MCT PLASMA

Breaking PRP limits

In the last decade,
improving PRP performance depended
solely on platelet concentration.
This limit has now been overcome.
MCT Plasma moves one step beyond PRP,
dramatically increasing platelet performance
and enhancing its results.

MCT PLASMA
Much more than PRP

MCT is a medical system that improves autologous products such as PRP or stem cells concentrates. It delivers all the power of regenerative medicine in a very easy and clever way. By managing electromagnetic and thermal energy, **MCT system transforms traditional PRP into MCT Plasma.**

MCT Plasma is a new generation autologous product that stands out for its much higher growth factor concentration, remarkable ATP production and spectacular skin rejuvenation, tissue regeneration and aesthetic results.

MCT System

MCT System is the result of 3 years of R&D aiming to create a device capable of bringing the benefits of Photo-Thermal activation to medical consultations. Its results are impressive and its potential breathtaking.

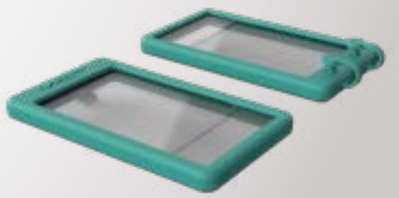
- Enhanced Regenerative power
- Stunning platelet performance
- More comfortable injection
- Extraordinary clinical and aesthetic results

MCT Unit®

MCT Unit® enables existing regenerative medicine treatments to be boosted, simply and quickly. Through the application of electromagnetic and thermal energy, it improves the general characteristics of autologous products, such as growth factor content, ATP production, and cell or platelet performance. It handles a wide range of temperatures and multiple wavelengths which are set up in comfortable one-touch protocols and customized programs.

MCT Kit®

MCT Kit® is a patented device with a specific shape and chemical composition, exclusively developed for photo-thermal conditioning. It is made of a medical grade polymer that guarantees optimal scattering, transmitance, and other optical properties, ensuring that the emitted light will reach the target effectively. Its unique geometry grants an excellent surface/volume energy exposure ratio. MCT Kit® can allocate 10 mL of any autologous preparate.



3
easy steps to get
MCT Plasma

Step 01

Procure the autologous material

Step 02

Pour it into the MCT Kit®

Step 03

Set up the MCT Unit®

MCT Plasma
Breaking PRP limits

Much more than PRP...

Increment of Growth Factors

Photo-Thermal boosted platelets release a higher amount of growth factors in a controlled and sustained way for a more physiological effect.

Improved Platelet Performance

Photo-Thermal stimulated plasma contains less proinflammatory cytokines and has a more physiological pH. It also improves platelet activation profile, reducing VASP and increasing p-38 phosphorilation. Cold primes platelets and facilitates its reactivity once injected.

Reduction of Pain

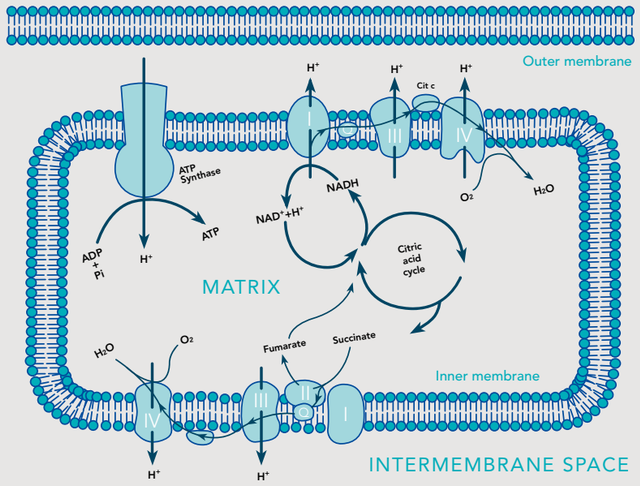
Cold primes alpha granules release kinetics after activation, not before, and induces a delay in clot formation. A less dense plasma and the sensation the cold liquid produces result in a much more comfortable procedure.

ATP Synthesis Stimulation

Photo-Thermal boosting stimulates cellular metabolism and enhances ATP synthesis.

PRP PHOTO BOOSTER

Light provides a non-invasive, non-toxic way of stimulating cellular metabolism. Ultimately, the energy absorbed at the mitochondria enhances cellular ATP production. Photo-Thermal stimulation of PRP generates MCT Plasma, a state-of-the-art regenerative preparate. This vanguard autologous plasma achieves superb clinical results due to a more prolonged and sustained growth factors release and a reduced pro-inflammatory cytokine content. Its remarkable results can be seen not only in the rejuvenation of face, neck and hands, but also in the awesome hair growth witnessed in patients with androgenic alopecia.



