10th Meeting of The Korean Hair Research Society

제10차 대한모발학회 학술대회

- 일시 : 2013년 5월 26일(일) 09:00~17:30
- 장소 : 백범김구기념관

대 한 모 발 학 회

초대의 글

Greetings

On behalf of the Korean Hair Research Society (KHRS), I would like to cordially invite you to the 10th Annual Meeting of KHRS on May 26, 2013. For the meeting, we have organized five scientific sessions including hair loss and hair excess, hair stem cell and morphogenesis, updates of hair disorders, what's new in hair clinic and hair research, and free communication. This, a meaningful number of, 10th annual meeting will give us a good opportunity providing new knowledge and perspectives in hair research and clinical trichology.

We invited renowned professors and doctors from all around the world in the field of hair science for this meeting. We express our sincere gratitude to the invited lecturers from all around the world: Regina Betz (Germany), Wilma Bergfeld (USA), Taisuke Ito (Japan) and Chih-Chiang Chen (Taiwan). Also, we would like to thank for the outstanding lecture preparations by domestic lecturers.

I believe the symposium will provide a valuable chance for all participants to learn from and share their insights with other experts on various fields of trichology. We hope the meeting will be a successful one to share not only the latest advances in hair science but also friendship with all participants.

We look forward to seeing many of you at this special event of the 10th KHRS!

May 2013

Do-Won Kim

Do-Won Kim

President of the Korean Hair Research Society

10th Annual Meeting of The Korean Hair Research Society

제10차 대한모발학회 학술대회

일 정 표

Time	Main (Convention B)	Satellite (Underground)
09:00		
09:30	**Session 1** Free Communications (English speaking session) (09:00-10:00)	
10:00	Coffee break and Exhibitions (10:00-10:20)	
10:30	Opening Ceremony (10:20-10:30)	
11:00	**Session 2** Hair Loss and Hair Excess (English speaking session) (10:30-12:10)	
11:30		
12:00		
12:30	Group Photo (12:10-12:25)	
13:00	**Luncheon Symposium & Exhibitions** (Korean speaking session) (12:25-13:30)	**KHRS Board Meeting** (12:25-13:30)
13:30		
14:00	**Session 3** Hair Stem Cell and Morphogenesis (English speaking session) (13:30-15:10)	**Session 5** What's new? : Hair Clinic and Hair Research (Korean speaking session) (13:30-15:10)
14:30		
15:00		
15:30	Coffee break and Exhibitions (15:10-15:40)	
16:00	**Session 4** Update of Hair Disorders (English speaking session) (15:40-17:00)	
16:30		
17:00		
17:30	Closing and General Assembly (17:10-17:30) Cocktail & Canapes (17:30-18:20) (Convention Hall A)	
18:00		
18:20		

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프 로 그 램

[Convention Hall B]

Session 1	**Free Communications** (English speaking session)	Chairs: **Chull Wan Ihm, Hong Jik Kim**
09:00-10:00	Original & Case report	
10:00-10:20	Coffee break and Exhibitions	
10:20-10:30	Opening Address	**Do Won Kim** (*President, KHRS*)
	Congratulatory Address	**Hong Jik Kim** (*President, KDA*)

Session 2	**Hair Loss and Hair Excess** (English speaking session)	Chairs: **Do Won Kim, Won-Soo Lee**
10:30-10:55	Latest news about the genetics of alopecia areata	**Regina C. Betz** (*Germany*)
10:55-11:20	Androgen excess and hair growth	**Wilma Bergfeld** (*USA*)
11:20-11:45	Recent advances in the pathogenesis of alopecia areata	**Taisuke Ito** (*Japan*)
11:45-12:10	Algorithmic approach for management of pattern hair loss	**Won-Soo Lee** (*Yonsei Wonju University*)
12:10-12:25	Group Photo	

Luncheon Symposium	(Korean speaking session)	Chair: **Hyung Ok Kim**
12:25-13:30	Efficacious and safe management of scalp diseases using 0.05% clobetasol propionate shampoo (Clobex® shampoo)	**Weon Ju Lee** (*Kyungpook University*)

