

MCT PROTOCOLS





MCT SYSTEM

MCT Unit[®] | MCT Kit[®]

MCT Unit® and MCT Kit®

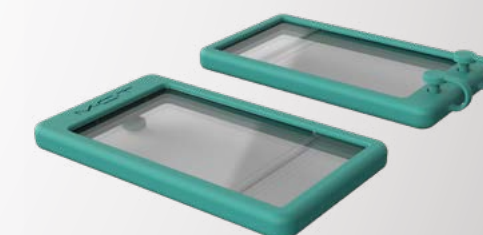


MCT Unit®

Device equipped to generate and apply electromagnetic and thermal energy across a broad range of temperatures and light wavelengths. Employing a photothermal biomodulation process, the MCT Unit® effectively improves existing regenerative medicine treatments. With multiple preset programs, the device is precisely tailored to the patient autologous material, resulting in the desired treatment outcome.

MCT Kit®

Patented cassette with a specific shape and chemical composition, exclusively developed for photothermal conditioning. Made of a medical grade polymer that guarantees optimal scattering, transmittance, and other optical properties, ensuring the emitted energy will reach the target effectively. Designed with a unique geometry that grants an excellent surface/volume energy exposure ratio, the MCT Kit® accommodates 10 mL of any autologous preparation.



MCT Unit® Specifications

The MCT Unit® is engineered for versatility, emitting light across a broad wavelength spectrum ranging from 467 nm to 850 nm. It is also equipped to thermally stimulate biological materials within a temperature range of 4°C to 45°C.



Photostimulation

- Max. emission energy 467 nm: 10 J/min.
- Max. emission energy 530 nm: 10 J/min.
- Max. emission energy 591 nm: 7.5 J/min.
- Max. emission energy 620 nm: 12 J/min.
- Max. emission energy 850 nm: 10 J/min.



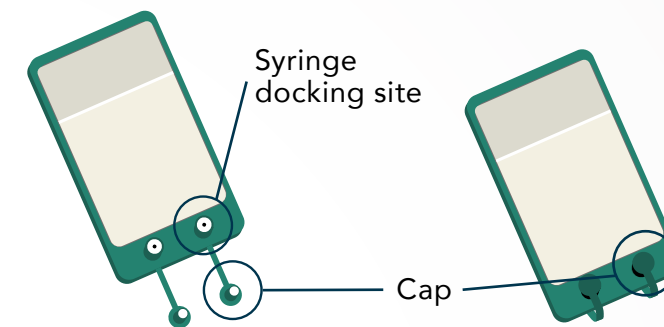
Thermal stimulation

Max. cooling temperature: 4°C
Max. heating temperature: 45°C

MCT Kit® Specifications

Open MCT Kit®

Closed MCT Kit®

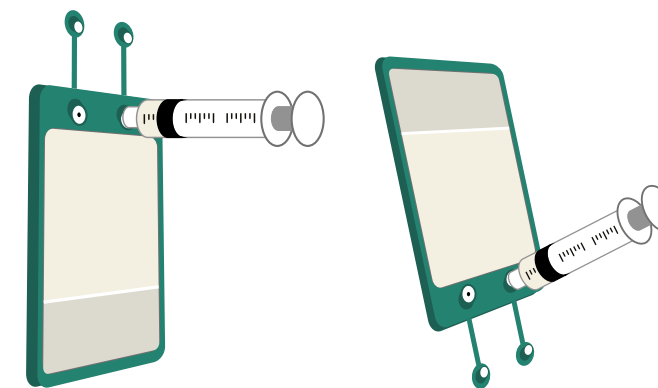


The MCT Kit® has 2 syringe docking sites protected by 2 caps.

Docking sites are standard & Luer Lock® syringe compatible.

Insertion

Extraction



Insert material placing the MCT Kit® with caps facing upwards.

Extract material placing the MCT Kit® with caps facing downwards.

MCT Kit® Loading

The MCT Kit® is precisely crafted to fit in the tray of the MCT Unit® to enable proper closure.



MCT Unit[®] PRESETS

PRP | Cells | Exosomes

The MCT Unit® offers 3 distinct preset programs, each tailored to the specific characteristics of the autologous material and the desired final MCT product.



