October 15, 2020

HAIRCELL REGISTRY PROTOCOL

Background:

Hair loss, or alopecia, whether focal or effecting a significant portion of the scalp, is a major personal health problem for millions of people around the world. This condition has many causes, and effects people as young as their teenage years. There are many treatments on the market, but most are based on very little if any science, and offer little benefit in most patients.

HairCell is a scientific approach that is based on use of a combination of precise non-invasive microcurrent bioelectric signals to stimulate the scalp to upregulate the expression of specific proteins in the scalp that drive native regeneration including stem cell Recruitment, Proliferation, and Differentiation, as well as growth factors and proteins to stimulate improved blood flow and follicle regeneration to achieve local hair regeneration. This therapy has been used in hundreds of patients for a variety of clinical conditions and proven safe, including now being evaluated as a cancer therapy. All subjects in this study will receive bioelectric stimulation (BES) delivered by a CE Mark and US 510 K FDA approved stimulator as part of their treatment regimen.

In addition to the Bioelectric Stimulation each subject will receive advanced follicular therapy to include use of the pro-regenerative fluid called Platelet Rich Fibrin (PRF) that contains a large number of stem cell growth factors. This fluid is obtained from a small aliquot of the patient's blood that is then centrifuged on site in the clinic, separated from the plasma, and delivered both topically onto the surface of the scalp, and injected into the epidermis of the scalp. The PRF will be moved into the sub-epidermis by use of the Fractional Microneedling device to desired treatment areas. These fluid and micro-needling treatments take place at the initial treatment and then only at months 1 and 2 after treatment start. This PRF fluid is used for a large number of indications and is considered completely safe for this type of delivery and indication.

Study Description:

This is a prospective, non-randomized, open label, Registry study to evaluate the safety and feasibility of bioelectric stimulation plus a series of biologic treatments to the scalp of patients with hair loss to induce hair regeneration. The treatment regimen is detailed below.

Target Number of Patients To Be Enrolled: 50

Number of Enrolling Sites: 10

PROTOCOL:

Inclusion Criteria:

1. Age 18-60 yrs of age of either sex
2. Subjects must be in good health with a BMI < 35.

3. Must have one of two types of hair loss:

A. Significant area of **Hair Thinning** of any etiology

B. **Focal Alopecia** of at least a 3cm x 3cm area on the scalp which shows evidence of hair loss without scarring or traumatic injury

4. Willing to be present for the required treatment sessions.

5. Willing and able to give informed consent and follow study instructions and requirements.

Exclusion Criteria:

1. Use of other treatments to improve hair growth, including topical medications, oral medications, non-ablative fractional laser treatment, low-level laser therapy, inter-follicular PRP(Platelet Rich Plasma) injection, or hair transplantation within the preceding 3 months.

2. History of bleeding disorder

3. Current use of any anti-platelet or anticoagulant medication including aspirin, Plavix, warfarin, or other oral anticoagulant

4. Allergic to lidocaine, epinephrine, cephalosporins, penicillin or chlorhexidine gluconate

5. Individuals with a propensity for keloid scar formation

6. Individuals with diminished decision-making capacity

7. Current Smoking or use of other forms of tobacco.

8. Pregnancy or current breast feeding for females

Study Eligibility:

Any subject who meets all the Inclusion, and none of the Exclusion criteria, will be eligible for participation in this study. Each potential subject will have a brief history and examination performed by the Investigator, and if acceptable, will be provided with an overview of the study and offered an opportunity to review the Consent Form. If they choose to participate, and sign the Consent form, they will be enrolled in the study.

Treatment Regimen and Schedule:

Duration of Each Treatment: 40 minutes

Frequency of Treatments: 2 x's/week for 3 months, then Biweekly x 3 months

Total Treatment Period: 24 weeks

Total Number of Treatments: 30

Location of Each Treatment: Only in the Clinic of the Investigator

Stimulator to be Used: CE Mark and FDA 510K approved Mettler Model 740

PROTOCOL:

Baseline Assessment of Patient Health and Demographics:

This will include completion of a simple questionnaire of current health problems as well as demographics such name and contact information as well as age, gender, race, type of alopecia, area to be treated, previous treatments for this problem, and all current medications.

Screening Test of Bioelectric Stimulation:

All patients enrolled in the study will have a screening test to assure the tolerability of the BES treatment on a peripheral site such as arm or leg, before use on the scalp. This will be done by placement of two patch electrodes for transmitting the micro-current bioelectric energy, which are connected to an FDA 510 K approved Mettler bioelectric stimulation generator that has been previously tested and proven to be capable of delivering the required current. The stimulator will be turned on and run for up to a 20 minute period of escalating micro-currents to the peak output of 1.0 volt to test tolerability in each patient. If there is no significant skin irritation or pain or adverse effect at the end of the test, the patient will be eligible for participation in the study.

Assessment of Hair Quality Before and After Treatment: Aramo ASW

All subjects enrolled in the study will have a detailed analysis of hair quality and density using the non-invasive Aramo ASW machine to include the entire requested treatment area prior to beginning treatment. The evaluation will provide detailed analysis of hair quality and density, as well as the status of the dermis and epidermis of the scalp. The results of this initial evaluation will be compared to an analysis of the same area at the mid-point of therapy, and then again at the end of the treatment period. The results will be read initially by the clinician managing the subject on site, and again by a trained expert in this field not involved in the study. There will be no image of the face obtained and any and all patient identification information excluded. Each participant will receive a study number which will become the primary method of identification during the study and for analysis at the end of the study.