Session 3	**Hair Stem Cell and Morphogenesis** (English speaking session) Chairs: **Chang Kwun Hong, Young Chul Kye**
13:30-13:55	Multi-layered environmental regulation on the homeostasis of stem cells **Chih-Chiang Chen** (*Taiwan*)
13:55-14:20	Role of keratin 15 in hair growth **Chang Deok Kim** (*Chungnam National University*)
14:20-14:45	Age related expression changes of Wnt signaling associated genes in human hair follicle **Won-Seok Park** (*AMOREPACIFIC R&D CENTER*)
14:45-15:10	Neofolliculogenesis using hair patch assay and lesson from epidermal stem cells **Kyoung Chan Park** (*Seoul National University*)
15:10-15:40	Coffee break and Exhibitions

Session 4	**Update of Hair Disorders** (English speaking session) Chairs: **Byung In Ro, Woo Young Sim**
15:40-16:00	Lichen planopilaris update **Wilma Bergfeld** (*USA*)
16:00-16:20	Pattern hair loss **Gwang Seong Choi** (*Inha University*)
16:20-16:40	Identification of genes for hypotrichosis simplex **Regina C. Betz** (*Germany*)
16:40-17:00	Hair and nail : similarities and differences **Dong-Youn Lee** (*Sungkyunkwan University*)

[Educational Room] (underground)

12:30-13:30 KHRS Board Meeting

Session 5	**What's New? : Hair Clinic and Hair Research** (Korean speaking session) Chairs: **Jin-Soo Kang, Si Yong Kim**
13:30-13:50	New therapeutic devices for hair loss **Beom Joon Kim** (*Chungang University*)
13:50-14:10	Dermoscopy in hair clinic **Moon Bum Kim** (*Pusan National University*)
14:10-14:30	Developing and interesting therapeutic options **Yang Won Lee** (*Kunkook University*)
14:30-14:50	Hair growth related genes **Oh Sang Kwon** (*Seoul National University*)
14:50-15:10	Sebaceous gland and hair follicle **Weon Ju Lee** (*Kyungpook University*)

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목 차

Free Communication

[Original & Case report]

[Posters]

SESSION 1

Free Communications

(English speaking session)

The Korean Hair Research Society

O1

Klotho expression pattern in human scalp skin and hair follicles

Long-Quan Pi[1], Xing-Hai Jin[1], Sungjoo Tommy Hwang[2], Won-Soo Lee[1]

[1]Department of Dermatology and Institute of Hair and Cosmetic Medicine, Yonsei University Wonju College of Medicine, Wonju, Korea.
[2]Dr. Hwang's Hair-Hair Clinic, Seoul, Korea

Klotho is a newly identified anti-aging protein that plays a pivotal role in regulating ageing. However, whether klotho expresses in human hair follicles (HFs) and whether klotho expression correlates with hair growth have not yet been clearly shown. In this study, we examined the expression of klotho in human scalp skin, human HFs and its expression change in organ cultured human HFs using reverse transcriptase-polymerase chain reaction and immunofluorescence. Klotho was expressed in human scalp skin and HF both gene and protein levels. In human scalp skin, prominent klotho expression was observed in the epidermis. Klotho expression in the epidermis was increased with keratinization from basal layer to stratum corneum. In human anagen HFs, prominent klotho expression was observed in the epithelium. Klotho expression in the epithelium was increased with keratinization in henle layer and hair cuticle. In human catagen HFs, klotho expression was observed in epithelial strand. Altogether, these results indicate that klotho might be an important regulatory factor for human hair growth and hair cycle change.