PRP



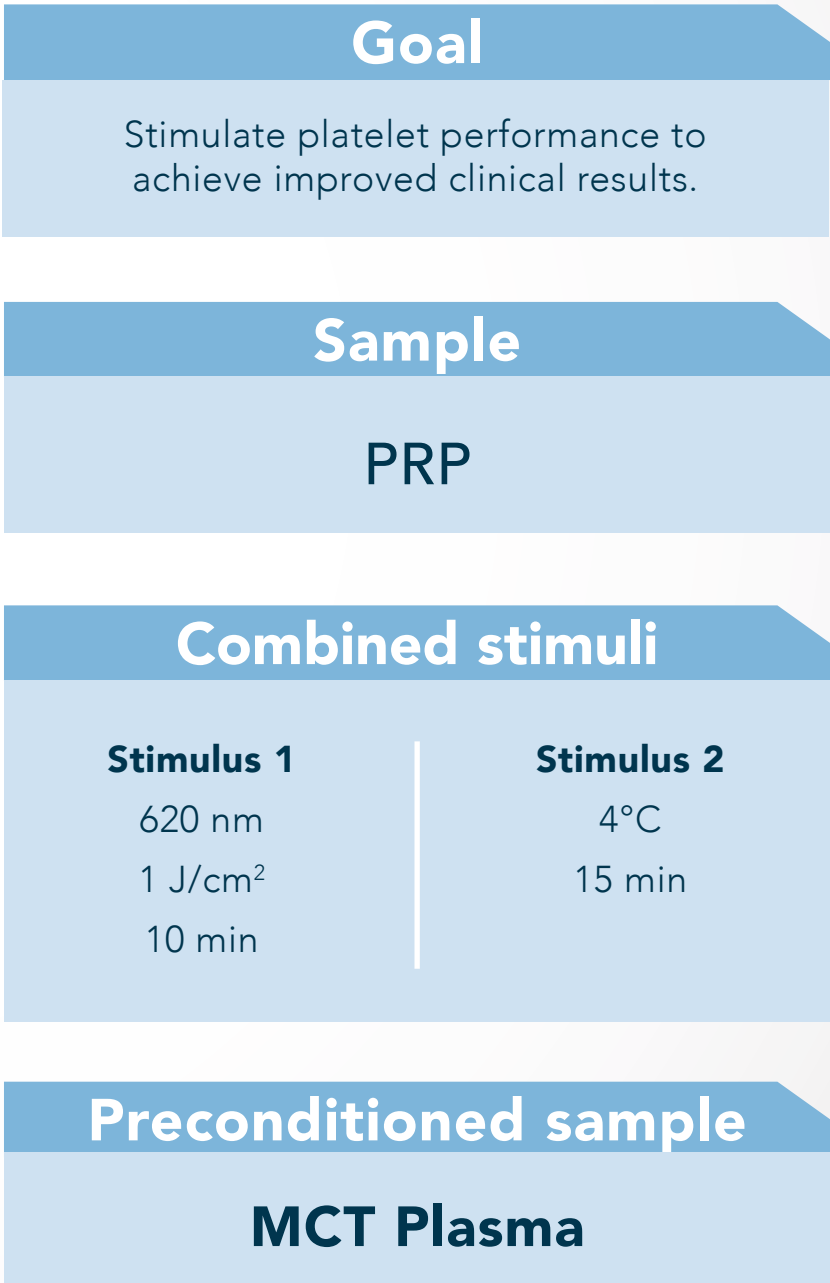
Cells



Exosomes

The autologous sample has to be **liquid** and contain **living structures**.

PRP



Cells



Goal

Promote cell metabolism for superior cell-based therapy outcomes.

Sample

Liquid biopsies, stromal vascular fraction, fat graft, stem cells, and other cells.

Combined stimuli

Stimulus 1	Stimulus 2	Stimulus 3
620 nm	850 nm	23°C
1 J/cm²	0.5 J/cm²	10 min
10 min	10 min	

Preconditioned sample

MCT Cells

Exosomes



Goal

Induce exosome release, boosting the regenerative power of any product.

Sample

Any product with living cells.

Combined stimuli

Stimulus 1	Stimulus 2
467 nm	37°C
1 J/cm²	10 min
10 min	

Preconditioned sample

MCT Exosomes

MCT PROTOCOL

MCT Plasma | MCT Cells | MCT Exosomes

STEP 1



Obtain autologous material

- Procure autologous material.

STEP 2



Insert material into the MCT Kit®

- Position the MCT Kit® as in MCT Kit® Specifications page.
- Dock the syringe onto one docking site.
- Insert autologous material into the MCT Kit®.
- Close both caps of the MCT Kit®.

