Harvest Technologies 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 conditions for healing. A decade ago, we introduced the SmartPReP® 2 Platelet Concentrate System, making the use of autologous growth factors practical in the hospital and clinic setting for the first time.

The SmartPReP® System (formerly Symphony® 2) has been used in over 1 Million procedures to date and counting. Today, the SmartPReP® platforms are the gold standard in PRP technology.

**The SmartPReP® 2 System:**
- Delivers the optimal composition of a concentrated platelet product
- Recovered highest percentage of platelets and corresponding growth factors – up to 80% of available platelets
- Contains increased concentration of stem cells
- Generates the greatest level of reproducibility – only a 5% coefficient of variance
- In the elapsed time of 15 minutes or less to finish
- Considers the simplest and easiest system to use

**In less than 15 minutes,** **60 mL of a** **Proteinase-Resistant Concentrate with the optimal cellular composition and concentration.**

### SmartPReP® 2: The Gold Standard

Harvest Technologies 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 conditions for healing. A decade ago, we introduced the SmartPReP® 2 Platelet Concentrate System, making the use of autologous growth factors practical in the hospital and clinic setting for the first time. The SmartPReP® System (formerly Symphony® 2) has been used in over 1 Million procedures to date and counting. Today, the SmartPReP® platforms are the gold standard in PRP technology.

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## SmartPReP® 2: A System You Can Trust to Consistently Deliver

**SmartPReP® 2 Platelet Concentrate System**
- Point-of-care, multifunctional platform for concentrating autologous cells
- More than a decade of proven reliability
- One-button operation
- 15-minute automated process

**APC** Procedure Packs:
- All includes procedure packs based on clinical need
- Patented coating technology ensures consistency and highest level of reproducibility
- Delivers the optimal concentrated platelet product and RBC composition

### APC** Procedure Packs:

<table>
<thead>
<tr>
<th>Procedure Pack</th>
<th>Volume of APC Produced</th>
</tr>
</thead>
<tbody>
<tr>
<td>APC-30</td>
<td>10-20 ml</td>
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<tr>
<td>APC-60</td>
<td>5-10 ml</td>
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<tr>
<td>APC-100</td>
<td>3-4 ml</td>
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</tbody>
</table>

**To arrange an evaluation or for more information, call toll free 877.8.HARVEST (877.842.7837) or visit us at www.harvesttech.com**

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**NEW**
- *see back panel for indications for use
SmartPReP 2: The Gold Standard

Harvest Technologies 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 conditions for healing. A decade ago, we introduced the SmartPReP 1 Platelet Concentrate System, making the use of autologous growth factors practical in the hospital and clinic setting for the first time.

The SmartPReP 1 system and former Symphony 2 system has been used in over 1 Million procedures to date and counting.

Today, the SmartPReP 2 System is the gold standard in PRP technology. The SmartPReP 2 Platform has been used in over 1 Million procedures to date and counting. Today, the SmartPReP platforms are the gold standard in PRP technology.

The SmartPReP 2 System:

- Delivers the optimal composition of a concentrated platelet product
- Recovered the highest percentage of platelets and corresponding growth factors – up to 80% of available platelets
- Contains increased concentration of stem cells
- Generates the greatest level of reproducibility – only a 5% coefficient of variance
- In the idealized amount of time – 15 minutes or less to start to finish
- Consists the easiest and safest system to use

Harvest’s mission is to further expand and enhance the use of autologous tissue cells that may help optimize the conditions for healing and improved patient outcomes.