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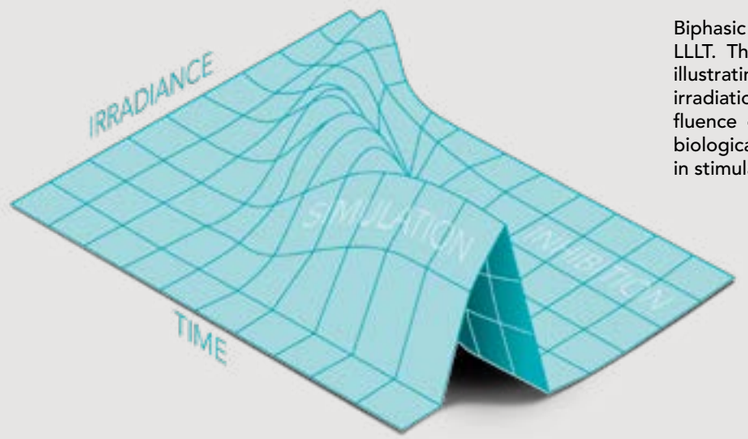
Total control of the energy



Biphasic dose response in LLLT. Three-dimensional plot illustrating effects of varying irradiation time equivalent to fluence or irradiance on the biological response resulting in stimulation or inhibition.

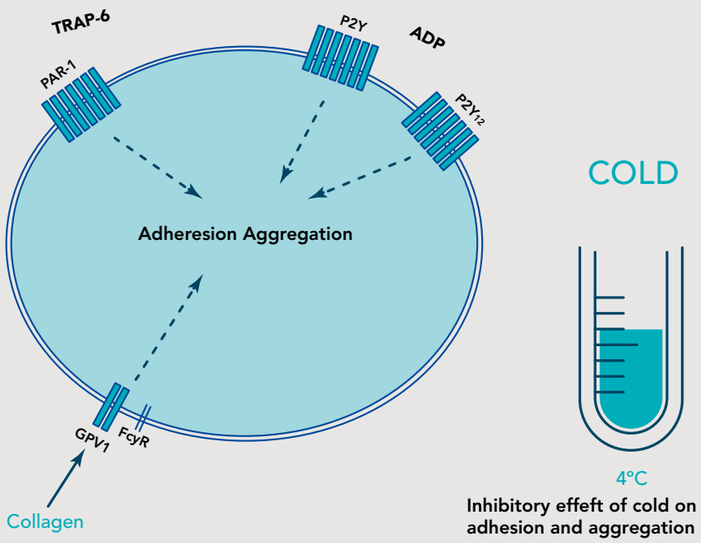
If the light applied is not of sufficient irradiance or the irradiation time is too short, then there will be no response. If the irradiance is too high or irradiation time is too long, then the response may be inhibited. Somewhere in between is the optimal combination of irradiance and time for stimulation.

Text and figure extracted from Chung H, Dai T, Sharma SK, Huang YY, Carroll JD, Hamblin MR. The nuts and bolts of low-level laser (light) therapy. Ann Biomed Eng. 2012 Feb;40(2):516-33. doi: 10.1007/s10439-011-0454-7. Epub 2011 Nov 2. PMID: 22045511; PMCID: PMC3288797.

PRP THERMAL BOOSTER

Temperature has a huge body of evidence that backs up its effectiveness and safe utilization. Thermal stimulation prepares platelets to work more and better, increases their reactiveness and shows-up a myriad of activation markers. Platelet primed functionality also determines a huge increment in the release of growth factors. Since thermal boosting delays the clot onset and primes platelet aggregation only after activation, MCT Plasma results in a less dense regenerative product, implying not only the achievement of spectacular clinical results but also a much less painful injection experience.

