

16-week double-blind randomized controlled clinical trial was conducted to evaluate the effect of the combination therapy of microneedle roller and hair tonic with and without phytosphingosine-1-phosphate on the female pattern hair loss in 36 women. We evaluated the change of total, terminal (more than 40  $\mu\text{m}$  in diameter) and vellus (less than 40  $\mu\text{m}$ ) hair counts with phototrichogram at baseline and 8 and 16 weeks after treatment start. Mean change of hair counts from baseline to 8 and 16 weeks was an increase of 4.2 and 8.8 / $\text{cm}^2$  respectively in phytosphingosine-1-phosphate containing hair tonic group, and 4.1 and 5.2 / $\text{cm}^2$  in control hair tonic group. In addition, mean increases of terminal hair counts at 8 and 16 weeks were 7.1 and 6.8 / $\text{cm}^2$  respectively in phytosphingosine-1-phosphate containing group, and 0.3 and 2.7 / $\text{cm}^2$  in control group. These results suggest that phytosphingosine-1-phosphate may further stimulate the growth of hairs, especially terminal hairs, compared with microneedle roller therapy.

Key Words: Phytosphingosine-1-phosphate, Microneedle, Female pattern hair loss, Androgenetic alopecia

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### The effect of red ginseng on the growth of cultured human hair follicles

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Several recent murine studies showed that ginseng and its bioactive components, saponins, may be beneficial to hair growth promotion. However, the effects on human hair follicles have not yet been elucidated sufficiently. To investigate the effect of red ginseng and its saponins on the hair growth. We determined the proliferation of human dermal papilla cells (hDPCs) using MTT assay. The effect on cultured human hair follicles was assessed by the proliferation of hair matrix keratinocytes with immunofluorescence staining of Ki67. In addition, we investigated the signal changes of hDPCs and the effect on hair growth in C57BL/6 mice. The red ginseng extract, ginsenoside Rb1 and Rg1 increased the proliferation of hDPCs in MTT assays, and upregulated the proliferation of hair matrix keratinocytes in

the cultured human hair follicles. Both red ginseng extract and ginsenoside Rb1 increased the phosphorylation of ERK1/2 in hDPCs. Furthermore, the subcutaneous injection of 3% red ginseng extract resulted in the hair growth similar to that by topical application of 2% minoxidil solution. The red ginseng extract and its ginsenosides may enhance the proliferation of hDPCs, activate the ERK signaling pathway in hDPCs, and upregulate the proliferation of hair matrix keratinocytes. These results suggest that red ginseng may be beneficial for human hair growth promotion.

Key Words: Red ginseng

## P174

### Efficacy of home treatment using diphencycloproprone for alopecia areata : Focused on patients' safety, convenience and economic feasibility

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Immunotherapy using diphencycloproprone (DPCP) is an effective treatment modality for alopecia areata, although there are some troubling side effects as DPCP is a potent contact sensitizer. Hence, most of DPCP immunotherapy is directly conducted by dermatologists at a hospital weekly. However, since alopecia areata usually requires long-term treatment, frequent visiting to a hospital could be a considerable loss of time and money for patients, which might lead to decline in quality of life. To mitigate inconveniences, we performed home treatment which is applying DPCP solution by patients themselves or guardians at home. We retrospectively studied 87 patients with alopecia areata who received home treatment. Sensitization was done by dermatologists at the hospital before starting home treatment. They received sufficient educations regarding application methods and possible side effects. All patients were given the optimal concentration of DPCP solution at each visit. Follow-up at the hospital was done monthly, and the authors assessed clinical features such as regrowth of hair using SALT score, side effects of DPCP immunotherapy and patient's quality of life. The results of this study were compared with that of previously published papers in which DPCP immunotherapy was done at hospitals.

Key Words: Alopecia areata, Diphencycloproprone, Home