References:


SmartPReP 2: A System You Can Trust to Consistently Deliver

SmartPReP 2 Platelet Concentrate System:

- Point-of-care, multifunction platform for concentrating autologous cells
- More than a decade of proven reliability
- One-button operation
- 15 minute automated process

APC™ Procedure Packs:

- All inclusive procedure packs based on clinical need
- Patented fractioning and concentration ensures consistency and highest level of reproducibility
- Delivers the optimal concentrated platelet product and WBC composition

To order, call 508.732.7500

SmartJet® Procedure Packs:

- 2 in (50mm) Liquid delivery system. 6/case.
- 4 in (102mm) Liquid delivery system. 6/case.
- 7 in (178mm) Liquid delivery system. 6/case.
- 110V-50/60 Hz

To order, call 508.732.0400
Unlocking the Biologic Potential

What is the Optimal Platelet Concentration?
An Autologous Platelet Concentrate not only accelerates migration of stem cells to the repair site but also stimulates proliferation in the microenvironment.

Physicians recognize that re-establishing blood flow is critical for healing. Platelets, WBCs, and accessory cells contain essential cytokines such as EGF and IGF-1 as well as adhesion agonists such as PDGF, which attract mesenchymal and angiogenesis factors to the repair site.

Recent studies indicate the optimal platelet concentration for angiogenesis ranges from 1-5 x 10^9 platelets/mL. (In order to 3-5 million platelets per incubation.)

**Enriched Bone and Soft Tissue Grafts**

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. The buffy coat is a rich source of cells and proteins that may help optimize the conditions for healing including:

- **Growth Factors**
  - Platelet Derived Growth Factors (PDGF): Chemoattractive for stem cells
  - Vascular Endothelial Growth Factors (VEGF): Stimulates angiogenesis

- **Platelets**
  - Cytokines and Adhesion Molecules
  - CD34+ stem cells found in the "buffy coat" layer are key to the repair site

- **Cytokines and Adhesion Molecules**
  - Mononuclear cells found in the "buffy coat" layer are key to the repair site

- **Scaffold**
  - Actively modulates migration and homing

- **Potential Stem Cells**
  - The predominance of mononuclear and CD34+ cells found in the "buffy coat" layer are key to the repair site

What is the Value of White Blood Cells?
Some content that contained WBC's may produce an unnecessary inflammatory response or limit potential healing. For now, this is not commonly recognized. What most fail to recognize is the importance of the composition of the white blood cell WBC's:

- **Platelets, WBC's, and accessory cells contain**
  - 100% endogenous anti-inflammatory compounds such as lipoxins

- **WBC's do not inhibit cell proliferation**
  - The technique used for isolating and concentrating platelets has a direct impact on the process, from the quality of the concentrate to the final product.

- **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**
  - No system is completely closed. The SmartPReP system was designed to follow AABB guidelines for cell separation.

- **How do Stem Cells home to the Repair Site?**
  - The SmartPReP system was designed to follow AABB guidelines for cell separation.

- **Delivery Options**
  - Percutaneous Injection
  - Liquid Application (LK/2 Shown)

- **Topical Spray (SK/S Shown)**

- **What is the Optimal Composition of an Autologous Platelet Concentrate (APC)?**
  - SmartPReP is as simple as 1,2,3.

- **Elution Factors**
  - Alpha (α) and Beta (β) Thrombocytopenia

- **Harvest Technologies**
  - The SmartPReP 2 system consistently and reproducibly generates the optimal platelet concentration that may help optimize the conditions for healing.

- **All PRP is Not Created Equal**
  - The SmartPReP 2 system concurrently and proportionally generates the optimal platelet concentration that may help optimize the conditions for healing.
Unlocking the Biologic Potential

What is the Optimal Platelet Concentration?

An Autologous Platelet Concentrate not only accelerates migration of stem cells to the repair site but also stimulates proliferation in the microenvironment.

Physicians recognize that re-establishing blood flow is critical for healing. Platelets, WBCs, and accessory cells contain certain cytokines such as VEGF which stimulate angiogenesis and navigate stem cells to the repair site. Platelet products include the optimal platelet concentration that will actively mobilize and homing progenitor cells.

What is the Value of White Blood Cells?

