


MediGraft™

Cells Micro Cluster

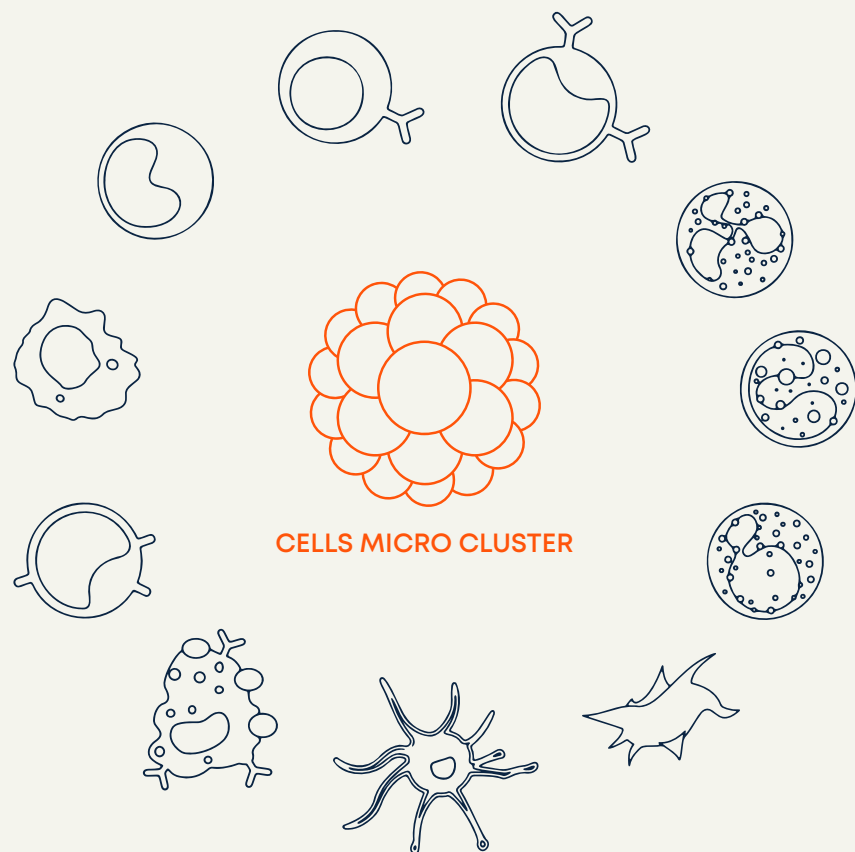


MediGraft™

MediGraft™ is a disposable procedural kit designed for the mechanical processing and disaggregation of a biological tissue sampling to be used in the field of regenerative medicine and surgery.

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Mesenchymal cells (MSCs) are characterized by their ability to differentiate into different types of specialized cells, but it is their trophic, paracrine and immunomodulatory functions that have the greatest therapeutic impact in regenerative medicine. The traditional view, focused on the differentiation of these cells, must therefore be broadened to include their role as cellular modulators, capable of secreting cytokines and bioactive signals in response to the microenvironment.

The primary trophic property of MSCs is to secrete growth factors and chemokines that induce cell proliferation, stimulate resident cells and promote angiogenesis through paracrine effect. (Mancuso et al.,2019) (de Girolamo et al.,2016).

Their anti-inflammatory and immunomodulatory capacity is also essential in restoring the natural environment and promoting healing and regeneration of the injured tissue. MSCs have been isolated and characterized in a variety of adult tissues including bone, adipose tissue, dermis, synovial fluid, periosteum, cord blood, placenta, and amniotic fluid.

The frequency of MSCs and the native concentration in different adult human tissues was studied as reported in the table below:

Human tissue source	Native CFU-F concentration range per ML of fluid/liquid	MSCs frequency range (CFU-F/10 ⁶ nucleated cells)
Bone marrow aspirate	109-664	10-83
Adipose/lipoaspirate	2.058-9.650	205-51.000
Dermis	Nd	74.000-157.000
Peripheal blood	0	0-2
Synovial fluid	4-14	2-250
Amniotic fluid	3	9.2

Mesenchymal stem cells: environmentally responsive therapeutics for regenerative medicine

Matthew B Murphy, Kathryn Moncivais and Arnold I Caplan

The presence of MSCs throughout the body is also evident in light of recent scientific works according to which most MSCs are of perivascular origin and that there is a direct correlation between the frequency of MSCs and the amount of blood vessels present in the stromal tissue. It is known that pericytes are the source of MSCs, which extravasate from the endothelial lumens of blood vessels to monitor and respond to signals in all vascularized tissues of the body. (Crisan et al.2008). Once the microenvironment is restored, MSCs return to their native state of pericytes anchored to blood vessels. (Murphy et al. 2013)

The availability and versatility of these extraordinary cells make them an excellent treatment option for a wide variety of clinical conditions.