O2

Topical valproic acid increases the hair count in male patients with androgenetic alopecia

Seong Jin Jo[1,2], Hyoseung Shin[1,2], Seung Hwan Paik[1,2], Young Woon Park[1,2], Won Seok Park[3], Yeon Su Jeong[3], Hong Ju Shin[3], and Oh Sang Kwon[1,2]

[1]Department of Dermatology, Seoul National University College of Medicine, Seoul, Republic of Korea,
[2]Institute of Human-Environment Interface Biology, Medical Research Center, Seoul National University, Seoul, Republic of Korea,
[3]Advanced Hair Research Laboratory, R&D Center, AmorePacific Corp., Gyeonggi-do, Republic of Korea

Valproic acid (VPA), a widely used anticonvulsant, inhibits glycogen synthase kinase 3β and activates the Wnt/β-catenin pathway, which is associated with hair growth cycle and anagen induction. The aim of this study was to assess the efficacy of topical VPA for treating androgenetic alopecia (AGA). This was a randomized, double-blind, placebo-controlled clinical trial. Male patients with moderate AGA underwent treatment with either VPA (sodium valproate, 8.3%) or placebo spray for 24 weeks. The primary endpoint for efficacy was the change in hair count during treatment, which was assessed by phototrichogram analysis. Of the 40 patients enrolled in the study, 27 (15, VPA gruop; 12, placebo group) completed the entire protocol with good compliance. No statistical differences in age, hair loss duration, and total hair count at baseline were found between the groups. The mean change in total hair count was significantly higher in the VPA group than in the placebo group (P = 0.047). Both groups experienced mostly mild and self-limited adverse events, but and their differences in prevalence rates were similar between the two groups (P = 0.72). A subject treated with topical VPA developed ventricular tachycardia, but it did not seem to be related to the VPA spray. Therefore, topical VPA increased the total hair counts of our patients; therefore, it is a potential treatment option for AGA.

O3

Transient rectangular alopecia after fluoroscopic imaging and coiling of cerebral aneurysm

Dong-Yeob Ko, Seung-Hwan Choi, Seung-Min Ha, Su-Young Jeon, Ki-Hoon Song, Ki-Ho Kim

Department of Dermatology, College of Medicine, Dong-A University

Endovascular procedures such as fluoroscopic imaging and coiling s are now widely applied in vascular interventional neuroradiology, but there are few reports about the cutaneous adverse effects in this field. The patients with complex vascular anomalies are subjected to higher doses and longer exposures of radiations than usual cases, and the cases of endovascular procedures continues to increase explosively. A two Korean person presented with rectangular shape bald patch without erythema or other sign of dermatitis on occiput after fluoroscopic imaging and coiling of cerebral aneurysm. Results of the light hair pull test were normal around the hairless patches on occiput and any familial history of alopecia areata were not noted. Hair loss on the occiput was noted about 3 weeks after the coiling procedure. The estimated radiation exposure dose was approximately 3.8 Gy during the procedures. Hence, the patient was diagnosed as radiation- induced transient rectangular alopecia after coiling procedure. After 4 months, complete hair re-growth had occurred partly by help of topical cyclosporine without any sequelae. Radiation-induced transient alopecia develops after a single short term exposure to 3 to 6 Gy of irradiation. The alopecic lesion shows permanent change generally around the dose of 7 Gy. Side effects, especially alopecia, suddenly rise with increasing dose and duration of radiation beyond a certain threshold. Therefore, the dose-reducing techniques are needed in the prolonged or complex procedures such as fluoroscopic imaging, coiling and dermatologists have to keep in mind this strange-appearing rectangular alopecia can occur as a transitory adverse events of fluoroscopic imaging and coiling.

O4

Hair growing effect of mycophenolic acid can be enhanced by microneedle roller stimulation

Hong Jin Joo[1], Kwanho Jeong[1], Hyunju Yoo[1], Joo Hyun Lee[1], Jung Eun Kim[1], Beom Joon Kim[2], Young Min Park[1], Hoon Kang[1]

[1]Department of Dermatology, College of Medicine, The Catholic University of Korea, Seoul, Korea
[2]Department of Dermatology, College of Medicine, Chung-Ang University, Seoul, Korea