Some content that concentrated WBCs may produce an inflammatory response or less healing. These whole blood cell levels that actively mobilize and homing progenitor cells.

What is the Optimal Platelet Concentration?

Harvest Technologies meets state of the art requirements for sterility testing. Prepared with the SmartPReP system, PRP is the closest system to a closed system on the market today. Instead of using luer connectors that can be easily contaminated and cannot be disinfected, SmartPReP disposables that exchanges no matter or energy with the outside environment.

Platelets

Essential Healing Factors

Cytokines and Adhesion Molecules

Delivery Options

Topical Spray

Liquid Application

Enriched Bone Grafts

Percutaneous Injection

How do Stem Cells home to the Repair Site?

Clinical evidence confirms that the SmartPReP concentrate contains both stem cells and their homing agent.

Migrate of stem cells through the body require active navigation, a process called homing. A control group receiving a multipurpose concentrate is 1:3.1

What is the Value of White Blood Cells?

What is the Optimal Platelet Concentration?

Recently, the SmartPReP’s patented separation process produces a WBC component that contains 100% more mononuclear (CD34+) cells compared to other systems, which actively mobilizes and homing progenitor cells. This composition may help optimize the conditions for healing.

Concentration of WBCs

Concentrate (APC)?

Platelet Concentration x 10

Baseline level PPP is 100%

Platelet poor plasma (PPP) platelet concentrate (APC)

What is the Value of White Blood Cells?

Harvest Technologies are the first to modularize and homogenize platelet concentrates for use as a two-step process.

Platelet poor plasma (PPP) platelet concentrate (APC)

What is the Value of White Blood Cells?

Concentrate (APC)?

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What is the Value of White Blood Cells?
Unlocking the Biologic Potential

What is the Optimal Platelet Concentration?
An Autologous Platelet Concentrate not only accelerates migration of stem cells to the repair site but also stimulates proliferation in the microenvironment. Physiologically, reconstituting platelets into fibrin is critical for healing. Platelets, WBCs, and accessory cells contain critical cytokines such as IL-6, which is an endogenous angiogenic agent, and VEGF, which is a well-documented mediator of the repair and regeneration process. These key biological cells are located in the “buffy coat” layer.

The buffy coat is a rich source of cells and proteins that may help optimize the conditions for healing including:

- **Platelets**:
  - Mediates cell-cell adhesion through the release of various adhesive molecules and adhesive factors
  - *Platelet Derived Growth Factors (PDGF): Chemoattractive for stem cells*

- **Growth Factors**
  - *Stromal Derived Factor-1 Alpha (SDF-1α): Promotes cell mitosis and angiogenesis*
  - *Transforming Growth Factors (TGF): Promote increased channels and adhesion molecules*
  - *Inhibit cell proliferation. Not true. What most fail to recognize is the importance of the composition and concentration of the WBC fraction in the concentrated platelet product. Unlike other systems, the SmartPReP’s patented separation process produces a WBC composition that reduces 90% of excessive granulocyte cells, which are reducing the granulocyte cells by 60% as compared to the whole blood.

What is the Value of White Blood Cells?
Some content that concentrated WBC’s may produce an inflammatory/inflammatory response or low numbers. Not true. What most fail to recognize is the importance of the composition of the WBC factors in the concentrated platelet product.

**Umbilical Vein Endothelial Cells (VECs):**
*Recapitulates the extracellular matrix and microenvironment required for endothelial function*
*β1 integrin: Promotes cell adhesion and migration*
*TGF-β1: Interacts with VEGF in the repair and regeneration process*
*PDGF-AB ng/ml: Chemoattractant for stem cells*
*SDF-1α: Angiogenic and anti-inflammatory agent, stimulates proliferation in the microenvironment. The technique used for isolating and concentrating platelets has a direct impact on the final platelet product and the resultant clinical response. The SmartPReP system provides a concentrated platelet product that incorporates aseptic state of mind and minimizes contamination.

