NeoGenesis PRP kits provides approximately 8~48 times of concentration ratio,** compared to those of other PRP kits (4~24 times, depending on the size of the kits)

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Product Specification

NeoGenesis PRP Series

Neo PRP (10cc) Genesis PRP (15cc) Cure PRP (30cc) Omni PRP (60cc) PRP Activator

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Product Specification

Model Name	Certification	Concentration Ratio	Tube Size	Buffy Controller Size
Neo PRP (10cc)	CE, ISO 13485, GMP, PCT, KFDA Cleared Gamma Ray Sterilized	• Up to 8x	• Diameter: : 1.6 cm • Height : 12.9 cm • Weight: 10g • Centrifuge Type: Angle/ Swing Type	• Diameter(Top): 3.9 cm • Diameter(Bottom): 3.9 cm • Height : 10 cm • Weight: 80g
Genesis PRP (15cc)		• Up to 13x	• Diameter: 3.3 cm • Height : 11.1 cm • Weight : 24g • Centrifuge Type: Swing	• Diameter(Top): 1.1 cm • Diameter(Bottom): 4.0 cm • Height : 8.3 cm • Weight : 72g
Pure PRP (20cc)		• Up to 16x	• Diameter:3.8 cm • Height : 12.2 cm • Weight : 43g • Centrifuge Type: Swing	• Diameter(Top): 1.9 cm • Diameter(Bottom): 4 cm • Height : 8.3 cm • Weight : 63g
Cure PRP (30cc)		• Up to 25x	• Diameter: 3.8 cm • Height: 12.2 cm • Weight : 43g • Centrifuge Type: Swing (Genesis Centrifuge Special Edtion)	• Diameter(Top): 1.9 cm • Diameter(Bottom): 4 cm • Height : 8.3 cm • Weight : 63g
Omni PRP (60cc)		• Up to 48x	• Diameter: 3.8 cm • Height : 12.7 cm • Weight : 43g • Centrifuge Type: Swing (Genesis Centrifuge Special Edtion)	• Diameter(Top): 2 cm • Diameter(Bottom): 4 cm • Height : 13 cm • Weight : 104g

* Neo PRP(10cc) is compatible with 15cc conical tube and Genesis PRP(15cc) and Pure PRP(20cc) is compatible with 50cc conical tube

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Special Features

- Transparent cylindrical kit allows a **CLEAR VISIBILITY** and easier extraction
- The **CURVED NECK** design reduces the possible cell loss
- PRP and PPP can be extracted from a **SINGLE KIT** by **ONE-TIME CENTRIFUGATION**
- High concentration rate of Platelets for all usage
- Does **NOT** use a needle when collecting PRP or PPP
- Can **CONTROL** the volume of **PLASMA** according to the treatment plan
- **CLOSED SYSTEM** to prevent from air contamination possibility
- Always yields the **MAXIMUM** amount or PRP regardless of the operator's skill
- **COMPATIBLE** with any swing type centrifuge

  (Compatible with both angle/swing type centrifuge- Neo PRP)
- **COMPETITIVE** price

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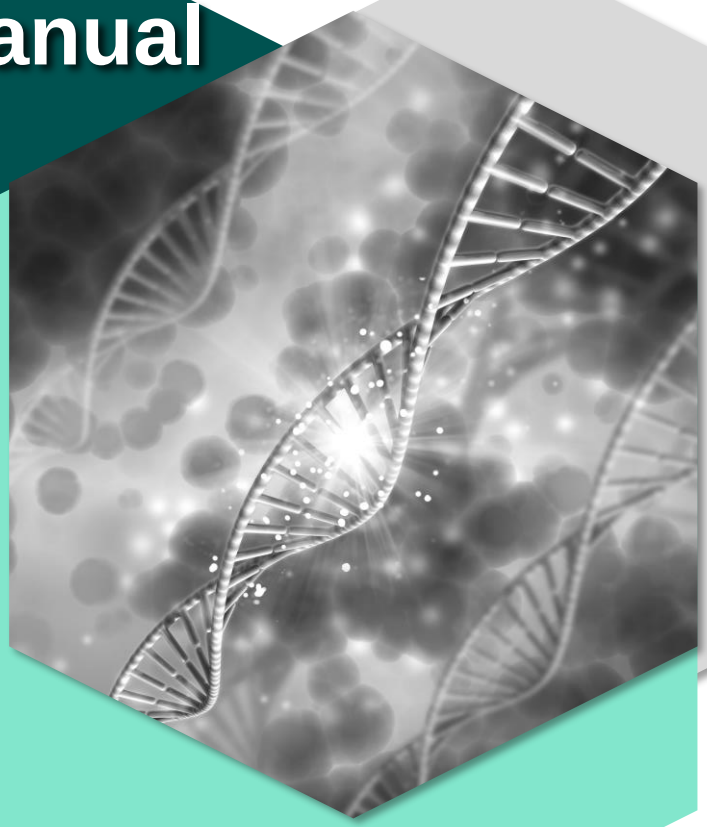
Instruction Manual



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Preparation for PRP Extraction

Model Name	General Preparation	Other Preparations (Depending on the size of tubes)	RCF	Centrifuge Compatibility
Neo PRP (10cc)	• Needle (3ea) • Anti-coagulant (1ea) • Balancing tube for Centrifuge (1ea) • Buffy Controller (1ea)	• 3cc syringe for PRP extraction (1ea) • 10cc syringe for PPP extraction (1ea) • 10cc syringe for drawing blood (1ea) • Neo PRP Kit (1ea)	• 300G (5 minutes)	• Genesis Centrifuge (Standard Edition) • Genesis Centrifuge (Special Edition)
Genesis PRP (15cc)		• 3cc syringe for PRP extraction (1ea) • 10cc syringe for PPP extraction (1ea) • 20cc syringe for drawing blood (1ea) • Genesis PRP Kit (1ea)	• 1700G (5 minutes)	• Genesis Centrifuge (Standard Edition) • Genesis Centrifuge (Special Edition)
Pure PRP (20cc)		• 3cc syringe for PRP extraction (1ea) • 10cc syringe for PPP extraction (1ea) • 20cc syringe for drawing blood (1ea) • Pure PRP Kit (1ea)	• 1700G (5 minutes)	• Genesis Centrifuge (Standard Edition) • Genesis Centrifuge (Special Edition)
Cure PRP (30cc)		• 3cc syringe for PRP extraction (1ea) • 10cc syringe for PPP extraction (1ea) • 30cc syringe for drawing blood (1ea) • Cure PRP Kit (1ea)	• 1700G (5 minutes)	• Genesis Centrifuge (Special Edition)
Omni PRP (60cc)		• 6cc syringe for PRP extraction (1ea) • 20cc syringe for PPP extraction (1ea) • 60cc syringe for drawing blood (1ea) • Omni PRP Kit (1ea) • **1 Extra Anti-coagulant**	• 1950G (5 minutes)	• Genesis Centrifuge (Special Edition)

* ALL PRP EXTRACTION Procedure **MUST** have counter-balance kit, matching to PRP Tube.

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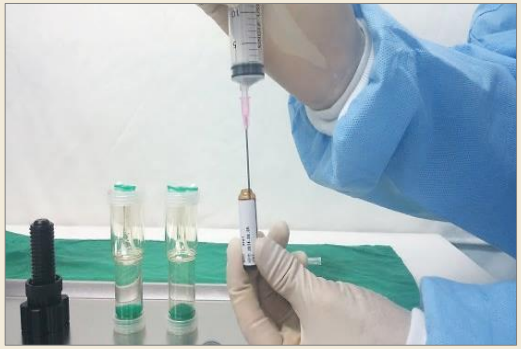
Instruction Manual of PRP Extraction

1 Preparation

- The following accessories do not come with the PRP kits.
- The size of syringes can vary according to the user's preference.
- Please refer to the Preparation for PRP Extraction for details of preparation.



