

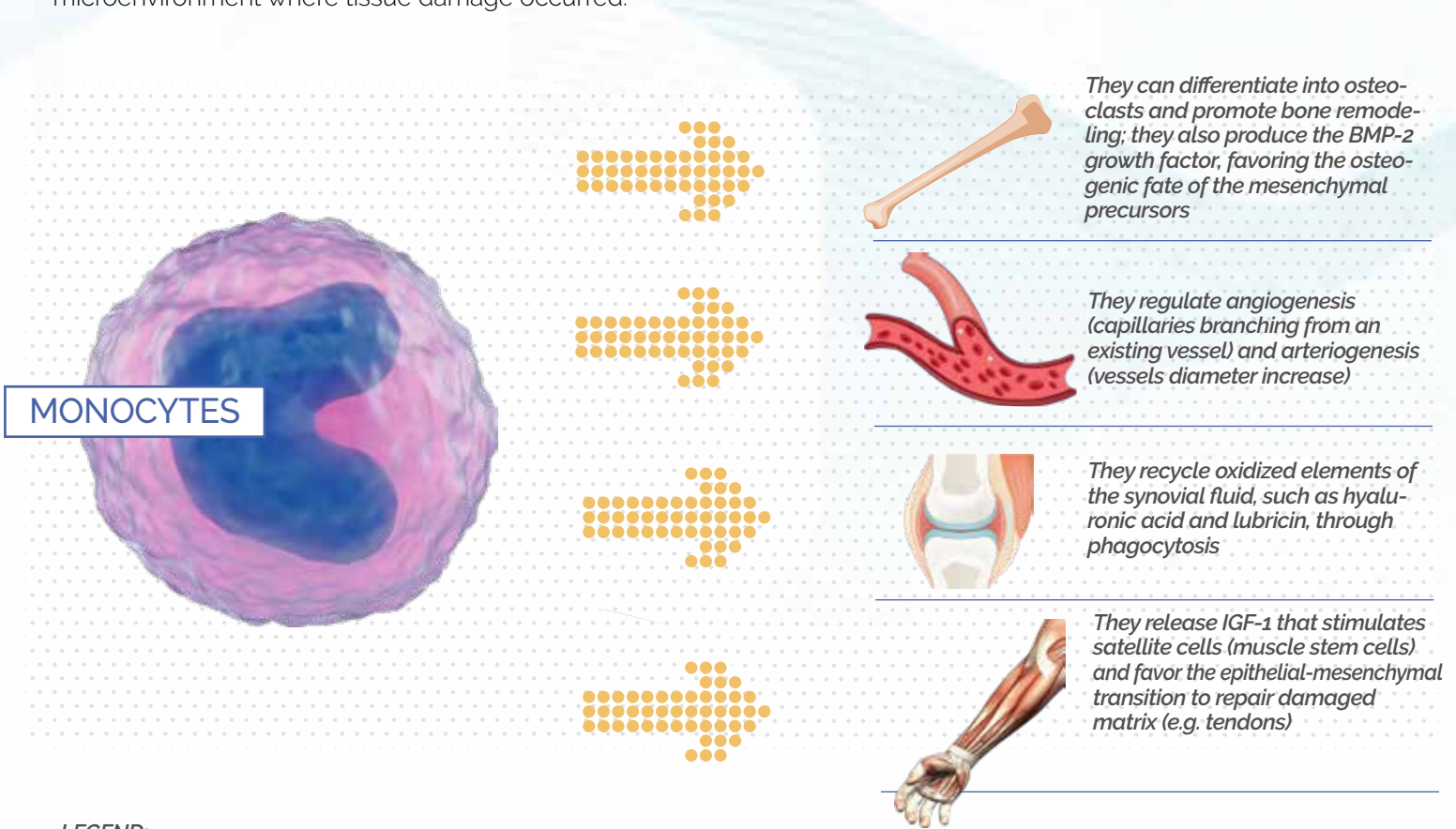


MONOCYTES

PERIPHERAL BLOOD MONONUCLEAR CELLS

INNATE IMMUNITY AND REGENERATION

The immune system plays a critical role in tissue development, homeostasis and repair. Monocytes and macrophages are the first to respond to tissue damage and are required to successfully start the regeneration process. Through the release of chemokines, cytokines, matrix remodeling proteins and growth factors, they interact with the "niche of damage", i.e. the microenvironment where tissue damage occurred.