**Delivery Options**
- **Topical Spray** *(SK/S Shown)*
- **Liquid Application** *(LK/2 Shown)*
- **Enriched Bone Grafts**
- **Percutaneous Injection**

Harvest Technologies — “A stem cell or biologic system that exchanges no matter on energy with the outside environment.”

**AAB and FDA/CBER Guidelines For Transfusion Therapy**

While no system is completely closed, the SmartPReP system was designed to meet AABB guidelines for cell separation. Instead of using suction connections that can be easily contaminated and cannot be disinfected, the SmartPReP introduces aseptically packaged port systems that can be safely autoclaved and deflated prior to use. The SmartPReP system is a closed system on the market today.

**Sterility Testing**
Harvest Technologies meets state of the art requirements for sterility testing. Compare with the SmartPReP system, PRP devices are autoclaved but not cultured out. 10 hour and generally anaerobically. All cultures are negative. Harvest Technologies has documented sterility of the concentrated platelet product when following the manufacturers instructions for use.

**All PRP is Not Created Equal**

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

Test systems, Lab centrifuges, and many other so called “PRP” systems fail to achieve the threshold of platelet concentration and microenvironment cell composition required.

The SmartPReP system consistently and reproducibly generates the optimal platelet composition that may help optimize the conditions for healing. While no system is fully automated, the SmartPReP is an asset in 1,3,5.

**How do Stem Cells home to the Repair Site?**
Clinically effective Autologous Platelet Concentrate contains 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 SDF-1α. Migration of stem cells throughout the body requires active navigation, a process called homing. Homing is a multistep process modulated by SDF-1α. Migration of stem cells throughout the body requires active navigation, a process called homing. Homing is a multistep process modulated by SDF-1α.
Harvest Technologies 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 conditions for healing. A decade ago, we introduced the SmartPReP® 2 Platelet Concentrate System, making the use of autologous growth factors practical in the hospital and clinic setting for the first time. The SmartPReP® 1 System and former Symphony 2 System has been used in over 1 Million procedures to date and counting. Today, the SmartPReP® platforms are the gold standard in PRP technology.

**The SmartPReP®2 System:**
- Delivers the optimal composition of a concentrated platelet product.
- Removes the highest percentage of platelets and contaminating growth factors — up to 85% of available platelets.
- Contains increased concentration of stem cells.
- Generates the greatest level of reproducibility — only a 5% coefficient of variance.
- In the declared amount of time — 10 minutes or less from start to finish.
- Considers the simplest and easiest system to use.

The SmartPReP® 2 System has been used in over 1 Million procedures to date and counting. Today, the SmartPReP® platforms are the gold standard in PRP technology.

**SmartPReP® 2: The Gold Standard**

In less than 15 minutes, 60 mL of peripheral blood provides 10 mL of an Autologous Platelet Concentrate with the optimal cellular composition and concentration.

**SmartPReP® 2: A System You Can Trust to Consistently Deliver**

**SmartPReP®2 Platelet Concentrate System**
- Point-of-care, multifunction platform for concentrating autologous cells.
- More than a decade of proven reliability.
- One-button operation.
- 15-minute automated process.

**AFC-** Procedure Packs:
- All includes procedure packs based on clinical need.
- Patented foaming technology ensures consistency and highest level of reproducibility.
- Delivers the optimal concentrated platelet product and VEGF composition.