MediGraft™

Medigraft™ is a disposable procedural kit designed for the mechanical processing and disaggregation of a biological tissue sampling to be used in the field of regenerative medicine and surgery. Thanks to a micro rotating system with the motion of the helix and counter helix present on the internal grid of the device, the sample is gently dissociated into regenerative tissue units, obtaining a highly viable cell product suitable for infiltration into the injured tissue.

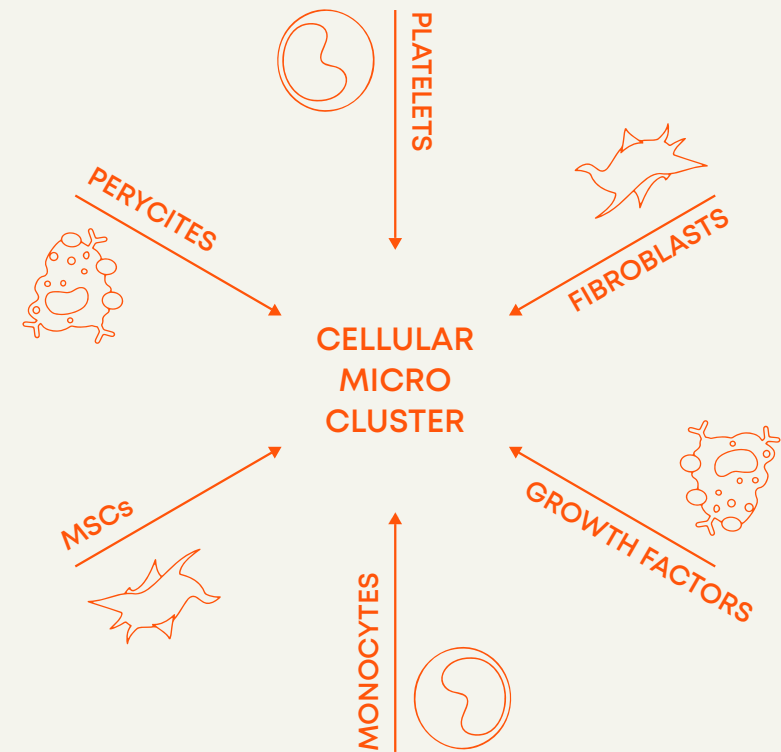


THE DEVICE IS COMPOSED BY AN INTERNAL METAL GRID WITH ABOUT 100 HOLES WITH MICROBLADES DESIGNED TO CUT DIFFERENT TYPE OF TISSUES.

Micro units of cell clusters obtained thanks to a gentle mechanical disaggregation with MediGraft devices, can guarantee a final product “without the use of enzymes” with high vitality, great regenerative capacity in suspension of physiological, PRP or hyaluronic acid, which can be used for injective treatments or in combination with a scaffold.

The micro units of cell clusters are rich in mesenchymal progenitor cells and EPCs, with a large presence of fibroblasts, pericytes and growth factors present in the vascular-stromal niche of the processed tissue. (Zanzottera et al.,2014)

The small size of the clusters (50-70 microns) allows a high rate of cellular vitality.



Medigraft™ is a disposable and sterile procedural kit containing all the instruments to perform an innovative surgical procedure to obtain regenerative Cell Micro Clusters.

The **Medigraft™** technology does not use enzymes to break up the tissue, but thanks to a gentle mechanical action, the collected tissue is disaggregated into Cellular Micro Clusters with high regenerative capacity.

All the components of the kit are included in a rigid tray with a sterile cloth 60x90 mm that can be used to prepare the surgical field.

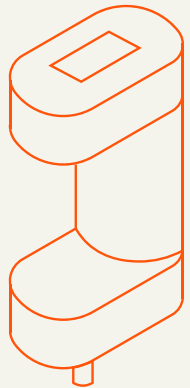
In the kit it's also included a 4mm biopsy punch, or a scalpel, which allows to pick up the samples size suitable for the procedure.

The surgical tweezers can be used to put the sample inside the device.

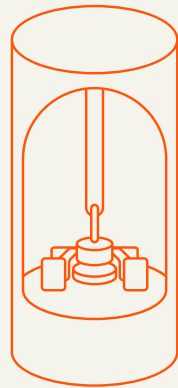
The sampling site can be medicated with special Steril-Strips present in the kit.