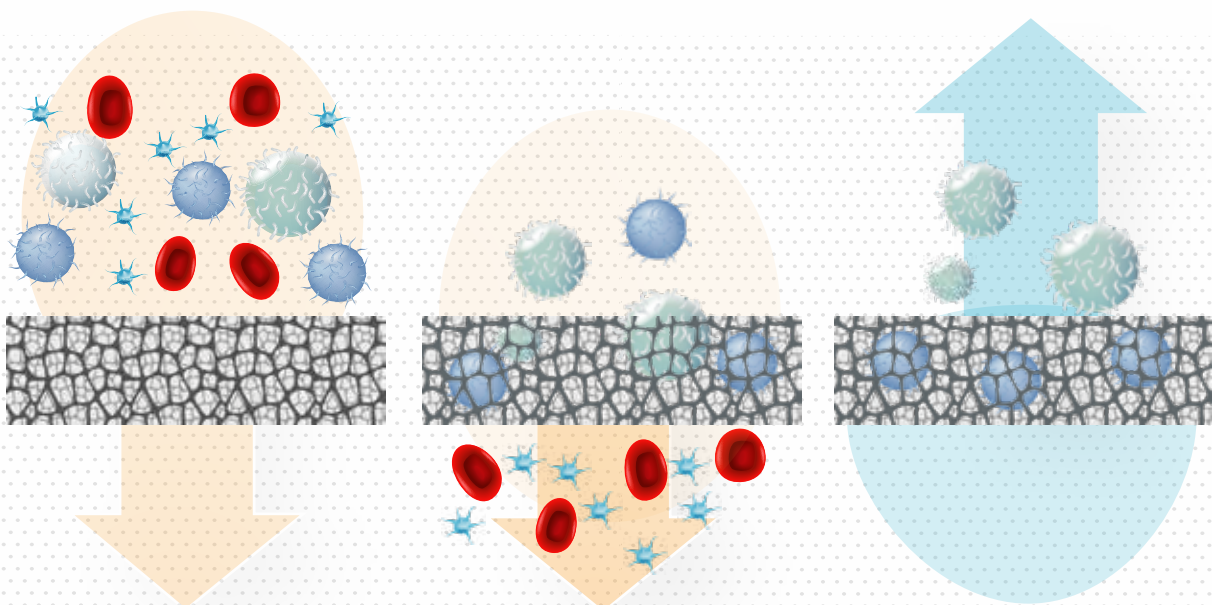


LEGEND:

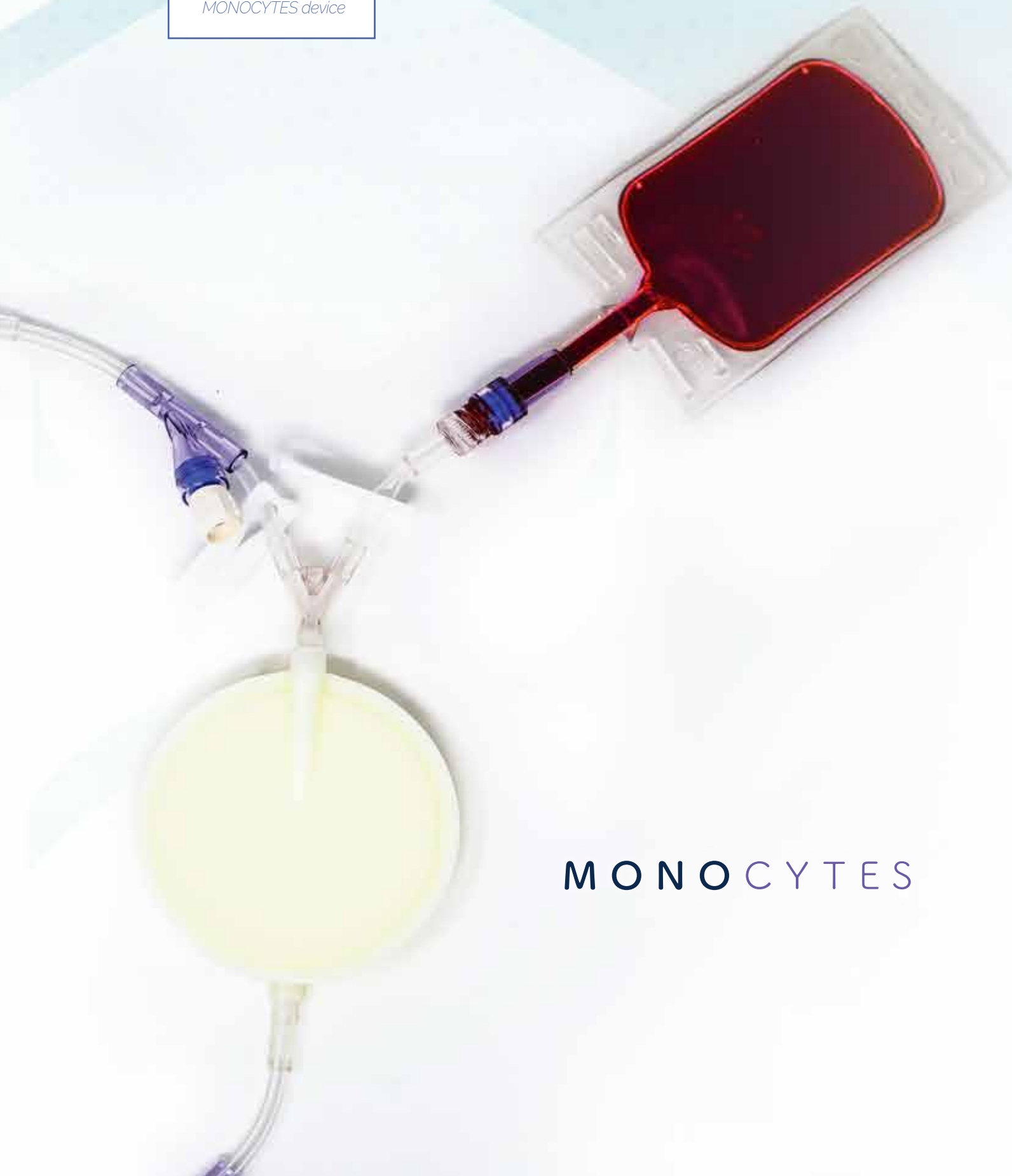
BMP-2 = Bone Morphogenetic Protein-2 | IGF-1 = Insulin-like Growth Factor 1

DIMENSIONAL FILTRATION TECHNOLOGY

Monocytes technology is able to select blood cells in a size-dependent fashion. Mononuclear cells with regenerative potential, after obstructive-trapping, are recovered with a gentle backwashing.



MONOCYTES device



MONOCYTES

PROCEDURE

1 - WITHDRAWAL

Open the kit on the sterile field and assemble it as illustrated.

Load the withdrawal syringes with 10% of anticoagulant (ACD-A); e.g. 6 ml for 60 ml of blood.

Recommended withdrawal volume is 60-120 ml.

Cleanse the puncture area and aspirate the needed peripheral blood volume with the provided needle.

2 - PROCESSING

Hang the kit on a stand, holding the upper bag **(A)** up.

Insert the withdrawn blood through the upper connector **(a)** to fill the upper bag **(A)** and open the clamps **(1 and 2)** to activate the circuit.

Wait until all the blood has passed through the filter.

Put 10 ml of saline solution from the same blood inlet **(a)** to wash the filter.