1) Collect **Anti-coagulant** into a syringe

Amount of Anti-coagulant needs to be 10% of the size of the tube.
(Ex: 1.5cc of ACDA for preparing 15cc Genesis PRP extraction)

2) Using a different needle, draw **patient's blood** into the same syringe and gently invert the syringe.

The amount of blood + collected ACDA should equal the size of the tube.
(Ex: 1.5cc of ACDA + 13.5cc of blood = 15cc Genesis PRP tube)

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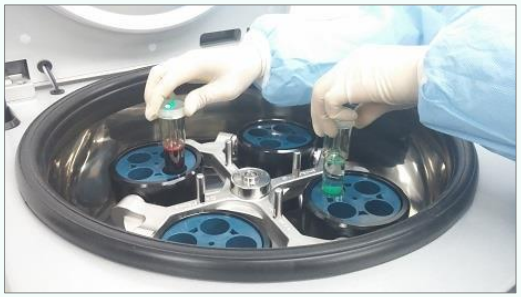
Instruction Manual of PRP Extraction

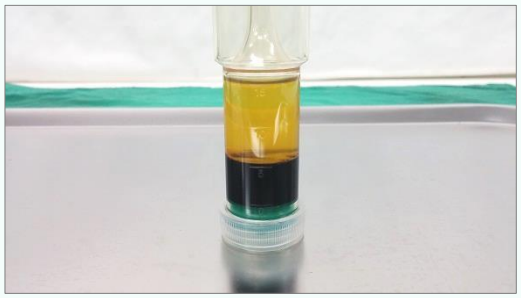
2 Centrifugation & PPP Extraction

1) Inject the prepared blood into the kit by using an 18 gauge needle.

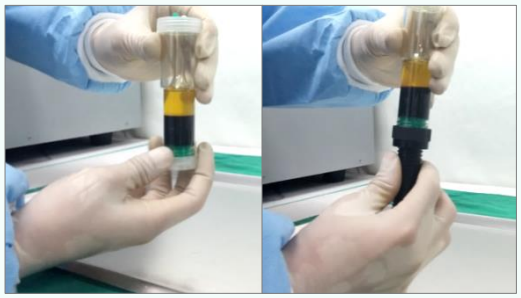


2) Place another PRP kit (or any kind of tube is fine) filled with water/saline in the same weight to balance the centrifuge .

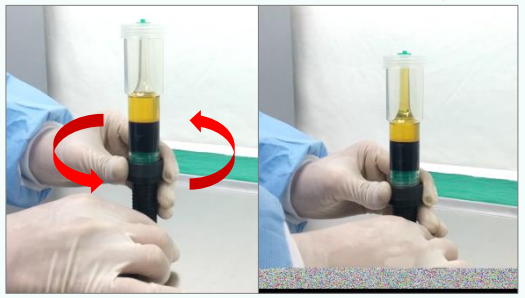
3) Centrifuge the kits at **designated RCF for 5 minutes (please refer to the Preparations for PRP Extraction table in previous slides)**, or press the "PRP" button in UNiStation; it will automatically centrifuge the kits at 3,000 rpm for 5 minutes.



4) Results divided into 3 different layers



5) Replace the bottom cap of the kit with Buffy controller's cap, and assemble the pusher.



6) Turn the bottom of the Buffy controller counterclockwise until Plasma reaches the top.

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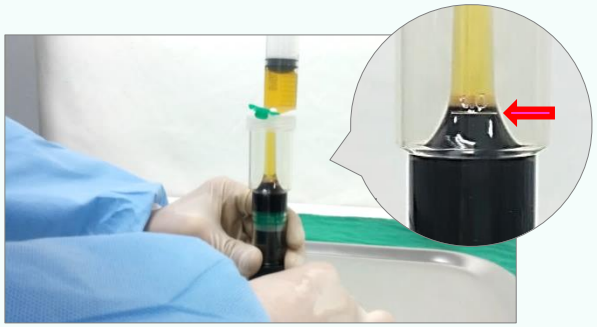
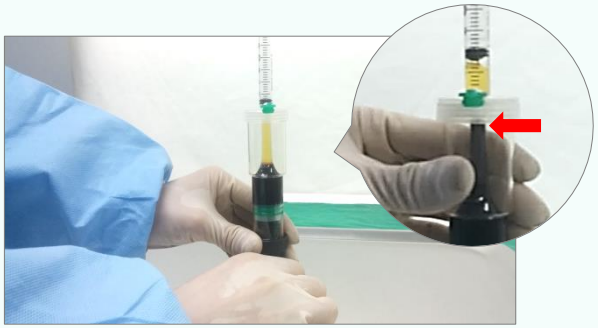
Instruction Manual of PRP Extraction

3 PPP & PRP Extraction



7) Connect a **PPP** collecting syringe, and rotate the controller until the RBC layer reaches the "**1.0**" line on the kit.



8) Connect a **PRP** collecting syringe, and rotate the pusher until the RBC layer reaches the top.

9) PPP (left) and PRP (right) extraction finished.

10) PRP activation is possible with NeoGenesis' **PRP Activation Kit**

If PPP extraction is not necessary, keep turning the controller without connecting a syringe so that Plasma can overflow into the empty space, and then connect the PRP collecting syringe and extract as much PRP as needed.

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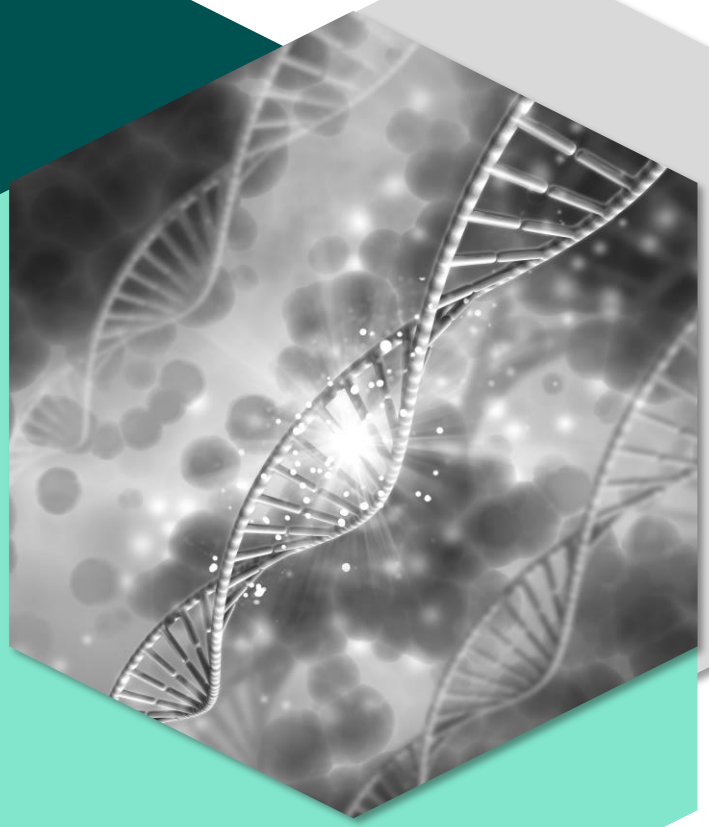
CBC Data