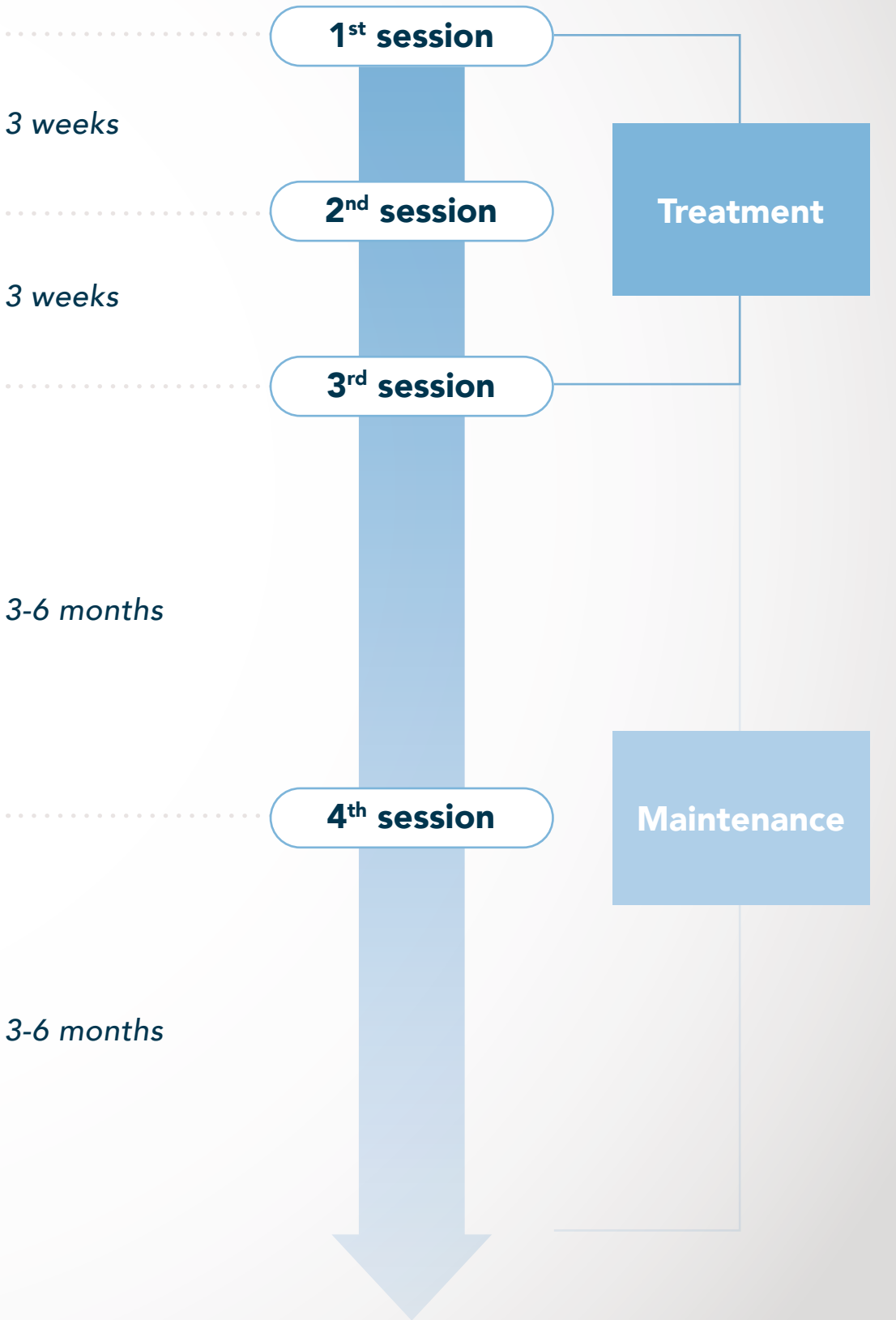
STEP 3



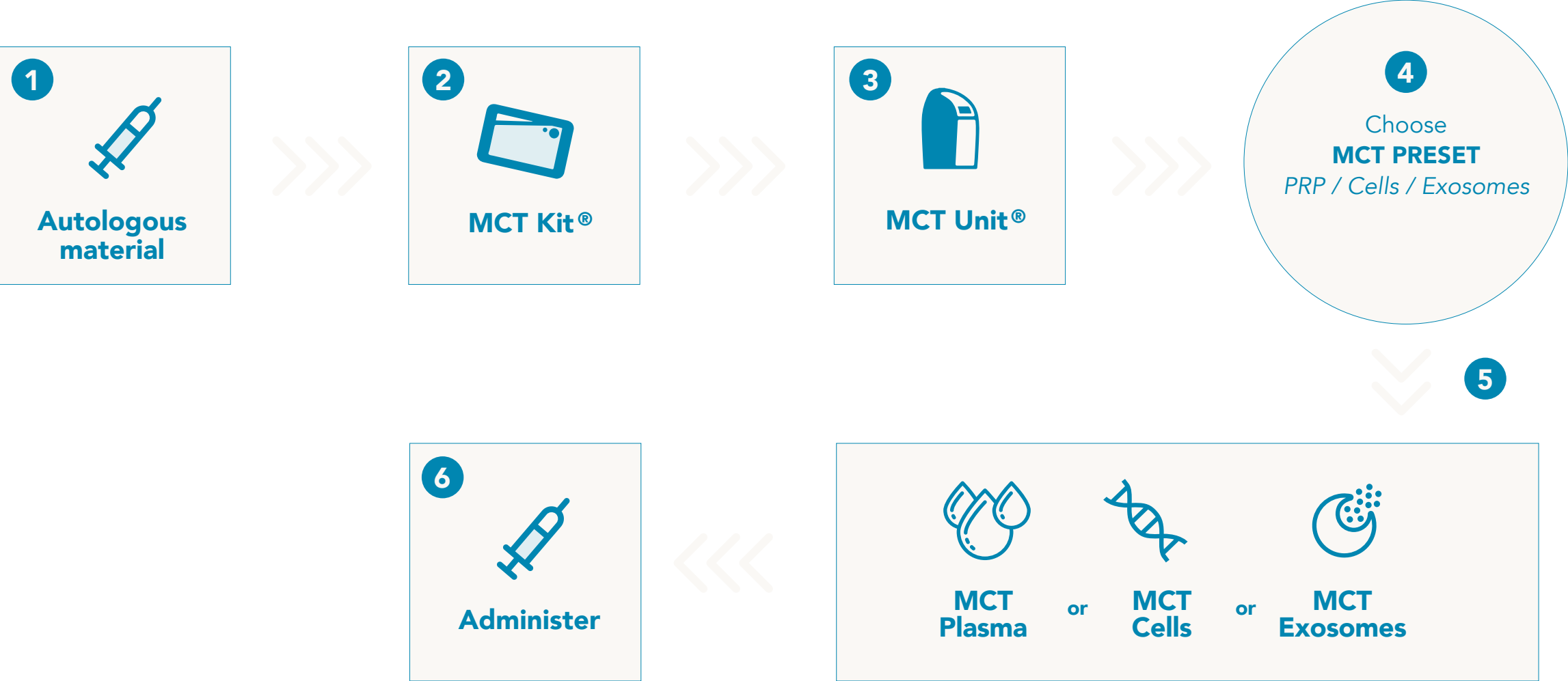
Set up the MCT Unit®

- Load the MCT Kit® in the MCT Unit® as in MCT Kit® Specifications page.
- Select the desired MCT preset:
[PRP](#) | [Cells](#) | [Exosomes](#)
- Press the Start button to start the session.
- During session, material undergoes a photothermal biomodulation process transforming it into **MCT material**.
- An acoustic alarm will sound upon completion of the session.
- Retrieve the MCT Kit® from the MCT Unit®.
- Open both caps of the MCT Kit® and dock the syringe as in MCT Kit® Specifications page.
- Extract the **MCT material** from the MCT Kit®.
Caution with spills from the other docking site.
- Administer the **MCT material** to the patient.

An interval of 3 weeks for treatment sessions and 3-6 months for maintenance sessions is advised, according to individual patient needs.



PRP, Cells or Exosomes



Duration of complete treatment: 10–15 min

1) Procure autologous material. 2) Insert autologous material into the MCT Kit®. 3) Close both caps of the MCT Kit® and load it in the MCT Unit®. 4) Start desired preset on the MCT Unit® (PRP, Cells, or Exosomes) on the MCT Unit® and allow it to run upon completion of the session. During the process, the autologous sample undergoes a photothermal biomodulation process, transforming it into **MCT Plasma** (PRP preset) or **MCT Cells** (Cells preset) or **MCT Exosomes** (Exosomes preset). 5) Retrieve the preconditioned **MCT material** from the MCT Kit®. 6) Administer the **MCT Plasma**, **MCT Cells** or **MCT Exosomes** material to the patient.

