Iliac Crest: The Gold Standard

Iliac crest is often considered the gold standard for harvesting. The iliac crest contains bone marrow which is a rich source of regenerative cells, including:

- **Endothelial Progenitor Cells**: Stimulate angiogenesis, release BMP-2 and BMP-6, and up-regulate the production of BMP-2
- **Hematopoietic Stem Cells**: Directly convert to stromal MSC's (CD34+)
- **Mesenchymal Stem Cells**: Convert to osteoblasts
- **Platelets**: Mediate cell-to-cell adhesion through the release of various adhesion and growth factors such as SDF-1α
- **Lymphocytes**: Support the migration and proliferation of EPC's
- **Granulocytes**: Release vascular endothelial growth factors in support of angiogenesis

BMAC® 2: efficiently and effectively concentrates bone marrow aspirate
Concentrating Bone Marrow Cells

Harvest Technologies is the leader in developing point-of-care platforms to concentrate bone marrow and accessory cells.

A decade ago, we introduced the first SmartPReP® Cell Concentrate System, making the use of autologous bioactive cells practical in hospital and office settings for the first time. Today it is standard-of-care.

Harvest continues its leadership tradition with the introduction of BMAC 2 for concentrating stem cells from bone marrow aspirate.
Concentrating Nucleated Cells

Iliac crest is a rich source of regenerative cells.

The cellular composition of iliac crest bone and concentrated nucleated cells from marrow aspirate are virtually equivalent.

<table>
<thead>
<tr>
<th>BMAC vs. Iliac Crest</th>
<th>Iliac Crest</th>
<th>Bone Marrow Aspirate</th>
<th>Harvest BMAC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Nucleated Cells/mL</td>
<td>$56 \times 10^6$ (n=10)$^9$</td>
<td>$19 \times 10^6$ (n=10)$^{10}$</td>
<td>$72 \times 10^6$ (n=200)$^{10}$</td>
</tr>
</tbody>
</table>

BMAC is a minimally invasive procedure that saves operating room time.

The Harvest BMAC 2 Series used with the SmartPReP 2 technology efficiently concentrates and recovers nucleated cells.
The BMAC system produces the highest cell yields available while concentrating the full complement of cells.\textsuperscript{11}

**The BMAC 2 System:**
- Concentrates all the key cells in their natural ratios
- Keeps cells in their natural plasma
- Concentrates cells in less than 15 minutes at point-of-care
- Produces consistent and reliable nucleated cell loads\textsuperscript{10}

**References**
\textsuperscript{(1)} Jung, Y, et al, Hematopoietic Stem Cells Regulate Mesenchymal Stromal Cell Induction into Osteoblasts Therapeutically Participating in the Formation of the Stem Cell Niche, Stem Cells, 2008; 26:2042-2051
\textsuperscript{(3)} Matsumoto, T, et al, Fracture Induced Mobilization and Incorporation of Bone Marrow-Derived Endothelial Progenitor Cells for Bone Healing, Journal of Cellular Physiology, 2008; 216:234-242
\textsuperscript{(4)} Mifune, Y, et al, Local delivery of Granulocyte Colony Stimulating Molecule CD34-Positive Progenitor Cells Using Boccafilter for Modality of Unhealing Bone Fracture, Stem Cells, 2008; 26:1396-1405
\textsuperscript{(6)} Masuho, T, et al, Placental Secreted Stromal Cell-Derived Factor 1α and Recruit Bone Marrow-Derived Progenitor Cells to Arterial Thrombi In Vivo, Journal of Experimental Medicine, 2006; 205:1221-1231
\textsuperscript{(10)} Data on file.
\textsuperscript{(11)} Hermann, P, et al, Concentration of Bone Marrow Total Nucleated Cells by a Point-of-Care Device Provides a High Yield and Preserves Their Functional Activity, Cell Transplantation, 2008; 16:1069-1069
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In less than 15 minutes, 60 mL of bone marrow aspirate provides 10 mL of concentrated stem cells.
SmartPReP 2 and BMAC 2: A System You Can Trust

SmartPReP 2

- Multifunction, point-of-care platform for concentrating autologous cells
- More than a decade of proven reliability
- Delivers 100% pure bone marrow aspirate concentrate
- One-button operation
- 15-minute automated process

BMAC 2 Procedure Packs

- All-inclusive procedure packs based on clinical need (standard 60 mL kit shown above)
- Patented floating shelf technology delivers the multi-potent and progenitor cells needed
- Unique 5 port aspiration needle with trocar and blunt tip stylets maximizes cell harvesting in 60 mL and 120 mL kits, and new 15g BMA needle with depth stop in the 30 mL kit can be used to aspirate BMA from sources such as the vertebral body or the iliac crest.

SmartPrep BMAC 2 Centrifuge System is intended to be used in the clinical laboratory or intraoperatively at point of care for the safe and rapid preparation of platelet poor plasma and platelet concentrate from a small sample of blood and for preparation of cell concentrate from bone marrow.

Warning: The safety and effectiveness of BMAC for in vivo indications has not been established.

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

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