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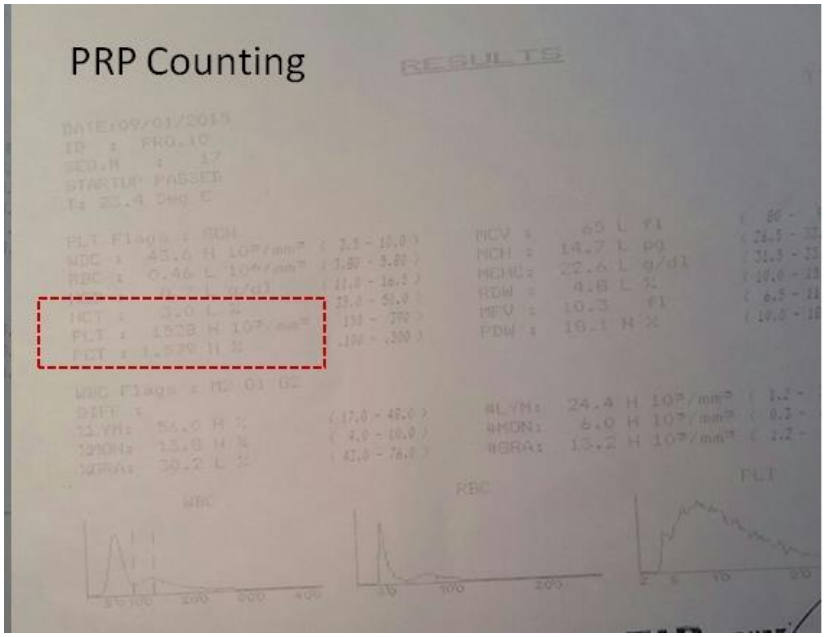
CBC Data of Neo PRP(10cc)

1 CBC Data Analyzed Result of Whole Blood and PRP Blood Platelet



Performance of Neo PRP	DATA
Operational Time	3 min
Average WBC count($10^3/\mu\ell$)	43.6
*Whole blood platelet count($10^3/\mu\ell$)	**281**
Average platelet count($10^3/\mu\ell$)	**1,528**
Average concentration	**5.43 x**

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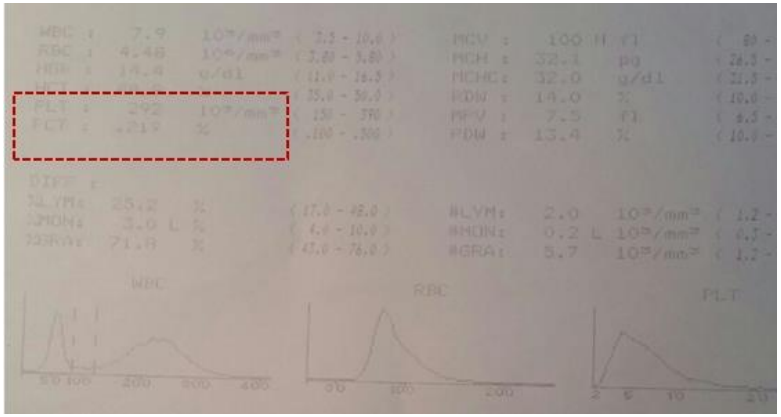
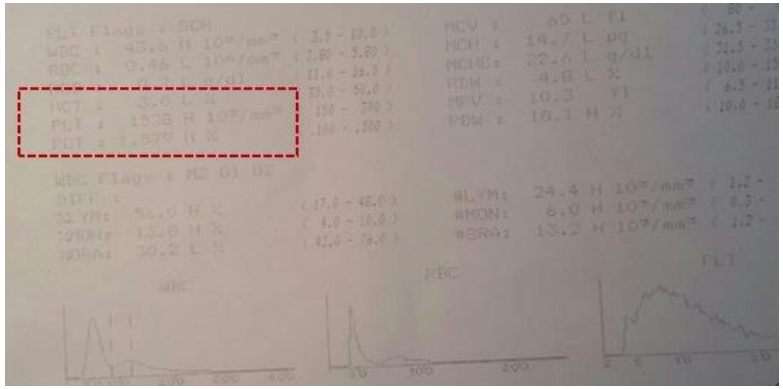
CBC Data of Neo PRP(10cc)

2 CBC Data Analyzed Result of Whole Blood and PRP Blood Platelet





Performance of Neo PRP	DATA
Operational Time	5 min
Average WBC count($10^3/\mu\ell$)	7.9
*Whole blood platelet count($10^3/\mu\ell$)	**292**
Average platelet count($10^3/\mu\ell$)	**1,528**
Average concentration	**5.23 x**

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CBC Data of Neo PRP(10cc)

3 CBC Data Analyzed Result of Whole Blood and PRP Blood Platelet

Whole Blood

Numune İstekTarihi
Numune Kabul Tarihi

TEST ADI	SONUÇ
Kan Sayımı	
WBC	4,38
#LYM	1,51
#MON	0,37
#GRA	2,50
%LYM	34,5
%MON	8,4
%GRA	57,1
RBC	3,3
HGB	9,7
HCT	30,3
MCV	91,8
MCH	29,4
MCHC	32,0
RDW-CV	14,6
PLT	139
PCT	0.15
MPV	10,9
PDW	10,8

PRP Blood Platelet

Numune İstekTarihi
Numune Kabul Tarihi

TEST ADI	SONUÇ
Kan Sayımı	
WBC	2,2
#LYM	--,--
#MON	--,--
#GRA	--,--
%LYM	83,8
%MON	11,1
%GRA	5,1
RBC	0,09
HGB	0,0
HCT	0,5
MCV	--,--
MCH	--,--
MCHC	--,--
PLT	713
PCT	0.629
MPV	--,--
PDW	--,--

Performance of Neo PRP	DATA
Operational Time	5 min
Average WBC count($10^3/\mu\ell$)	4.38
*Whole blood platelet count($10^3/\mu\ell$)	**139**
Average platelet count($10^3/\mu\ell$)	**713**
Average concentration	**5.12 x**

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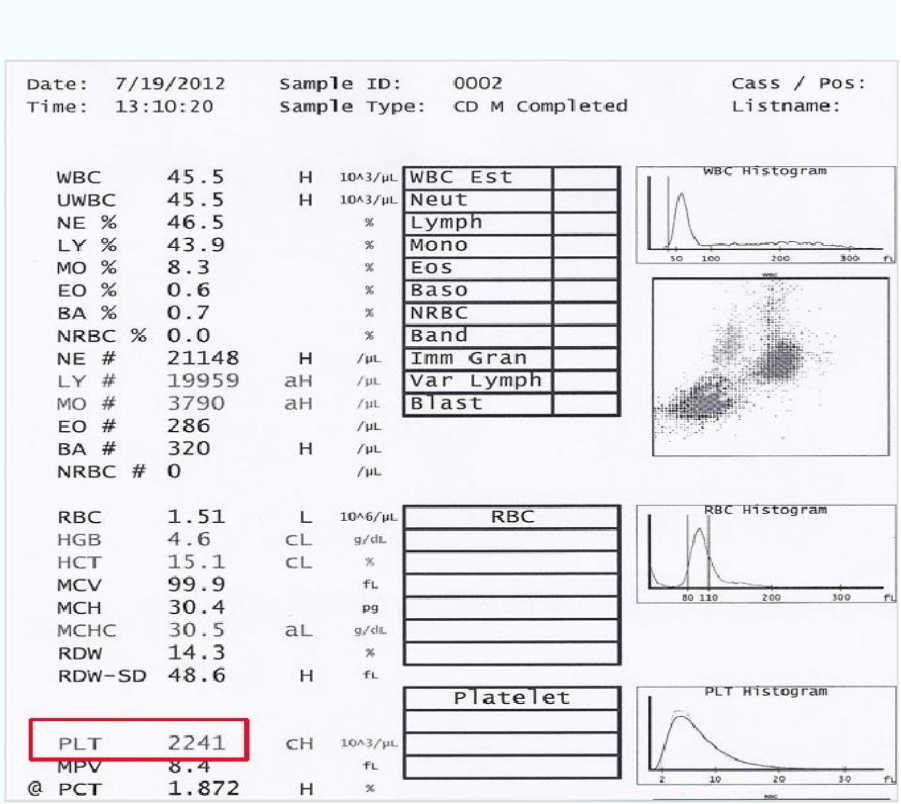
CBC Data of Genesis PRP(15cc)

1 CBC Data Analyzed Result of Whole Blood and PRP Blood Platelet



Date: 7/19/2012 Sample ID: 0002 Cass / Pos:
Time: 13:10:20 Sample Type: CD M Completed Listname:

WBC	45.5	H	10^3/µL	WBC Est
UWBC	45.5	H	10^3/µL	Neut
NE %	46.5		%	Lymph
LY %	43.9		%	Mono
MO %	8.3		%	Eos
EO %	0.6		%	Baso
BA %	0.7		%	NRBC
NRBC %	0.0		%	Band
NE #	21148	H	/µL	Imm Gran
LY #	19959	aH	/µL	Var Lymph
MO #	3790	aH	/µL	Blast
EO #	286		/µL	
BA #	320	H	/µL	
NRBC #	0		/µL	

RBC	1.51	L	10^6/µL	RBC
HGB	4.6	cL	g/dL	
HCT	15.1	cL	%	
MCV	99.9		fL	
MCH	30.4		pg	
MCHC	30.5	aL	g/dL	
RDW	14.3		%	
RDW-SD	48.6	H	fL	

PLT	2241	cH	10^3/µL	Platelet
MPV	8.4		fL	
@ PCT	1.872	H	%	

WBC Histogram

RBC Histogram

PLT Histogram

Performance of Genesis PRP	DATA
Operational Time	5 min
Average % recovery of platelets	88%
Average WBC count($10^3/\mu\ell$)	45.5
*Whole blood platelet count($10^3/\mu\ell$)	**175**
Average platelet count($10^3/\mu\ell$)	**2,241**
Average concentration	**12.8 x**

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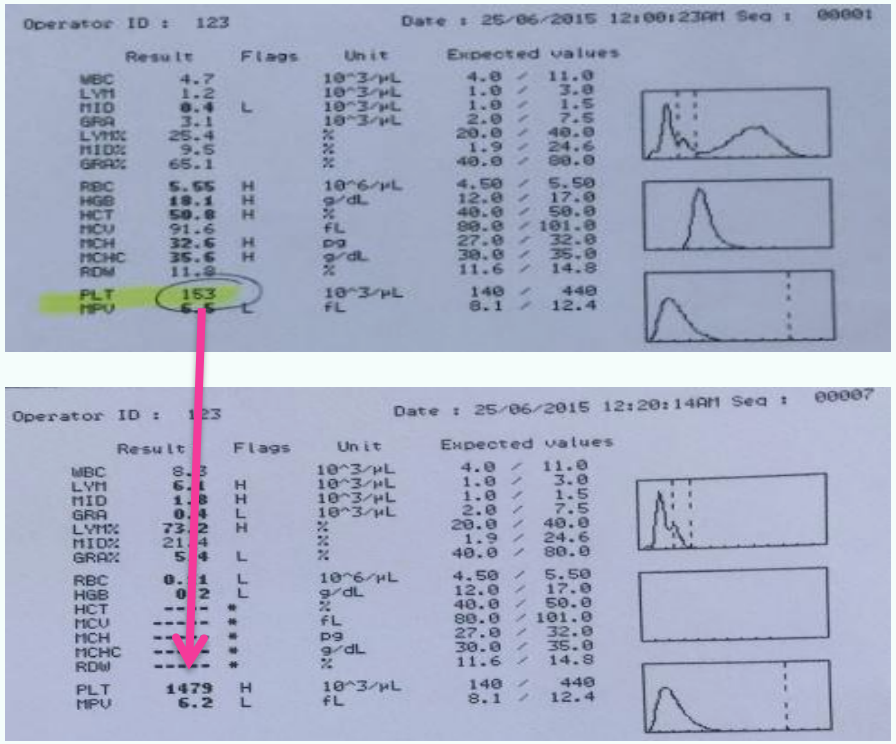
CBC Data of Genesis PRP(15cc)

2 CBC Data Analyzed Result of Whole Blood and PRP Blood Platelet



Operator ID : 123 — Date : 25/06/2015 12:00:23AM Seq : 00001

	Result	Flags	Unit	Expected values
WBC	4.7		10^3/μL	4.0 / 11.0
LYM	1.2		10^3/μL	1.0 / 3.0
MID	0.4	L	10^3/μL	1.0 / 1.5
GRA	3.1		10^3/μL	2.0 / 7.5
LYM%	25.4		%	20.0 / 40.0
MID%	9.5		%	1.9 / 24.6
GRA%	65.1		%	40.0 / 80.0
RBC	5.55	H	10^6/μL	4.50 / 5.50
HGB	18.1	H	g/dL	12.0 / 17.0
HCT	50.8	H	%	40.0 / 50.0
MCV	91.6		fL	80.0 / 101.0
MCH	32.6	H	pg	27.0 / 32.0
MCHC	35.6	H	g/dL	30.0 / 35.0
RDW	11.8		%	11.6 / 14.8
PLT	153		10^3/μL	140 / 440
MPV	8.5	L	fL	8.1 / 12.4

Operator ID : 123 — Date : 25/06/2015 12:20:14AM Seq : 00007

	Result	Flags	Unit	Expected values
WBC	8.3		10^3/μL	4.0 / 11.0
LYM	6.1	H	10^3/μL	1.0 / 3.0
MID	1.8	H	10^3/μL	1.0 / 1.5
GRA	0.4	L	10^3/μL	2.0 / 7.5
LYM%	73.2	H	%	20.0 / 40.0
MID%	21.4		%	1.9 / 24.6
GRA%	5.4	L	%	40.0 / 80.0
RBC	0.1	L	10^6/μL	4.50 / 5.50
HGB	0.2	L	g/dL	12.0 / 17.0
HCT	----	*	%	40.0 / 50.0
MCV	----	*	fL	80.0 / 101.0
MCH	----	*	pg	27.0 / 32.0
MCHC	----	*	g/dL	30.0 / 35.0
RDW	----	*	%	11.6 / 14.8
PLT	1479	H	10^3/μL	140 / 440
MPV	6.2	L	fL	8.1 / 12.4

Performance of Genesis PRP	DATA
Operational Time	5 min
Average % recovery of platelets	88%
Average WBC count($10^3/\mu\ell$)	4.7
*Whole blood platelet count($10^3/\mu\ell$)	**153**
Average platelet count($10^3/\mu\ell$)	**1,479**
Average concentration	**9.7 x**

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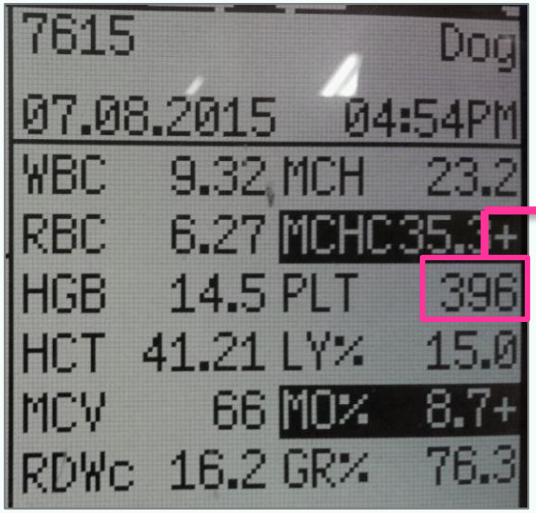
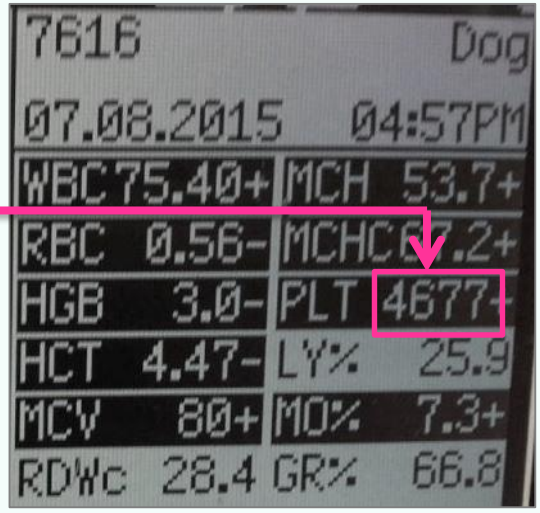
CBC Data of Genesis PRP(15cc)