Mycophenolic acid (MPA) acts as a cell cycle inhibitor that produces reversible noncompetitive blockade of the purine synthesis pathway enzyme type II isoform of inosine monophosphate dehydrogenase (IMPDH). The major target of MPA is lymphocyte which contains abundant IMPDH. Among several kinds of hair loss disorders, lymphocytic cicatricial alopecia and alopecia areata are most representative hair loss conditions induced by T lymphocyte attack to the hair follicle. Disk type microneedle roller is a procedure which stimulates the skin to produce new collagen formation and to help cell revitalizing. Previously study, we found the direct effect of microneedle roller on hair growth. The aim of this study was to investigate whether mycophenolic acid (MPA) has hair growing effect directly without the influence of de novo purine biosynthesis. Furthermore we want to evaluate the additive effect of microneedle roller stimulation Hair growing after microneedle stimulation on the mouse dorsal skin was evaluated with photograph and hand held digital microscope. To examine hair follicles status and its related growth factors, skin specimens were obtained by excision biopsy from the dorsal aspect of each mouse. Tissue samples were utilized for the immunohistochemistry and RT-PCR study. MPA plus microneedle roller applied groups showed strongly increased gene expressions compared with control in the RT-PCR. In histological assay, microneedle roller plus MPA and minoxidil groups induced the formation of hair follicles compared with only MPA and minoxidil topically applied groups. Microneedle roller plus MPA on the mouse skin demonstrated similar effect compared to 5% minoxidil. If we adjust and select the proper usages of microneedle roller, it might be one of the therapeutic options for the treatment of hair loss.

O5

Histopathological features of the scalp in androgenetic alopecia

Gue In Choi[1], Hye In Choi[1], Hyung Won Kim[1], You In Cho[1], Young Lee[2], Chang Deok Kim[2], Jeung Hoon Lee[2], Young Ho Lee[1]

Departments of [1]Anatomy and [2]Dermatology, School of Medicine, Chungnam National University

Androgenetic alopecia (AGA) is highly heritable condition and the most common form of hair loss in humans. Although androgens are known to be the primary cause of AGA, the actual mechanism is not known yet. Hair follicle microinflammation with activated T cells and macrophages in the upper third of the hair follicles, perifollicular fibrosis, and hyperplasia of sebaceous gland in the hair follicles are found in regions of actively progressing alopecia, but it is not enough to explain histopathological features of AGA with previous study. We performed H-E, Fontana-Masson, and oil red O stains, and immunohistochemistry for nestin, a type IV intermediate filament, and brain derived neurotrophic factor (BDNF), a hair growth inhibitor, in the scalp of AGA, and found new histopathological features in the AGA scalp. The balding (frontal) scalp was thinner, have fewer adipocytes around the hair follicles, and more melanin pigments in the dermal papilla (DP) of the hair follicles, compared with the non-balding (occipital) scalp. Unexpectedly, nestin immunoreactivity was increased in the DP of the balding hair follicles, compared with the non-balding hair follicles. BDNF immunoreactivity was also increased in the inner root sheath, not in the DP, of the balding hair follicles, compared with the non-balding hair follicles. The precise molecular mechanism and biological significance of the histopathological features of AGA scalp remains to be determined with various points of view and method including cell biological study.

O6
Therapeutic effect of 308nm excimer laser on alopecia induced C3H/HeJ mice

Jong Hyuk Moon, Chan Yl Bang, Min Ji Kang, Hyo Jin Kim, Ji Won Byun, Jeonghyun Shin, Gwang Seong Choi

Department of Dermatology, College of Medicine, Inha University, Incheon, Korea

Eximer laser which induces apoptosis of T cell is used to treat various skin disease. There are many case reports about excimer laser therapy for alopecia areata but there has not been a domestic paper which suggests theoretical basis yet. Thus, we have done a comparative analysis in histopathologic findings and the level of serum cytokine after 308nm excimer laser therapy using an animal model to suggest the objective evidence about the therapeutic effect of excimer laser therapy.