PLATELET IN PRP



COLD

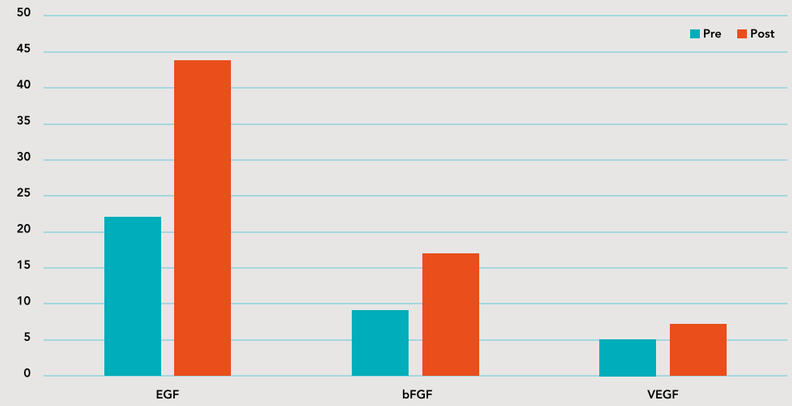
4°C

Inhibitory effeft of cold on adhesion and aggregation

Extracted from Kobsar A, Koehnlechner K, Klingler P, Niklaus M, Zeller-Hahn J, Koessler A, Weber K, Boeck M, Koessler J. The effect of short-term refrigeration on platelet responsiveness. Sci Rep. 2022 Oct 7;12(1):16910. doi: 10.1038/s41598-022-21124-4. PMID: 36207457; PMCID: PMC9546855. Adapted from figure 8, created with BioRender.com Mechanism of enhanced platelet reactivity by refrigeration. Attenuated inhibitory signaling facilitates ADP- and collagen-induced aggregation and platelet adhesión or aggregate formation.

Energy control at every level

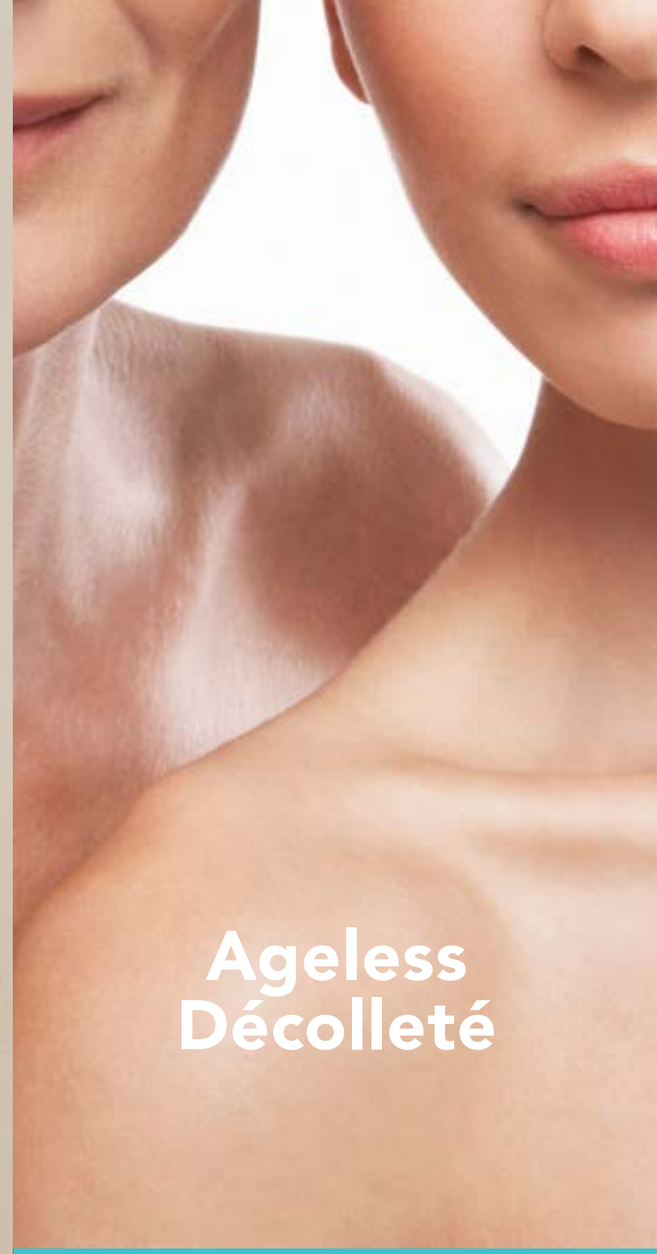
GROWTH FACTORS



Comparison of mean concentrations of 3 growth factors measured in activated PRP before (blue) and after (orange) thermal conditioning at 4°C for 10 minutes. Concentrations before (pre-TC) and after (post-TC) thermal conditioning are described as means and standard deviations. EGF: pre-TC 21.98 (3.41), post-TC 43.69 (4.05). p-value<0.001. Basic FGF: pre-TC 9.188 (1.94), post-TC 16.981 (2.57). p-value<0.001. VEGF: pre-TC 4.88 (0.89) and post-TC 6.99 (0.79). p-value<0.001.