3 CBC Data Analyzed Result of Veterinary Use (Dog)

Whole Blood



PRP Blood Platelet



Performance of Genesis PRP	DATA
Operational Time	5 min
Average WBC count($10^3/\mu\ell$)	9.32
*Whole blood platelet count($10^3/\mu\ell$)	**396**
Average platelet count($10^3/\mu\ell$)	**4,677**
Average concentration	**11.8 x**

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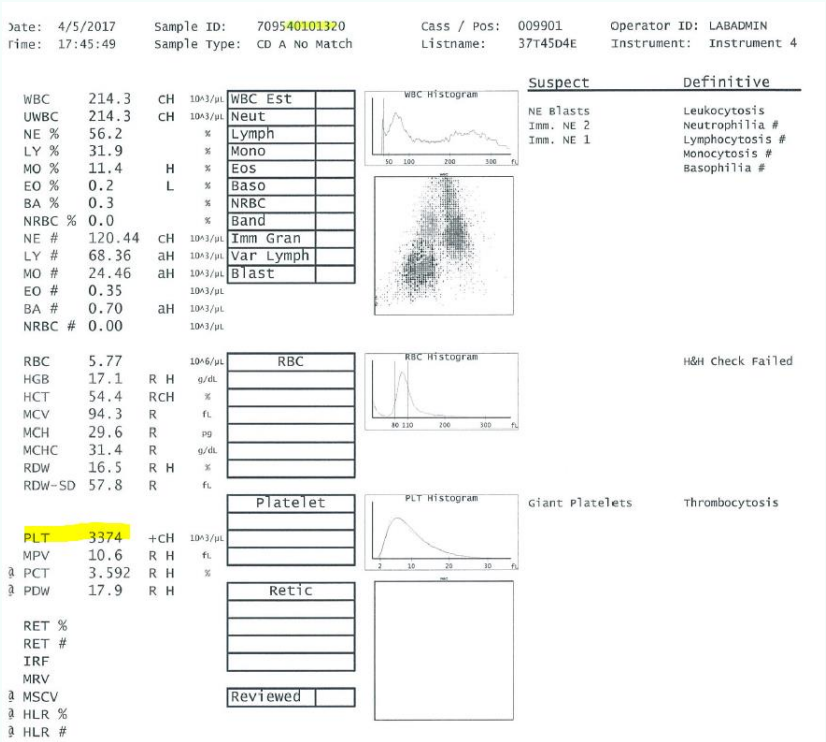
CBC Data of Cure PRP(30cc)

1 CBC Data Analyzed Result of Whole Blood and PRP Blood Platelet



Date: 4/5/2017 Sample ID: 709540101320 Cass / Pos: 009901 Operator ID: LABADMIN
Time: 17:45:49 Sample Type: CD A No Match Listname: 37T45D4E Instrument: Instrument 4

WBC	214.3		CH	10^3/µL	WBC Est
UWBC	214.3		CH	10^3/µL	Neut
NE %	56.2			%	Lymph
LY %	31.9			%	Mono
MO %	11.4	H		%	Eos
EO %	0.2	L		%	Baso
BA %	0.3			%	NRBC
NRBC %	0.0			%	Band
NE #	120.44		CH	10^3/µL	Imm Gran
LY #	68.36		aH	10^3/µL	Var Lymph
MO #	24.46		aH	10^3/µL	Blast
EO #	0.35			10^3/µL	
BA #	0.70		aH	10^3/µL	
NRBC #	0.00			10^3/µL	

WBC Histogram

Suspect: NE Blasts; Imm. NE 2; Imm. NE 1

Definitive: Leukocytosis; Neutrophilia #; Lymphocytosis #; Monocytosis #; Basophilia #

RBC	5.77			10^6/µL	RBC
HGB	17.1	R	H	g/dL	
HCT	54.4	R	CH	%	
MCV	94.3	R		fL	
MCH	29.6	R		pg	
MCHC	31.4	R		g/dL	
RDW	16.5	R	H	%	
RDW-SD	57.8	R		fL	

RBC Histogram

Definitive: H&H Check Failed

PLT	3374		+CH	10^3/µL	Platelet
MPV	10.6	R	H	fL	
PCT	3.592	R	H	%	
PDW	17.9	R	H		

PLT Histogram

Suspect: Giant Platelets

Definitive: Thrombocytosis

RET %					Retic
RET #					
IRF					
MRV					
MSCV					
HLR %					
HLR #					

Reviewed

Performance of Cure PRP	DATA
Operational Time	5 min
Average % recovery of platelets	77%
Average WBC count($10^3/\mu\ell$)	214.3
*Whole blood platelet count(103/$\mu\ell$)	**146**
Average platelet count($10^3/\mu\ell$)	**3374**
Average concentration	**24.8 x**

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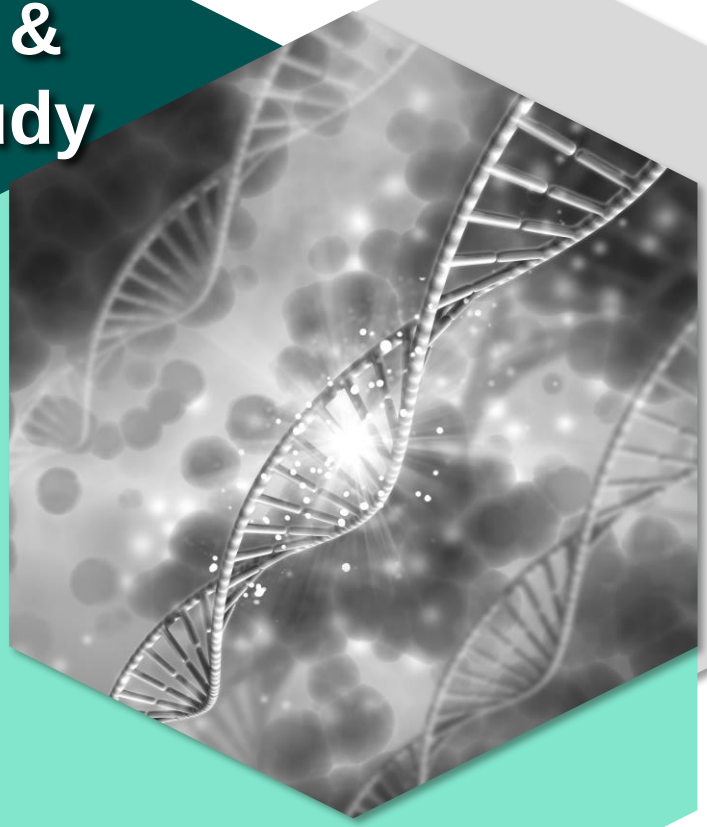
Clinical Results & Comparison Study



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Clinical Results in Aesthetics - Before & After

Before

After 3 months

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Clinical Results in Aesthetics - Before & After

Before

After 3 months

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Clinical Results in Aesthetics - Before & After

Before

After 3 months

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Clinical Results in Orthopedics

Treatment of Chronic Elbow Tendinosis With Buffered Platelet-Rich Plasma

Allan Mishra, MD* and Terri Pavelko, PAC, PT

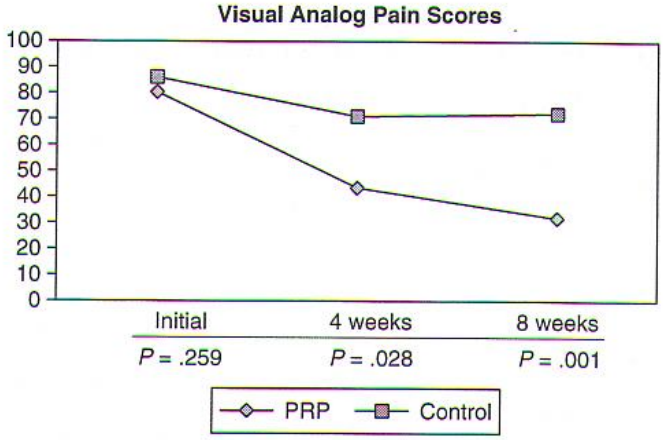

Figure 2. Visual analog pain scores for the group treated with platelet-rich plasma (PRP) and the control group.

