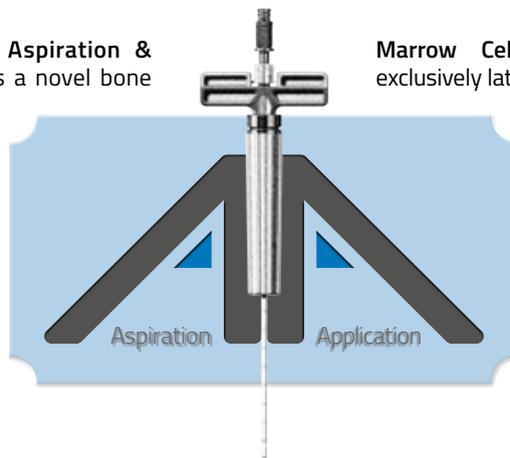


Autologous Bone Marrow Aspiration & Bone Graft Harvesting MARROW CELLUTION

OVERCOME LIMITATIONS & MAXIMIZE CELL YIELDS

The Marrow Cellution™ Bone Marrow Aspiration & Cancellous Bone Graft Harvesting System is a novel bone marrow access and retrieval device that incorporates features designed to minimize limitations of traditional trocar needles.

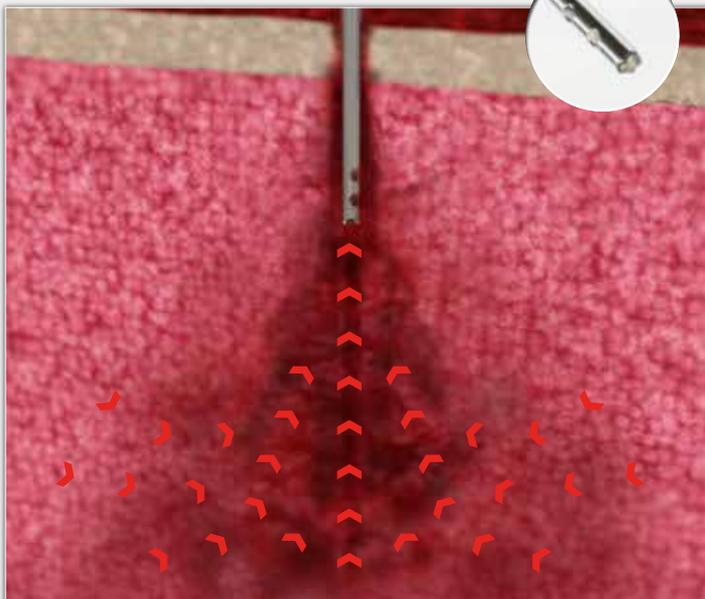
Marrow Cellution™ maximizes stem and progenitor cell recovery and minimizes peripheral blood infiltration. Trocar needles with side ports aspirate primarily through an open-ended cannula. This leads to excess blood collection, requiring additional manipulation, i.e. centrifugation or chemical separation in a laboratory.



Marrow Cellution™ accesses aspirate flow collected exclusively laterally as the tip of the aspiration cannula is closed allowing marrow collection perpendicular to and around the channel created by the device. It incorporates technology to precisely reposition the retrieval cannula within the marrow space after each aspiration.

These features achieve a clinician's desire for a single entry point. A single puncture with Marrow Cellution™ provides high quality bone marrow aspirate and bone graft, collected from numerous sites within the marrow geography.

Traditional Trocar Aspiration



Traditional Trocars produce excess peripheral blood contamination, diminishing cellular yield thereby requiring additional manipulation steps to achieve the cellular demand necessary for most clinical indications.

Marrow Cellution™



Marrow Cellution™ harvests high quality stem and progenitor cells from various levels within the marrow space. The system never leaves the sterile field and does not require further manipulation.

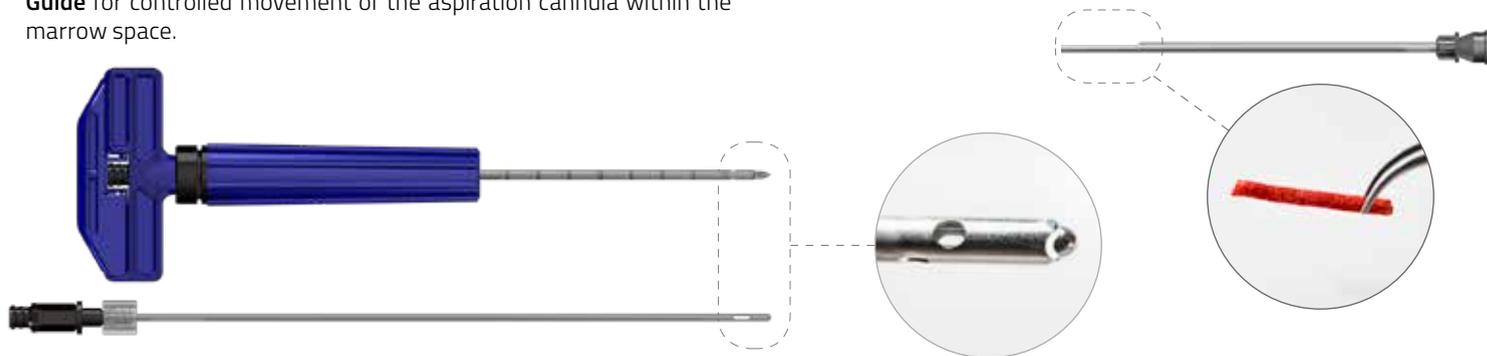
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- ✓ Maximizes Cell Yield
 - ✓ Regulatory Compliant
 - ✓ Centrifugation Not Required
 - ✓ Never Leaves the Sterile Field
 - ✓ Reduces Blood Contamination
 - ✓ Reduces Donor Site Morbidity

Marrow Cellution™ provides substantial savings in time, effort and expense. It reduces patient trauma, morbidity and risk of infection.