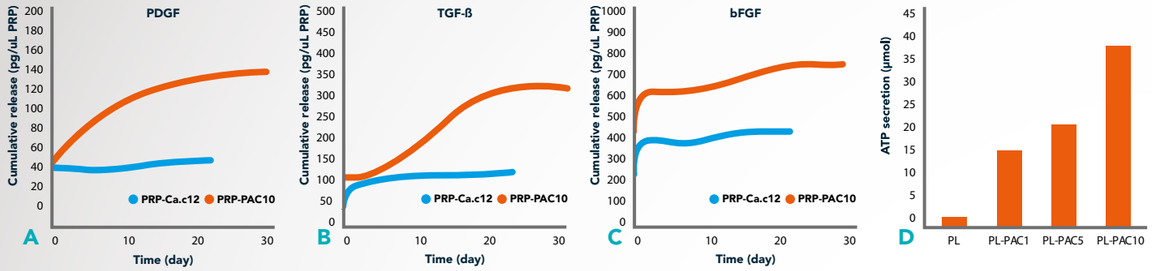
Extracted from Melamed G, et al. Thermal Conditioning: im provingPRP growth factro content. J Prime 2020 june;2:2-5”

MCT PLASMA PRIMES PLATELET PERFORMANCE FOR AWESOME CLINICAL AND AESTHETIC RESULTS



M·C·T

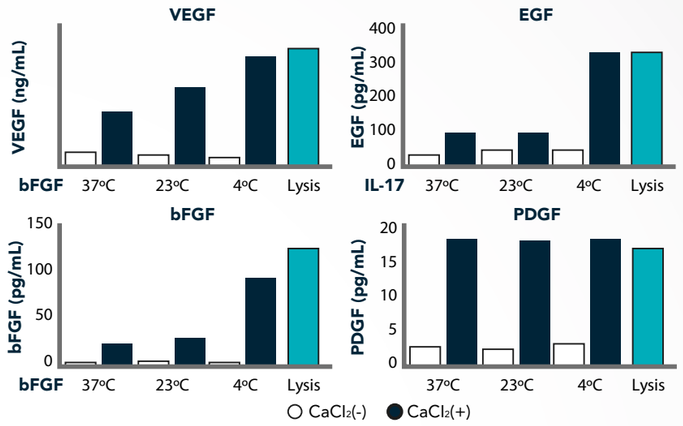
10 minutes of PRP photo-conditioning increases 2-3-folded growth factors and ATP



- Light enables sustained growth factor release from PRP.
- Significant ATP increment ($p<0.001$) in all groups after photostimulation.
- Photoactivated platelets have significantly higher ($p<0.001$) percentage of P-selectin expression as compared resting platelets.

Cumulative release (pg/uL) of growth fators in PRP: A – PDGF, B – TGF-ß, C – bFGF. Comparison of ATP secretion release from unstimulated and photostimulated platelets (D). Data are expressed as mean value of triplicates and error bars as the standard deviation. Photo Stimulation 1 min (PL-PAC1), Photo Stimulation 5 min (PL-PAC5), Photo Stimulation 10 min (PL-PAC10).
Extracted from G. Irmak, T.T. Demirtaş, M. Gümü şderelioğlu, Sustained Release of Growth Factors from Photoactivated Platelet Rich Plasma (PRP), European Journal of Pharmaceutics and Biophar- maceutics (2019), doi: https://doi.org/10.1016/j.ejpb.2019.11.011.

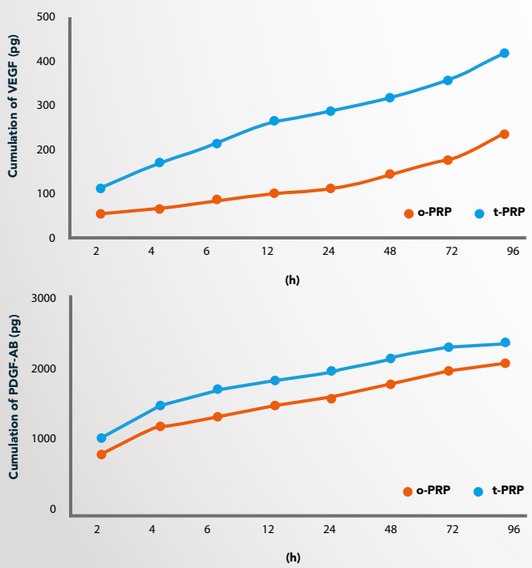
Release of VEGF, EGF and bFGF is significantly increased in 4°C thermo-conditioned PRP



PRP is usually processed at 37°C or room temperature (RT 20–25°C); however, it is traditionally known that lower temperatures prime platelet activation and trigger the release of alpha granules. The release of VEGF, EGF, bFGF was significantly increased when PRP was incubated at 4°C before inducing coagulation.