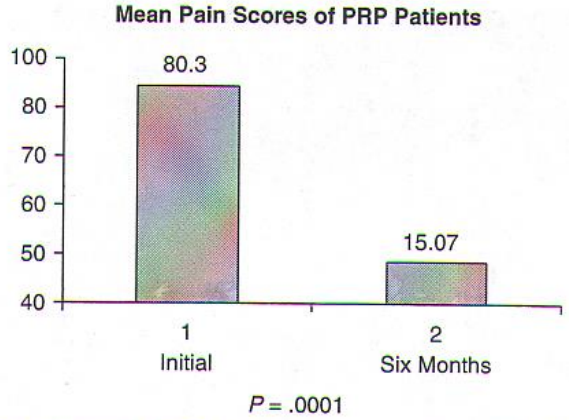

Figure 4. Mean pain scores of patients treated with platelet-rich plasma (PRP).

Pain scores of **PRP treated group** is much lower than the control group

- **PRP Group: 60% Improvement**
- Control Group: 16% Improvement

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Clinical Results in Orthopedics

Non-Surgical Repair of High Grade Achilles Tendon Tear by Autologous Platelet Graft Placement: A Case Report

Dr. Michael A. Scarpone, D.O.

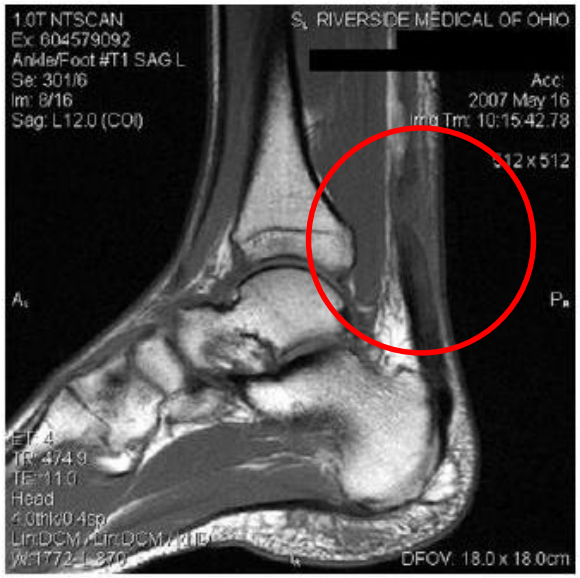

Fig.1 (5/16/07)
High-grade Achilles tendon tear

Fig.2 (7/2/07)
Healed tear

Healed Achilles Tendon Tear after **2 months** of PRP Treatment

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Comparison Study of Genesis PRP

Category	Genesis PRP	H ar***t PRP	Pr***s PRP	Mo***n PRP	Hu**s PRP
Centrifugation	1	1	2	2	1
Platelet Counting	2,241,000/μl	1,758,000 per μl	1,326,000 per μl	514,000 per μl	1,582,000 per μl
Platelet Concentration Ratio	12.8x (1,280%)	4.4x (440%)	5.6x (560%)	2.4x (240%)	5.9x (590%)
Preparation time	5 min	30 min	20 min	30 min	10 min
Air Contamination Possibility	X	X	O	O	X
Compatible with General Centrifuges	O	X	X	O	X
Price (Approximate)		200~600$	80~90$	50$~60$	80~90$

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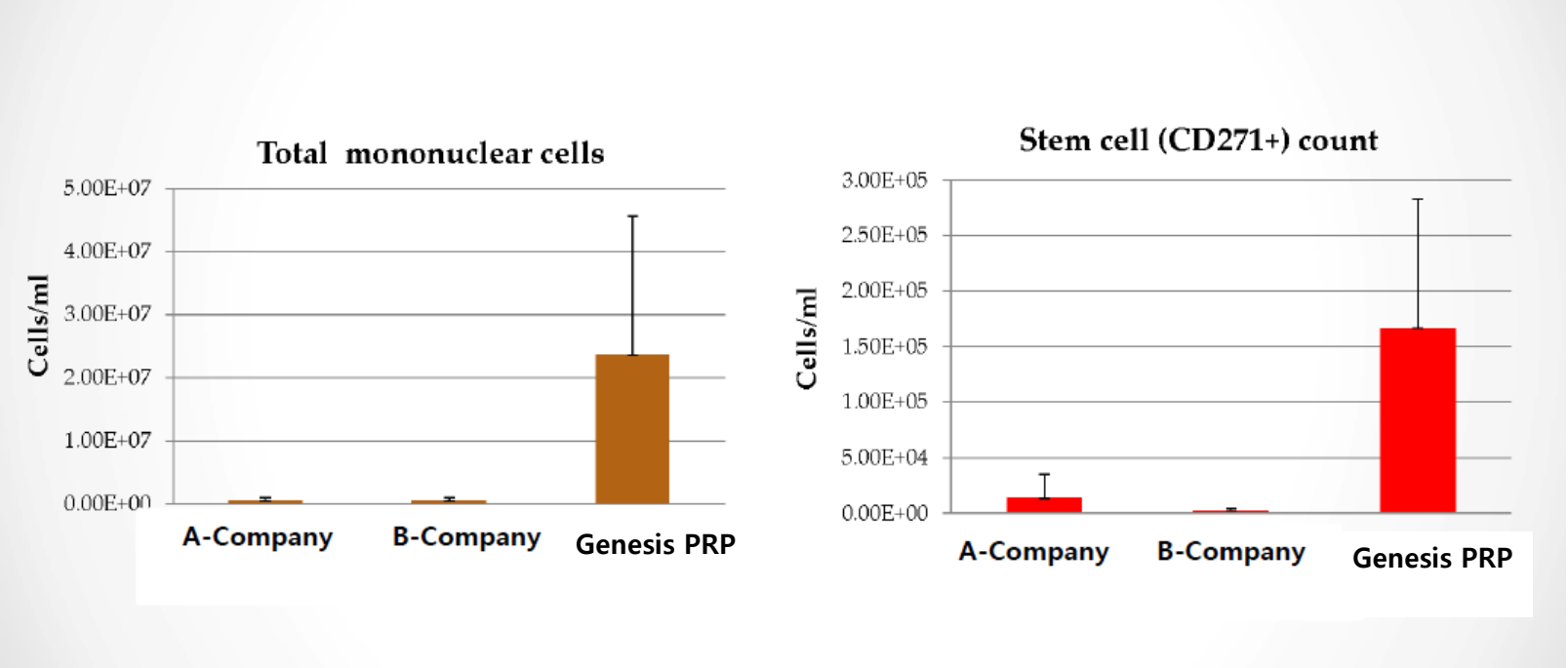
Stem Cell Isolation with Genesis PRP



