The visualization of hair follicles by means of NIR (near infrared radiation) induced follicoscope and ultrasound scanner to reduce damage for hair follicles during FUE (follicular unit extraction)

Follicular unit extraction has many advantages which is minimal scar, quicker recovery time but definitely have disadvantages as well. One of them include potential for high hair follicle transection rate. The disadvantage is mostly due to blind harvesting technique. Thus we had been looking for imaging methods which make visible technique possible. One of them is the ultrasound scanner which is 22MHz in frequency and shows structures within the dermis. Through it we found out that there were angle differences between hair shaft out of the skin and hair follicle on the occipital scalp. The results were in 2.8–40.3 degree range and 12.8 degree of average. In addition there were significant differences in the average follicle angle depending on the area of occipital region. Therefore we employed it's data in order to reduce transection rate for graft. But despite ultrasound's great ability, we was not able to harvest the grafts simultaneously while seeing the hair follicle. So we were searching for something to be capable of resolving the problem and lights gave us good idea. NIR is one kind of lights which is 700-2500 nm in wavelength and it is absorbed and reflected by the melanin of the hair shaft, so we could obtain the image of hair follicle. As a result, we can harvest the grafts while looking at the hair follicles through the monitor simultaneously.

Conclusion and significance
While harvesting the hair follicle, we always have potential for transection of it when just depend on blind technique. We have been making much effort to lower transection rate of the follicle and at last we found out NIR follicoscopy and ultrasound skin scanner. They consequently make visible technique possible. Sincerely I hope that you will provide a chance to demonstrate these equipments to participants.

Biography
Dr. Woo Koung Lee has been working as a dermatologic surgeon since 2011. He has participated in lots of domestic and international conferences as a lecturer. He has performed hair transplantation through FUE (follicular unit extraction) or FUSS (Follicular Unit Strip Surgery) for about 1,500 patients during last 6 years and most of them were satisfied with their results.

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