Bioelectric Stimulation: (BES)

Pre-Treatment Assessment:

All enrolled patients will have a test of BES for a period of 20 minutes using the cap that will be used for all treatments. The current of the stimulator will be turned on, and increased to a level that the patient selects as their preferred choice of comfort level which will be used for each treatment. All patients must tolerate the minimum level required for the study in order to be enrolled in the study.

Bioelectric Treatment:

All patients will receive a series of treatments of bioelectric stimulation (BES). The duration of each treatment, which will be at the current selected by each patient in pre-study test, will be for 40 minutes twice/week for 12 weeks, then once biweekly during months 4-6. Each patient will have one treatment of BES one week before starting the full protocol. The signals delivered will

be change approximately every five minutes by the clinic technician to run through a cycle of several pro-regenerative proteins to help enhance hair regeneration, including signals to mobilize local and peripheral stem cells, enhance blood supply, repair damaged or deficient hair follicles, and enhance local tissue expression of collagen and other factors needed for hair growth and regeneration**.**

Delivery Cap:
Each patient will be provided with their own cap to be pulled down over the head to include the treatment area and will contain a set of electrodes. The lead from the cap will be connected to the Mettler stimulator to deliver the Bioelectric Stimulation treatments.

Platelet Rich Fibrin:

Patients will have their own platelet rich plasma (PRF) obtained by having a small aliquot of blood obtained by venipuncture which is then processed in a centrifuge provided by the sponsor, and pulled up into a syringe, and then delivered both topically and by intradermal injection to the desired treatment area of the scalp. This will first be applied topically followed by direct injection into the desired treatment area with a micro-needle. The frequency of the treatments with PRF will be at Baseline, and months 1, 2**,** and 3**.** Patients may elect to receive additional injections on months 4, and 6.

Fractional Micro-needling:

In order to increase the recruitment of stem cells to the area of the scalp to be treated and enhance the penetration of the PRF into the scalp, each PRF treatment will be preceded and followed by use of a fractional micro-needling device used over the desired treatment area with each of these treatments.

NULASTIN Hair Vibrant Scalp Treatment:

Each patient will be given a 6 months supply of NULASTIN Hair Vibrant Scalp Treatment. It is to be applied to the requested area of treatment twice daily morning and evening at home during the whole study.

Grow Comb:
Each patient will be provided a Grow Comb appliance to be used at home daily for 20 minutes daily to enhance the delivery of BES.

PROTOCOL:

Patients will have an Aramo hair analysis obtained once enrolled in the study, and photos taken of the area of skin to be treated.

The patient will then undergo the test of BES applied to a limb for 20 minutes with increasing strength of the current so that each subject can select their preferred current strength to be used for each BES treatment. The current chosen must be at or above the minimum current to be used for this study to be eligible for the study.

The subject will have their first BES treatment one week before the start of the full regimen. At the beginning of the first treatment they will have a small aliquot of blood drawn to prepare a supply of their Platelet Rich Fibrin (PRF), which will used later in the treatment.

The treatment will begin with a period of BES, followed by topical application of PRF followed by injection of PRF and then fractional micro-needling applied over the scalp in the area of treatment. This will be followed by application of a hydrogel cream.

Each subject will be supplied with a Grow Comb and instructions for daily use at home for additional bioelectric stimulation.

At the end of 3 months, repeat photos will be taken to compare to baseline using the Aramo hair analyzer. Patients will then have treatments only biweekly to the end of the treatment period of 6 months when a final set of photos will be taken.

Primary End Point:

Change in the amount of hair growth and density as measured by the Aramo ASW machine taken over the area of desired hair restoration before and after treatment.

Grading Hair Growth:
The subject and the investigator will independently grade their satisfaction with the level of hair growth as Mild, Good, or Very Good. Separately, in a blinded manner to the patient's assessement, the investigator will rely primarily on the results of the Aramo ASW machine for precise quantitative and qualitative of changes in hair density, number and quality of hair follicles, and regeneration pre to post treatment. Photos will then be uploaded and assessed by an independent reader who has been trained in hair regeneration.

Secondary End Points:

Safety and tolerability of the treatment regimen including the incidence and severity of Adverse Effects directly attributed to the treatment to include, but not limited to: local itching, bleeding, bruising, pain, or swelling of the scalp, headache, nausea visual changes, or palpitations. Each subject will have a brief interview inquiring about any adverse effects noted by the subject since enrolling in the study at each follow up session, and an examination by the Principal Investigator for any scalp damage or injury.

Pause/Stopping Rules:

Treatment will be paused for any complaint by the patient of significant pain or discomfort, or local adverse effect. The patient will be allowed to resume treatment after a minimum of seven days.

DataAnalysis:
All patients agree to allow their data, which will be blinded and free of any personal identification to be collated at the end of the study to define the quantitative improvement in all parameters of hair regeneration. Photos and adverse events will be collected for each patient at the specified times during and post treatment and collated when the last enrolled subject has reached the 3 and 6 month post treatment time points. This analysis will be conducted by a statistician not involved in the study.

Additional subjects may be enrolled into the study as approved by the Sponsor.

Equipment needed for this study:

1. Mettler model 240 Bioelectric Stimulator with instructional video
2. Aramo ASW machine for hair analysis, or its equivalent
3. Cap with multiple electrodes inserted inside the cap to be placed over the head to conduct the electrical stimulation into the scalp
4. Bio-PRF centrifuge with blood collection needles and tubes and instructional video
5. Fractional micro needling machine
6. NULASTIN Hair Vibrant Scalp Treatment to be use twice daily at home.
7. Grow Comb for each patient to be used daily at home.