A number of Stem Cell can be extracted by using **Genesis PRP**

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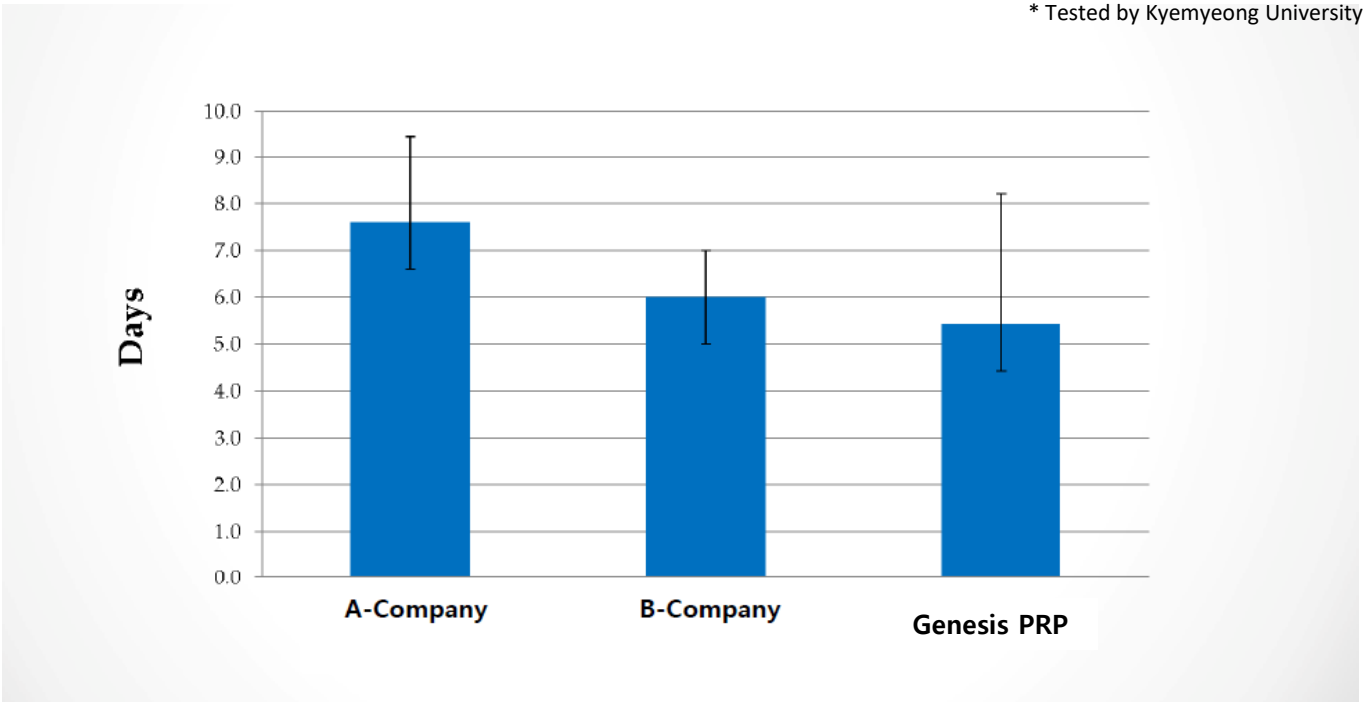
Stem Cell Engraftment

* Tested by Kyemyeong University



Stem Cell extracted by **Genesis PRP** can be engrafted quickly.

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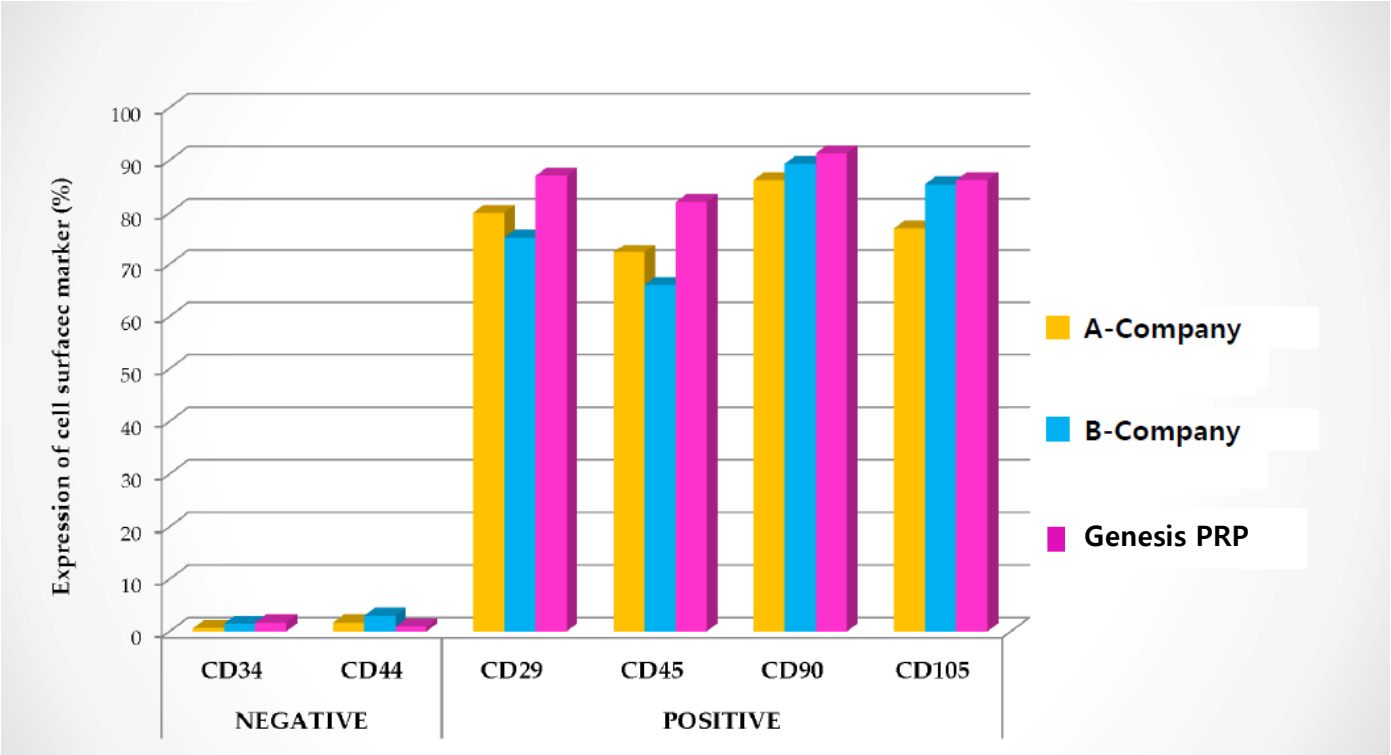
Immunophenotyping

* Tested by Kyemyeong University



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PRP Activation Kit

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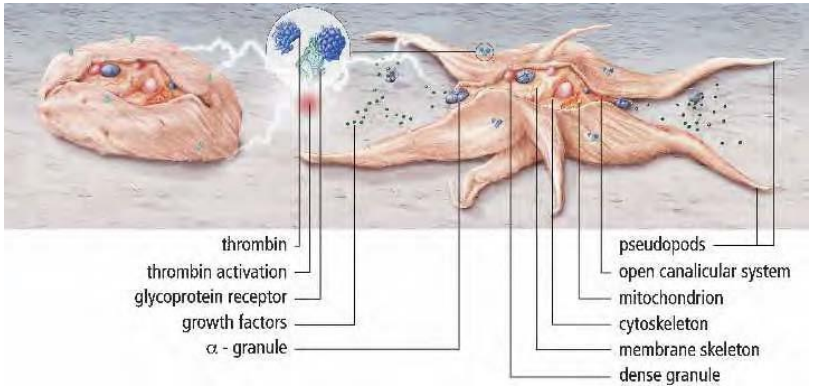
Activation of Platelets

Activation Factor	Chemical agonist	Physical stress
Type	Calcium Chloride, Thrombin, ADP, Collagen, Peptide, etc.	Capillary stress
Advantage	Can activate platelets by simply adding agonists	**- Safe** **- Overcame adverse effects of chemical substances**
Drawback	- Calcium has no effects when injected in cartilage as it gets **neutralized**, and it could cause **skin rashes, redness, and pain** when injected in subcutaneous fat - Thrombin and Collagen are substances that apply directly to **form thrombus**, so they could act as potential **risk factors** if not perfectly separated before injection - Clinical applications are **inhibited** in some countries	No commercialized product in the market

Developed "PRP Activation Kit" using Capillary Stress



Platelets are shaped like small plates in their non-activated form. But **on activation** (e.g., by thrombin), platelets change their shape with the development of pseudopods to **promote platelet aggregation and subsequent release of granule content** through the open canalicular system (**GF, glycoprotein**).