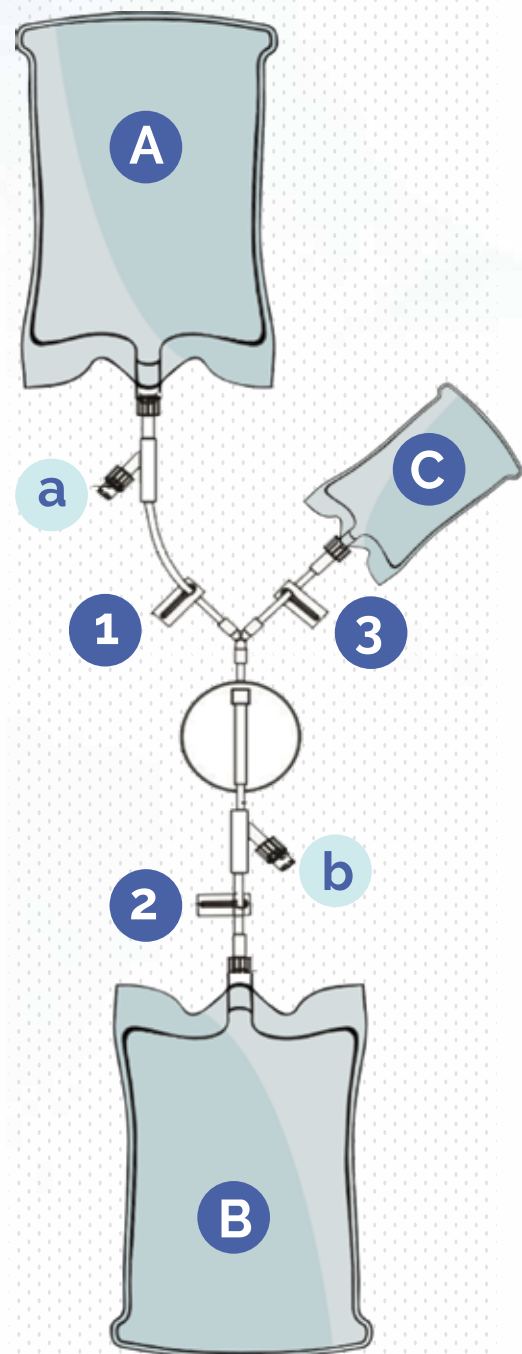
Now, waste is deposited in the lower bag **(B)** and cells are trapped inside the filter.

3 - RECOVERY

Close the clamps **(1 and 2)** to exclude the filter from the circuit.

Open the clamp on the side **(3)**. Aspirate 10 ml of saline solution with a new sterile syringe and connect it to the lower connector **(b)**.

Push the saline gently. Once the backwashing is done, recover the content of the collection bag **(C)** with a new syringe.



ADVANTAGES

REGENERATIVE POTENTIAL:



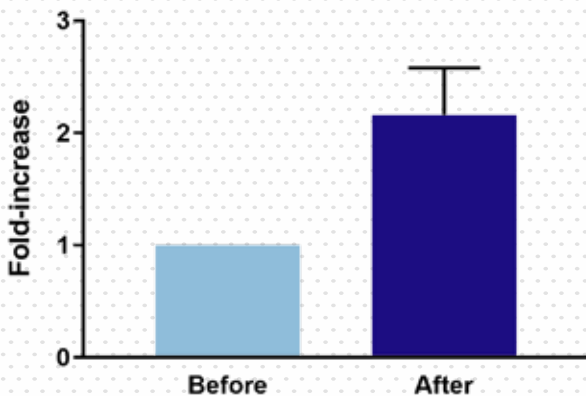
- Selective recovery of white blood cells from peripheral blood with red blood cell depletion
- Enrichment of mononuclear cells from peripheral blood with regenerative potential
- Significant reduction of granulocytes with pro-inflammatory activity

QUICK PROCEDURE:

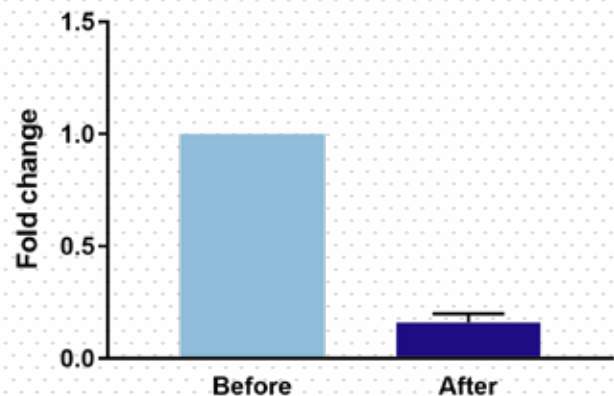


- Centrifuge-independent procedure that limits cell stress
- Closed-loop system with minimization of contamination risks
- Fast, reproducible, and versatile procedure in different clinical indications

**Mononuclear cells
enrichment**



**Granulocytes
depletion**



After Monocytes processing, the final blood sample is enriched in mononuclear cells (monocytes and lymphocytes) and significantly depleted in granulocytes (neutrophils, eosinophils, basophils).

INDICATION



ORTHOPAEDICS

Infiltration therapy or scaffold enrichment



VASCULAR SURGERY

Perilesional and intramuscular infiltration therapy



WOUND HEALING

Infiltration therapy associable with advanced dressing



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Biography