Cold preconditioning promotes the release of growth factors and cytokines from platelets. (A) PRP was incubated at 37 °C, 23 °C, or 4 °C for 30 min, and the levels of VEGF, EGF, bFGF and PDGF in releasates of PRP before clotting (CaCl2−) or after clotting (CaCl2+) were determined by ELISA. Total intra-platelet levels were measured in platelet lysates.
Extracted from fig. 2, Etulain J, Mena HA, Meiss RP, Frechtel G, Gutt S, Negrotto S, Schattner M. An optimised protocol for platelet-rich plasma preparation to improve its angiogenic and regenerative properties. Sci Rep. 2018 Jan 24;8(1):1513. doi: 10.1038/s41598-018-19419- 6. PMID: 29367608; PMCID: PMC5784112.

4°C Thermal stimulated PRP shows more physiologic charateristics

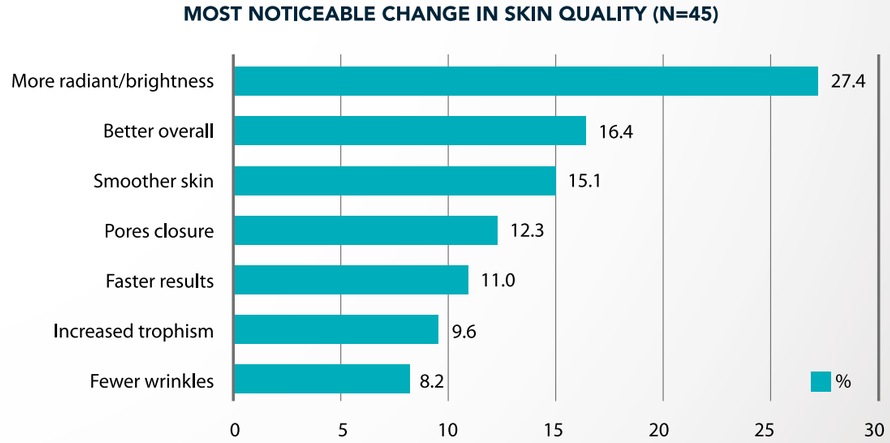


t-PRP demonstrated natural fiber scaffolding, which trapped more platelet and GFs, and exhibited a slow release and degradation rate of GFs.

t-PRP is a novel and convenient method for the preparation and activation of PRP without any additives. Compared to contemporary PRP, t-PRP reflects more physiologic characteristics.

ELISA protein quantification of GF of t-PRP and c-PRP groups. Total accumulation of GFs over 0.5–96 h for VEGF and PDGF-AB.
Extracted from Du L, Miao Y, Li X, Shi P, Hu Z. A Novel and Convenient Method for the Preparation and Activation of PRP without Any Additives: Temperature Controlled PRP. Biomed Res Int. 2018 May 13;2018:1761865. doi:10.1155/2018/ 1761865. PMID: 29862255; PMCID: PMC5971324.

Efficacy and safety of photothermal-bioactivated platelet-rich plasma for facial rejuvenation



Compared to standard PRP, Photothermal-bioactivated PRP showed excellent results for facial rejuvenation.

Extracted from figure 1, Beltrán B, Sánchez MAR, Melamed G, Pinto H. Efficacy and safety of photothermal-bioactivated platelet-rich plasma for facial rejuvenation. J Cosmet Dermatol. 2022 Jul 20. doi: 10.1111/jocd.15250. Epub ahead of print. PMID: 35855670.

Courtesy: Dr. Manuel Rubio, 2022. CIME Clinic, Barcelona.

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Tejero P, et al. Impact of photothermoactivated PRP on skin rejuvenation of the hands. Publication 2023.

R&D

Efficacy and Safety of Photo-thermal-bioactivated PRP for Facial Rejuvenation.
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Efficacy of photothermoactivated PRP for skin biostimulation in patients not eligible for other medical-aesthetic treatments.
Hernández C, et al. Publication 2023.

Impact of photothermoactivated PRP on skin rejuvenation of the hands.
Tejero P, et al. Publication 2023.

Photo-Thermal stimulated PRP (MCT PLASMA) provides excellent results for hair restoration. A 150-patient experience.
Mercuri S et al, 2023. San Rafaele Hospital, Milan.

Inspiring technology. Outstanding results.

Leading edge technology
Evidence-based
Less painful
Safe
Fast
User friendly

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