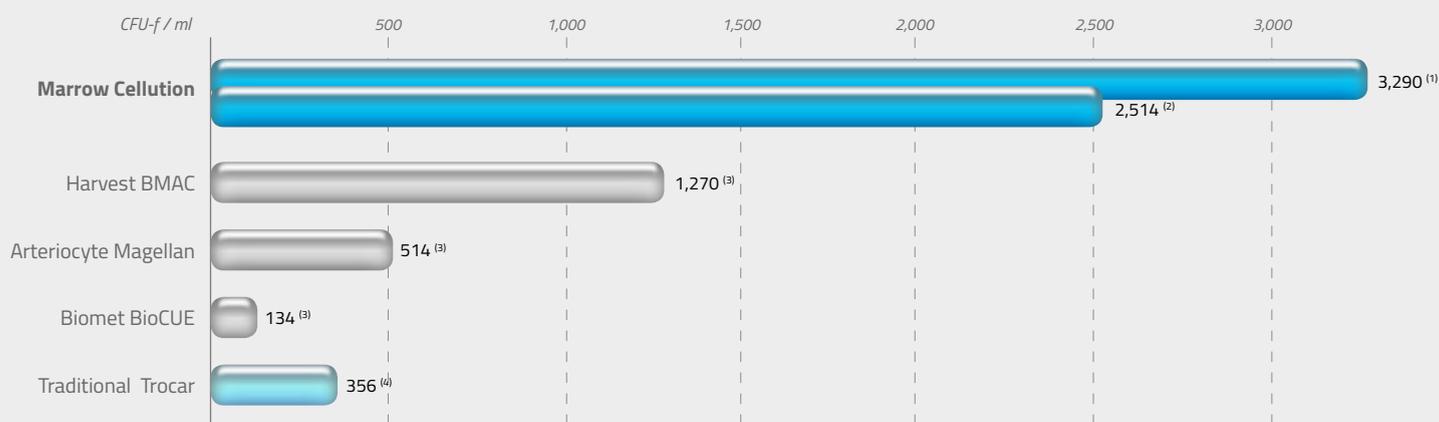
MARROW CELLUTION: Striking Advantages

The functional design of the Marrow Cellution™ System includes two unique features: a **Closed Needle Tip** to prevent aspiration of excess blood from the entry channel and a **Handle With Threaded Guide** for controlled movement of the aspiration cannula within the marrow space.

The MC-RAN-8C Marrow Cellution™ System provides the additional benefit to **Percutaneously Harvest Bone Graft** in the same minimally invasive procedure. Thereby, reducing donor site morbidity.



CFU-f Cell Count Comparison



References:

- (1) n=5; Scarpone MA, et al. Marrow Cellution Bone Marrow Aspiration System and Related Concentrations of Stem and Progenitor Cells. White Paper 2015.
- (2) n=27; Harrell DB, Purita JR. Novel Technology to Increase Concentrations of Stem and Progenitor Cells from Marrow Aspiration. White Paper 2016.
- (3) Hegde V, et al. A prospective comparison of three approved systems for autologous bone marrow concentration demonstrated non-equivalency in progenitor cell number and concentration. J Orthop Trauma. 2014 Oct;28(10):591-8.
- (4) McLain R, et al. Aspiration of Osteoprogenitor Cells for Augmenting Spinal Fusion: Comparison of Progenitor Cell Concentrations From the Vertebral Body and Iliac Crest. J Bone Joint Surg Am. 2005 Dec; 87(12): 2655–2661.

Product details

Bone Marrow Aspiration:

Marrow Cellution™ Bone Marrow Aspiration Systems

Marrow Cellution™ is available in both 11G and 13G and includes an introducer needle, blunt stylet, aspiration cannula and 10mL syringe. The technology is available in multiple lengths and is designed for use in the Iliac Crest, Pedicle, Calcaneous or Tibia.



Article Code	Introducer size
MC-RAN-13C	13G x 3.5" (9cm)
MC-RAN-11C	11G x 3.5" (9cm)
MC-RAN-11CSTS (for obese patients)	11G x 4.5" (11.4cm)

Bone Marrow Aspiration & Percutaneous Cancellous Bone Harvesting:

Marrow Cellution™ Bone Marrow Aspiration & Autologous Bone Graft Harvesting Systems

Delivering "Gold Standard" autograft in a minimally invasive manner, this version includes an 11G Marrow Cellution™ Bone Marrow Aspiration System (MC-RAN-11C) with all componentry along with an 8G Trephine Needle with a specially designed cancellous bone extraction tool to harvest bone dowels percutaneously.



MC-RAN-8C	11G x 3.5" (9cm) with 8G x 4" Trephine Needle
MC-RAN-8CSTS (for obese patients)	11G x 4.5" (11.4cm) with 8G x 6" Trephine Needle

Manufactured by



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