Thus, the activation of platelets is recommended to maximize the effect of PRP therapy.

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PRP Activation Kit

1 Conceptio n

- Based on the idea of how Platelets become activated through narrow blood vessels in fast bloodstream.

2 Special Features

- Uses **physical stress** to activate platelets instead of chemical substances
- Quantitative increase of Growth Factors:
  → **Maximizes the PRP Therapy effects**
- Relatively reduce the volume of blood required:
  → **Increases patient's convenience**
- Expected to work as an important differentiation factor in enlarging the PRP business

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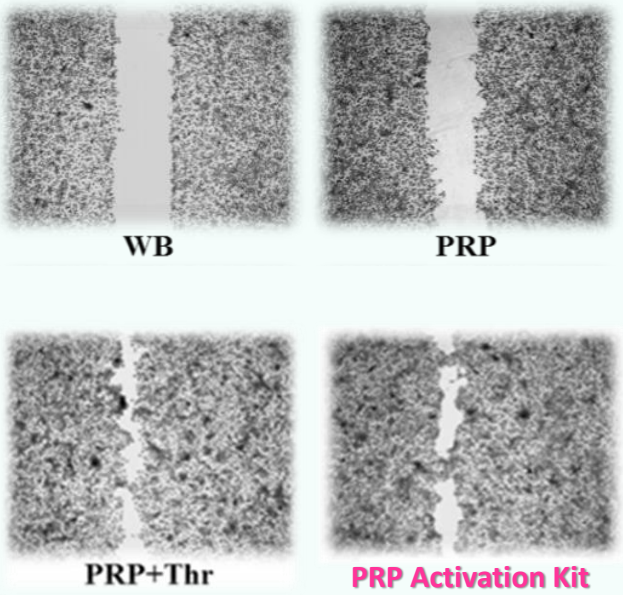
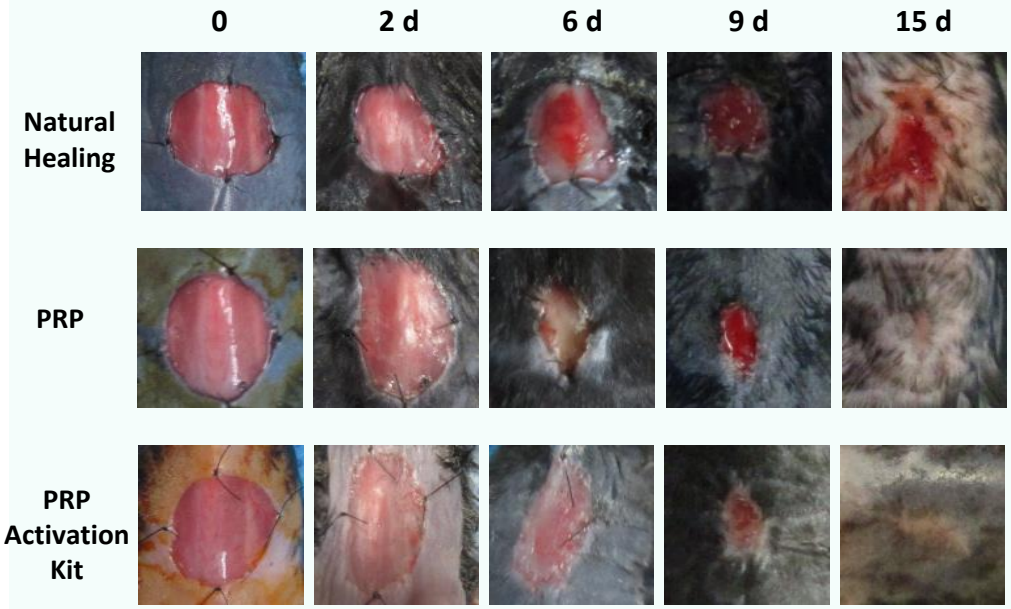
Validation Evaluation

Wound Healing Assay



In-vivo Validation Evaluation (Wound Healing Model)



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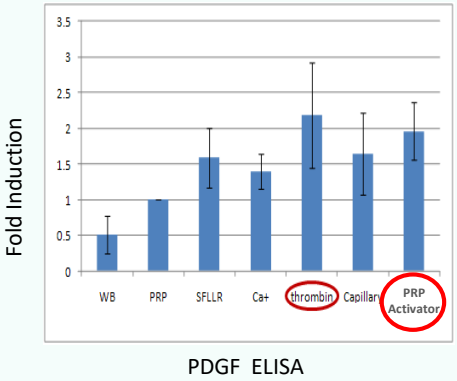
Clinical Results in Orthopedics

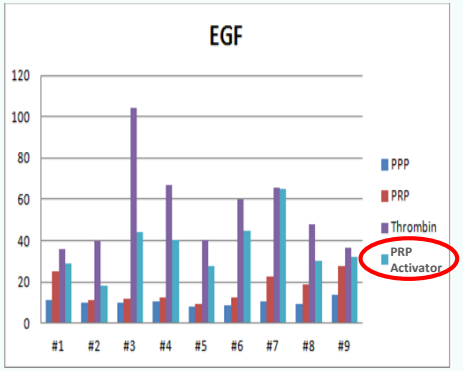
* Evaluated by Suncheonhyang Hospital

Preliminary Experiment

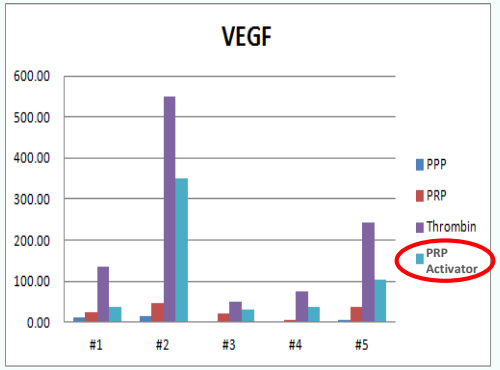


PDGF ELISA

Epidermal Growth Factor



Vascular Endothelial Growth Factor



* **PDGF**: Mitogenetic for mesenchymal cells and osteoblasts; stimulates chemotaxis and mitogenesis in fibroblast/glial/smooth muscle cells; **regulates collagenase secretion and collagen synthesis;** stimulates macrophage and neutrophil chemotaxis

* **EGF:** Stimulates endothelial chemotaxis/**angiogenesis; regulates collagenase secretion**; stimulates epithelial/mesenchymal mitogenesis

* **VEGF**: **Increases angiogenesis and vessel permeability**, stimulates mitogenesis for endothelial cells

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Youtube Video Links & References

NEO PRP (10cc) Manual Video
http://youtu.be/xOU-y_h9w-A

Genesis PRP (15cc) Manual Video:
http://youtu.be/494YeLv6mZE

CURE PRP (30cc) Manual Video
http://youtu.be/e02jioF4NWI

PRP Activator
http://youtu.be/t9tWElnJpy0

1. Froum et al, Effect of Platelet-Rich Plasma on Bone Growth and Osseointegration in Human Maxillary Sinus Grafts: Three Bilateral Case Reports. The International Journal of Periodontics & Restorative Dentistry 2002;Volume22;Number1;2002

2. Michael A, Scarpone, D.O. Non-Surgical Repair of High Grade Achilles Tendon Tear by Autologous Platelet Graft Placement: A Case Report.

3. Mishra A, Pavelko T. Treatment of Chronic Elbow Tendinosis with Buffered Platelet Rich Plasma. Am J Sports Med 2006;34:1774–8

4. Otto, Jacques. *Dermal Volumetric Rejuvenation Utilizing Autologous Platelet-Rich Plasma*, January 2009.

5. Williams, Marlene. “What are platelets and Why are They Important?” Johns Hopkins Medicine, Aug. 2013.

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