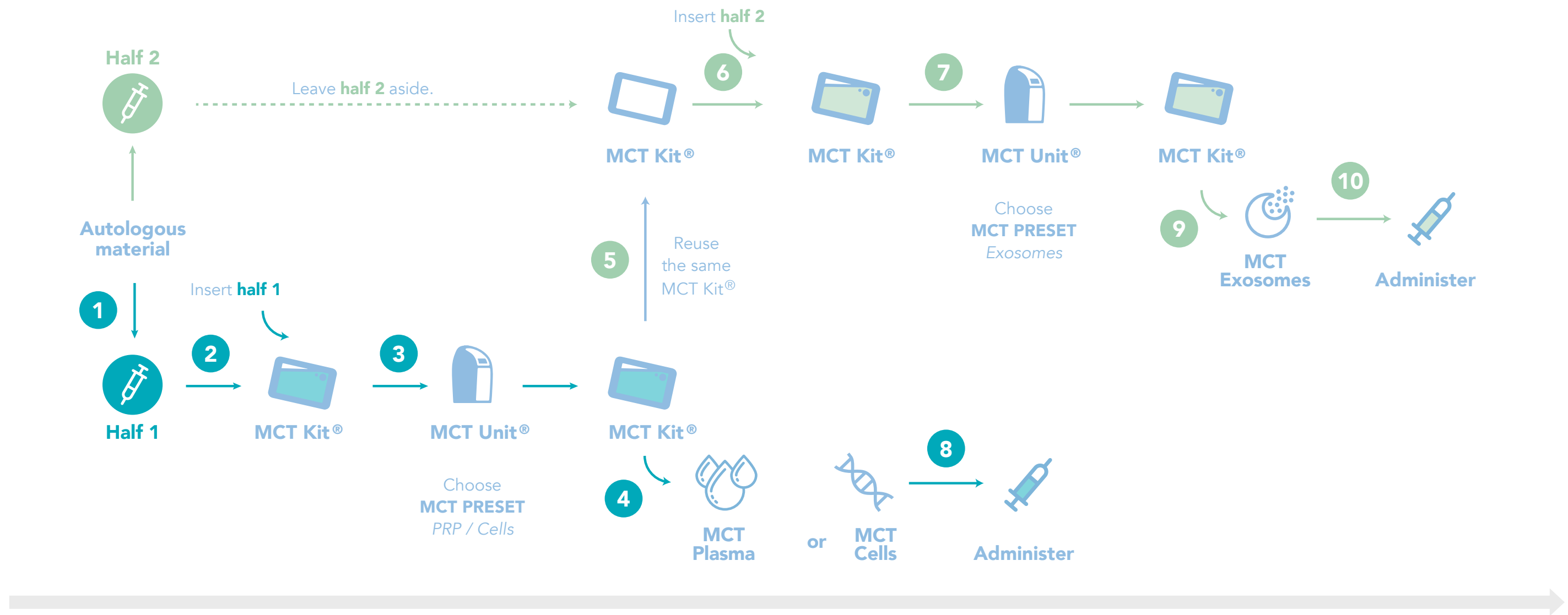


MCT COMBINED TREATMENT

PRP/Cells + Exosomes

MCT COMBINED TREATMENT

PRP/Cells + Exosomes



Duration of complete treatment: **25–30 min**

- 1)** Collect autologous material, aiming for a volume range of 18-20 mL. Split autologous material in two syringes (**syringe 1** and **syringe 2**), each containing 9-10 mL. **2)** Use **syringe 1** to fill the MCT Kit® with **half 1** of the material volume. **3)** Start PRP or Cells presets on the MCT Unit® and allow it to run upon completion of the session. Autologous sample undergoes a photothermal biomodulation process, transforming it into **MCT Plasma** (for PRP preset) or **MCT Cells** (for Cells preset). **4)** Retrieve **MCT material** from the MCT Kit® using **syringe 1** and leave it aside. **5)** Now the MCT Kit® is empty. **6)** Use **syringe 2** to refill the empty MCT Kit® with the **half 2** of the material volume (9-10 mL). **7)** Start the Exosomes preset on the MCT Unit® and allow it to run upon completion of the session. **8)** While the MCT Unit® is running the Exosomes preset, administer to the patient the previously obtained **MCT Plasma** or **MCT Cells** material contained in **syringe 1**. **9)** Once the Exosomes preset is completed, autologous material has undergone photothermal biomodulation and the resulting material is now **MCT Exosomes**. Retrieve **MCT Exosomes** using **syringe 2**. **10)** Administer the **MCT Exosomes** material to the patient contained in **syringe 2**.



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