**References**
- Street, J et al, VEGF stimulates bone repair by promoting angiogenesis and bone turnover, PNAF 2002.
- Kusumanto, Y, et al, Platelets and Granulocytes, in particular the neutrophils, form important compartments for circulating vascular endothelial growth factor, Angiogenesis, 2003; 6:238-287
- Marrow-Derived Progenitor Cells to Arterial Thrombi in Vivo, JEM, 2006; 203:1221-1233
- Fiore S, et al, Lipoxin A4 Receptor Activation is Distinct from that of the Formyl Peptide Receptor

**SmartPReP®2 Ordering Information**

- **SmartPReP®2 Spray**: SMARTPREP 2 Spray Concentrate System 110V-50/60 Hz
- **SmartPReP®2 Workplace**: SMARTPREP 2 Workplace System
- **SmartPReP®2 Rolling Centre**: SMARTPREP 2 Rolling Centre System
- **APC-60**: APC Procedure Pack for SmartPReP®2
- **APC-120**: APC Procedure Pack for SmartPReP®2
- **APC-2** : APC Spray System
- **APC-100**: APC Procedure Pack for SmartPReP®2
- **APC-50**: APC Procedure Pack for SmartPReP®2
- **APC-20**: APC Procedure Pack for SmartPReP®2
- **APC-10**: APC Procedure Pack for SmartPReP®2
- **APC-5** : APC Spray System
- **APC-1**: APC Spray System
- **APC-1/2**: APC Spray System
- **APC-1/3**: APC Spray System
- **APC-1/4**: APC Spray System
- **APC-1/5**: APC Spray System
- **APC-1/6**: APC Spray System
- **APC-1/7**: APC Spray System
- **APC-1/8**: APC Spray System
- **APC-1/9**: APC Spray System
- **APC-1/10**: APC Spray System

**Data on file**
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- APC-50**: APC Procedure Pack for SmartPReP®2
- APC-100**: APC Procedure Pack for SmartPReP®2
- APC-20**: APC Procedure Pack for SmartPReP®2
- APC-10**: APC Procedure Pack for SmartPReP®2
- APC-5**: APC Spray System
- APC-1**: APC Spray System
- APC-1/2**: APC Spray System
- APC-1/3**: APC Spray System
- APC-1/4**: APC Spray System
- APC-1/5**: APC Spray System
- APC-1/6**: APC Spray System
- APC-1/7**: APC Spray System
- APC-1/8**: APC Spray System
- APC-1/9**: APC Spray System
- APC-1/10**: APC Spray System

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**CE Mark Authorized**
- ISO 13485 Registered
- BSI Registered Firm

**Spray Applicator Kit**
- SCP-1:
  - 3/case.

**Liquid Applicator Kit**
- SLA-1:
  - 6/case.

**Rolling Cart**
- FAL:
  - 110V-50/60 Hz
  - 200-240V-50/60 Hz

**Spray Delivery System**
- SD-4:
  - 2.5mL Liquid delivery system. 2/case.
  - 4.5mL Liquid delivery system. 2/case.

**Liquid Delivery System**
- DS-2:
  - 4.5mL Liquid delivery system. 2/case.
  - 7 in. (178mm) Liquid delivery system. 6/case.

**Spray Delivery System**
- SD-2:
  - 4.5mL Liquid delivery system. 2/case.
  - 7 in. (178mm) Liquid delivery system. 6/case.

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- 508.732.0400

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**+P: Kevy, et al, Comparison of Methods for Point of Care Preparation of Autologous Platelet Gel, JECT, 2004; 36:28-35

**+Original**: Platelet Rich Plasma (PRP) Data on file for the clinical use requirements and to Consistently Deliver a System You Can Trust

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- BSI Registered Firm
- CE Mark Authorized

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SmartPReP 2: The Gold Standard

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The SmartPReP 1 System and former Symphony 2 System has been used in over 1 Million procedures to date and counting. Today, the SmartPReP platforms are the gold standards in PRP technology.

The SmartPReP 2 System:
- Delivers the optimal composition of a concentrated platelet product
- Recovers the highest percentage of platelets and corresponding APC consistency and highest level of reproducibility
- Generates the greatest level of variability — only a 2% coefficient of variance
- In the desired amount of time — 15 minutes or less from start to finish
- Considers the simplest and easiest system to use

In less than 15 minutes, 60 mL of peripheral blood provides 15 mL of an Autologous Platelet Concentrate with the optimal cellular composition and concentration.

