

## My Experiences in Using Autologous Human Hair Follicular Stem Cells (AMT) With Regenera Technology Combination With Platelet Rich Plasma (PRP) for Androgenetic Alopecia Treatments - in Both Male Pattern Hair Loss (MPHL) & Female Pattern Hair Loss (FPHL) in Asian Populations.

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### Abstract:

### Introduction:

Involving using of human hair follicular stem cells combining with Platelet Rich Plasma (PRP) in Androgenetic Alopecia in Both Men and Women that holds a great promise. When the Micrograft (Human Hair Follicles) is added, it pushes the system to undergo remodelling through the Regeneration process by activation of fibroblasts and Mesoangioblasts (vessels associated progenitor cells).

Regenera micro-grafts are 70 - 80 microns dimensions, and each of them are consisting of the components in the Tissue Engineering Triangle; Stromal Vascular Fractions (CD90+/CD105+/CD73+/ Melanocyte progenitor, HFDMSC CD 44+, HFESC CD200+), Extra-cellular Matrix (ECM), and Growth Factors (GF).

Every single micro-graft, after grafting in the wounded tissues, they act as a radio transmitter and the cells in the receiving site as radio receivers. After receiving the activation signal through Growth factors, Extra Cellular Matrix, cells molecules, the cells in the wounded areas start to activate the regeneration process. Apart from the Stromal Vascular Fraction and stem cells, in the micro-grafts, also contains numerous of Growth Factors such as (TGF-beta 1, PDGF-AA, IGF-1, IGFBP- 6/3/2, EGF and bFGF) found within the micro-grafts also play a major role in the regeneration process. The Growth Factors within the micro-grafts activate Erk Pathways, MARK pathways, Epidermal Growth factor receptor signaling pathways and some other cascades in inflammatory regulatory response.

In molecular level, the Regenera micro grafts with through tissue regenerations by as follows;

- ~ increases the matrix production
- ~ increases of Growth Factors
- ~ increases of tissues Neo-angiogenesis
- ~ Modulation of inflammation
- ~ activation of tissue remodeling through biological pathways

The Regenera kit is a FDA approved, CE certified Class I disposable medical device and FMAJ Japan certified medical device. Every Regenera Kit consists of a grid with 100 Hexagonal holes. Any hole is embraced by 6 micro-blades which are designed in such a way for an efficient cutting and soft tissues. So the Regenera Kit is able to reduce the dimensions of the micro grafts up to 80 microns without destroying the cells. In short, it's a platform technology of surgical devices addressed to Micrografts generation.

## Extended Abstract

Advantages: ~ fast preparation of the tissues  
 ~ No cross contaminations by tissues samples

Follicular Stem Cells) and PRP are 2 different technologies . PRP is a blood derivatives, whereby it Does Not contain any stem cells but group of Platelets related growth factors ,

PRP	Regenera Micro Grafts
Blood Derivatives	It's Not a Blood Derivative. Therefore No needling of blood collection No blood manipulation issues
Coagulum Promoter	Micro grafts are not a promoter of the coagulum : they come from the Stromal Vascular Fraction and are Regeneration orientated acting in the Granulation phase
No tissue specific	Micro Grafts are tissue specific ; we collect dermis micro grafts and we grafts back in dermal layer in within 30 minutes
No Region Specific	Regenera Micro grafts are body region specific
Repairing the damaged tissues. No Tissue Regeneration evidence	Biopsy test demonstrated that Micro grafts are able to reactivate the sleeping cells through generation of the new blood vessels while PRP is only able to enlarge the existing blood vessels
Multiple Administration is required	Micro grafts treatment asks for one single micro surgery only .

~ operator safety

In my daily clinical practice , averagely I harvest 6 to 8 pieces of scalp tissues from each side depending on the severity and degree of hair loss , with the help of 2.5 mm skin biopsy puncher ( based of 2 x 2.5 mm of disaggregated tissue in 1.2 ml of NaCl consist of 70,000 cells) . Usually I place 4 pieces of tissues in the regeneracon kit on top of the hexagonal holes and i will make sure the tissues are covered by the blades then add in with 1.2 to 1.5 ml of 0.9 % NaCl solutions , and move on to centrifugation with Regenera device at 80RPM . i would centrifugate the tissues averagely .2 to 5 times depending how well the tissues are being disintegrated. Then I will take out the cellular suspension, I will add in 1.2 ml of 0.9 % NACL into the Regeneracon kit and gently shake it to retrieve the remaining cells before I place the next batch of the scalp tissues to process.The Regenera Micro Grafts ( Autologous Human Gair

whereas Regenera micro-grafts is not a blood derivatives , the micro-graft contains all the components in the Tissue Engineering Triangles: SVF cells , Growth Factors and ExtraCellular Matrix. Regenera Activa Technology is we take a piece of tissue of the Same tissue of origin type that we want to regenerate , that is disaggregated surgically fragmented into 80 microns particles , and the particles are directly engrafted through using a simple needle into the area that wants to be regenerated . Such as ~ Scalp for hair restoration

~ Skin for  
 Vitiligo and scar management  
 ~ Cartilages for  
 bone regeneration  
 ~ Heart  
 regeneration

## Extended Abstract

In my practice , I always like to combined with RegenLab PRP along with Regenera Activa ( AMT) in Hair Loss treatment , I find it gives a synergistic effect in Hair Restoration. I also like to combine with FUE Hair Transplant ; either do the the AMT treatment 2 weeks prior to FUE or performing both AMT and FUE at the same setting . Usually I will inject some over the recipient area to strengthen the implanted hairs , and i will also inject a minimal amount of AMT over the donor area to boost the healing process .For most of my patients , after AMT / AMT and FUE / FUE procedure , I will be covering them with oral medication ( combination of Minoxidil , Finasteride . Biotin , Vit B5, Vit B6, Zn picolinate and Saw Palmetto) and some hair tonics and Minoxidil hair spray .In my daily clinical practice, apart from Trichology , Clinical Assessment and complete Clinical History from a patient are equally important I found. ( base on Norwood Hamilton and Ludwig Classifications ) when it comes to the results and outcome .Apart from that , for most of my patients I would perform a blood screening to rule out other causes that contributed in Hair loss such as underlying blood disorders, nutritional deficiencies , thyroid disorders, infectious disease related hair loss such as syphilis .

To certain female patients I would subject them for abdominal and pelvis ultrasound to rule out some Gynaecological related hair loss such as PCOS . In summary ,in my 5 years of experince in using Regenera Technology , Regenera Autologous Micro-grafts combining with PRP give a promising effective and satisfied results in treating Androgenetic Alopecia in both Male and Female Pattern Hair loss .



#2 years old Female with Female Pattern Hair Loss Stage 1-2 Ludwig Classification

**\* 4 months after single Regenera Activa combining with PRP treatment .**



**\* 2 months after single Regenera Activa combining with PRP treatment .**

Extended Abstract



**\* 9 months after the AMT Treatment**