

## Reveille™

Cartilage Processor



Reveille® Cartilage Processor (Reveille CP) is a cost effective option for single stage surgery with autologous cartilage. It is used for intraoperative resizing of autologous tissue into usable particles.

### BENEFITS/FEATURES<sup>1</sup>

- Precision crafted blade and sieve design permits high speed cutting
- Designed to create convective movement of fluid during processing
- Easy to assemble; with detachable tissue reservoir
- Two minute processing time yields tissue particles with increased surface area suitable for grafting procedures
- Fluid environment protects tissue viability without the need for cell culture
- Easy to load and retrieve tissue
- High cell viability
- Produces tissue to fill defects up to 4cm<sup>2</sup>
- Host tissue eliminates the potential of graft rejection
- Off-the-shelf convenience
- Increase in surface area allows greater chondrocyte exposure



## Scientific Support

### 1. Reveille CP creates autologous tissue with more surface area to absorb bioactive factors available within the marrow stimulation superclot.

- Tissue grafts prepared with Reveille CP are composed primarily of tissue particles between 0.3mm and 1.0mm (Figure 1) in diameter, representing a 10-fold increase in surface area over that of intact articular cartilage, with exposure of cells on the surface of the particles (Figure 2).<sup>1</sup>
- Due to the avascular nature of cartilage tissue, the absorption of anabolic factors into the extracellular matrix is dependent upon diffusion, which is limited by available surface area of the tissue.
- Tissue grafts created using Reveille CP can interact with marrow elements, such as mesenchymal stem cells, recruited to the lesion through the use of marrow stimulation techniques (Figure 3).<sup>3-4</sup>

### 2. Reveille CP creates autologous tissue grafts that retain high levels of viable, biologically competent chondrocytes.<sup>1</sup>

- Viable chondrocytes are essential for the maintenance of the extracellular matrix and generation of new tissue components.<sup>2</sup>
- Fluorescent microscopy analysis demonstrates high cellular viability in graft fragments following processing with Reveille CP (Figure 4).<sup>1</sup>

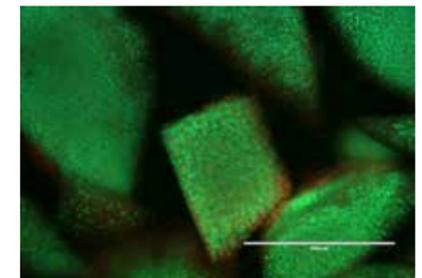


Figure 4. Fluorescently labeled porcine cartilage fragments showing viable chondrocytes.<sup>1</sup>

### 3. Reveille CP creates autologous tissue grafts that support cellular proliferation and migration, and new tissue matrix formation in culture.<sup>1</sup>

- Viable, biologically competent chondrocytes support maintenance of the implanted tissue matrix and encourage the formation of new tissue matrix through production of growth factors and extracellular matrix proteins.<sup>3</sup>
- Fluorescent microscopy analysis demonstrates outgrown chondrocytes and new tissue formation between graft particles in culture (Figure 5).<sup>1</sup>
- Cell counting studies demonstrate a two-fold increase in human chondrocyte numbers following 4 weeks in culture (Figure 6).<sup>1</sup>

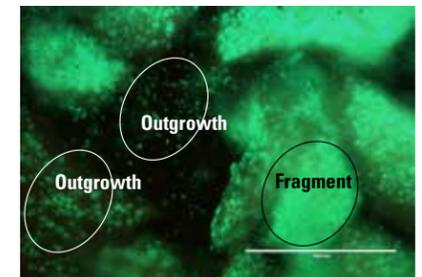


Figure 5. Fluorescently labeled porcine cartilage fragments showing viable chondrocyte outgrowth.<sup>1</sup>

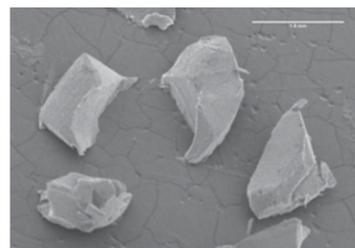


Figure 1. 20-power SEM image of cartilage fragments prepared using Reveille CP.<sup>1</sup>

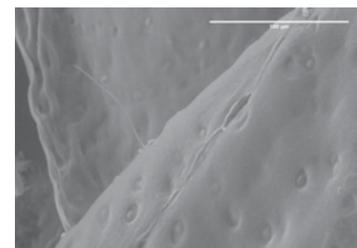


Figure 2. 500-power SEM image of cartilage fragments prepared using Reveille CP showing exposed lacunae and chondrocytes.<sup>2</sup>

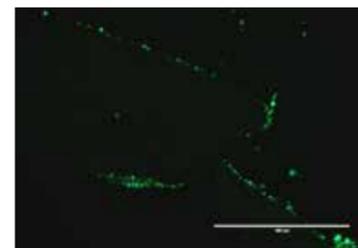


Figure 3. MSCs (green), a cellular element recruited to the lesion during marrow stimulation, bind to the surface of porcine cartilage fragments during 4 weeks of culture.<sup>3</sup>

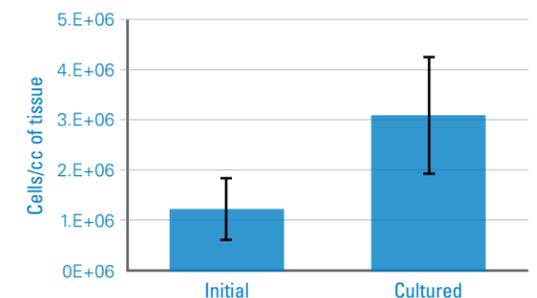


Figure 6. Chondrocyte numbers increase during 4 week culture of porcine cartilage fragments prepared using Reveille CP.<sup>1</sup>

## REFERENCES

1. Data on File in Exactech Taiwan.
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4. **Steadman, J. Richard et al**. Microfracture technique for full-thickness chondral defects: Technique and clinical results. *Operative Techniques in Orthopaedics*, 1997, Volume 7 , Issue 4 , 300 - 304.

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