SmartPReP 2: A System You Can Trust to Consistently Deliver

SmartPReP 2 Platelet Concentrate System
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- More than a decade of proven reliability
- One-button operation
- 15 minute automated process

APC® Procedure Packs:
- All inclusive procedure packs based on clinical need
- Patented spraying technology ensures consistency and highest level of reproducibility
- Delivers the optimal concentrated platelet product and APC composition
- Transfusion Transfusion Transfusion

The APC® Procedure Pack is designed to facilitate the preparation of autologous platelet rich plasma (PRP) from a small sample of blood at the patient's point of care. The APC® Procedure Pack can be mixed with autograft and allograft bone prior to application to an orthopedic surgical site as deemed necessary by the clinical use requirements.

To arrange an evaluation or for more information, call toll free 1.877.HARVEST (1.877.427.8377) or visit us at www.harvesttech.com
Unlocking the Biologic Potential

What is the Optimal Platelet Concentration?

An Autologous Platelet Concentrate not only accelerates migration of stem cells to the repair site but also stimulates proliferation in the microenvironment.

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. The buffy coat is a rich source of cells and proteins that may help optimize the conditions for healing including:

- **Platelets**
  - Mediates cell cell adhesion through the release of various adhesive molecules and growth factors
- **Growth Factors**
  - Platelet Derived Growth Factors (PDGF): Chemoattractive for stem cells
  - Vascular Endothelial Growth Factors (VEGF): Stimulates angiogenesis and reduces the inflammatory response
  - Stromal Derived Factor-1 Alpha (SDF-1): Promotes homing of blood cells

What is the Value of White Blood Cells?

Some content that concentrated WBC’s may produce an uninformed inflammatory response or lead to tissue death. Not true. What most fail to recognize is the importance of the composition of the WBC fraction in the concentrated product.

Unlike other systems, the SmartPReP’s patented separation technique uses a high-speed centrifugation process to produce a platelet concentrate that contains 100% autologous stem cells. These cells are transformed into tissue generating cells, which actively mobilizes and delivers a proportionately greater number of stem cells.

- **CD34** cells as a stem cell marker have been identified in the Harvest concentrated platelet product (APC).
- **CD133** cells are also a stem cell marker which actively mobilizes and delivers a proportionately greater number of stem cells.

- **β2-Transferrin**: Promotes cell mitosis and angiogenesis.
- **CD3**: Primarily mononuclear as compared to whole blood sample.

The WBC composition of the Harvest APC is primarily mononuclear as compared to whole blood which contains primarily granulocytes.

- **Granulocytes**: Reduce the granulocyte count by 40% as compared to the whole blood sample.
- **Mononuclear cells**: Actively modulates migration and homing.
- **β2-Transferrin**: Promotes cell mitosis and angiogenesis.

What are Healing Factors and Signal Proteins?

- **Platelets**
  - Vascular Endothelial Growth Factors (VEGF): Stimulates angiogenesis and reduces the inflammatory response
  - Stromal Derived Factor-1 Alpha (SDF-1): Promotes homing of blood cells

- **Growth Factors**
  - Platelet Derived Growth Factors (PDGF): Chemoattractive for stem cells
  - Vascular Endothelial Growth Factors (VEGF): Stimulates angiogenesis and reduces the inflammatory response

- **Cytokines and Adhesion Molecules**
  - Chemokine or adhesion factor 1 (C-X-C motif)

Enriched Bone Grafts

Benefits of Enriched Bone Grafts

- **Smaller volume**: Reduces surgical trauma and recovery time
- **Higher concentration of growth factors**: Stimulates faster bone regeneration
- **Greater osteoinductive capacity**: Enhances bone formation

Delivery Options

Percutaneous Injection
Topical Spray
(Best Shown)
Liquid Application
(Best Shown)