The samples are processed with the Medigraft device thanks to the dedicated line of machines.

SURGYBLUE



SYNTMATE



PLASTIC SURGERY AND AESTHETIC MEDICINE

Biorevitalization and biological filler



DERMATOLOGY

Scars, keloids and pigmentation disorders



MediGraft™



WOUND CARE AND VASCULAR SURGERY

Complex skin lesions and ulcers



TRICHOLOGY

Androgenetic alopecia



SPORTS ORTHOPEDICS AND TRAUMATOLOGY

Tendon, cartilage and muscle injuries, bone regeneration



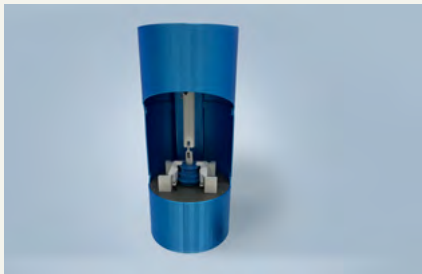
SURGICAL TECHNIQUE



1. Take one or more tissue samples using the 4 mm biopsy punch or the scalpel based on the size of the lesion to be treated.



2. Introduce the tissue samples into the processing chamber, taking care to place the sample on the top of the grid and add 1.2 ml of physiological solution through the hole (syringe fitting) using a syringe without needle, to facilitate its disaggregation and promote the recovery of the final product in cell suspension.



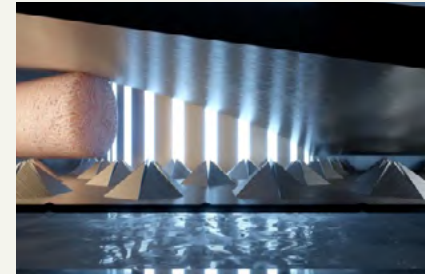
3. Cover the device with the supplied lid and put the device into the machine for mechanical tissue processing.

4. Process tissue samples for 90 seconds.

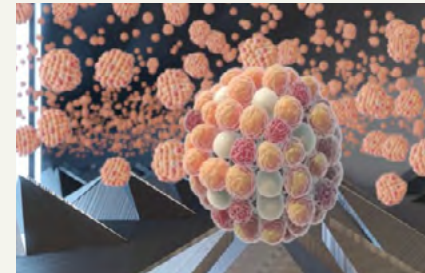


5. Thanks to a continuous and gentle movement, the device process the sample on the internal grid for the disintegration of the tissue.

6. The physiological solution makes this passage easier and guarantees cell vitality.

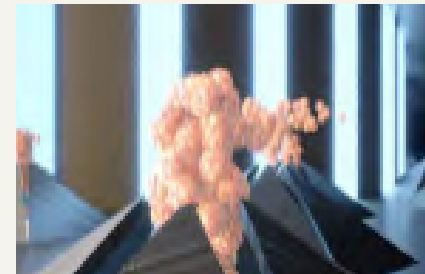


7. The rotation on the micro blades allow the gentle disaggregation dissociation of the tissue.



8. The metal grid composed by about 100 holes with pyramidal section micro blades on a hexagonal base is suitable for processing all kind of tissue.

9. The micro blades reduce the sample in cellular Micro Clusters of the average size of 50-70micron.



10. The cellular Micro Clusters with high regenerative power thus obtained by passing through the holes in the grid, are recovered from the bottom of the device in suspension in physiological solution.



11. At the end of the processing time (about 90 seconds, depending on the type of sample), the device is ready to be removed from the machine.



12. Remove the lid, insert the 2.5 ml syringe, included in the kit, into the side syringe fitting of the device and tilt slightly towards the syringe and withdraw the suspension.

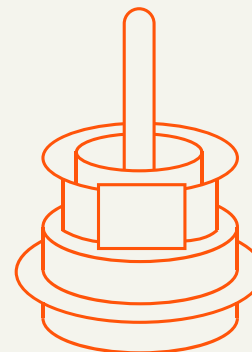


13. This movement allows the cell suspension to be fully recovered by aspiration with the syringe.



14. Remove the syringe from the device. The product is ready to use.

MEDIGRAFT CODES



Cod	3001464
1	Nonwoven cover, cm 60x60 (wrapping)
1	TNT / PE cloth, 60x90 cm
1	Tray, mm 270x135x25
1	Syringe, 2.5 ml
1	Medicons dissociator
1	Punch Biopsy 4 mm
1	Scalpel
1	Pilers
1	Steri-strep 6x100 mm



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