We measured the minimal erythema dose (MED) of the skin of back of about 6.5-week-old , alopecia-induced 5 C3H/HeJ mice and had radiated the 308nm excimer laser on only right side of the alopecic patch twice a week for 12weeks. We took venous blood samples from the mice before and after the 12-week-laser therapy and evaluated serum cytokine using Quantibody array kit. We also performed skin biopsies and the tissue samples were checked for the number of follicles, change of perifollicular inflammatory cells and nerve fibers and activity of mast cells by 3 dermatologist and pathologist using H&E, CD4, CD8, CD56, substance P and mast cell tryptase stain. The control group is the left side of alopecic patch which are left without excimer laser therapy.

1. The growth of hair is clinically observed from 3 mice of 5 mouse.
2. The increase of the number of follicles and the decrease of the number of perifollicular inflammatory cells are observed.
3. By immunostaining, perifollicular infiltration of CD4+ and CD8+ T cell is decreased and the change of CD56+ NK cell is not definite. Any change of nerve fibers which responds to substance P is not observed and activation of mast cell, either.
4. After excimer laser therapy, IGF-1, IL-12, IL-13, IL-2 and IL-4 of all the three mice are decreased and IL-17 is increased.

From the results above, we suggests that 308 nm excimer laser therapy induce the decrease of perifollicular infiltration of CD4+T cell and CD8+ T cell by decreasing the level of IL-2 and IL-12 and apoptosis of T cell and this induces the regrowth of hair on the alopecic patch.

O7

Apoptosis causes inactivation of VDR in human hair DPCs and human keratinocyte through VDR ablation

So Young Kim[1,2], Min Young Kim[1], Byung Cheol Park[3], Kapsok Li[1], Beom Joon Kim[1,2], Myeung Nam Kim[1], Chang Kwun Hong[1]

[1]Department of Dermatology, Chung-Ang University College of Medicine, Seoul 156-756, Korea
[2]Department of Convergence Medicine and Pharmaceutical Biosciences, Graduate School, Chung-Ang University, Seoul, Korea,
[3]Department of Dermatology, Dankook University College of Medicine, Cheonan, Korea

Vitamin D receptor (VDR) is a ligand-dependent transcription factor that mediates regulating epidermal homeostasis and hair growth. In contrast, VDR ablation not permitted to maintaining normal hair follicle. Recently studies, we found that VDR was decreased alopecia areata (AA) and alopecia universalis (AU) lesions compared to non-lesion in patients. This study studied, we investigated that the mechanism of VDR in cultured human hair dermal papilla cells (DPCs) and human keratinocyte. Cell viability was assessed by MTT assay. We performed the expressions level of VDR, β-catenin, Wnt3a, Wnt5a and Wnt10b by Western blot analysis. Also, VDR silencing was conducting using small interfering RNA (siRNA) for VDR in human hair (DPCs) and human keratinocyte. Also, VDR and cleaved caspase-3 expressions were determined using immune-fluorescence assay. (This research was supported by Basic Science Research Program through the National Research Foundation of Korea (NRF) funded by the Ministry of Education, Science and Technology (2010-0021960)) We showed that VDR expressed in human hair dermal papilla cells (DPCs) and human keratinocyte. Lithocholic acid (LCA) is a ligand of the vitamin D receptor (VDR), LCA treatment induced up--regulated expression of VDR and enhanced cell proliferation in a dose-dependent manner. We also showed that VDR silencing down-regulated of protein VDR and β-catenin and attenuated expressions level of the VDR in both cells. Moreover, we found that VDR silencing dramatically decreased the viability, whereas co-administration with LCA was significantly restored the viability, which are associated with VDR-repressed by LCA. Correspondingly, immune- fluorescence analysis showed that VDR silencing activated cleaved caspase-3 in human keratinocyte. These results indicate that VDR plays a critical role in human hair DPCs and human keratinocyte cell survival.

SESSION 2

Hair Loss and Hair Excess

(English speaking session)

The Korean Hair Research Society

Latest news about the genetics of alopecia areata

Regina C. Betz, M.D.

Institute of Human Genetics, University of Bonn, Bonn, Germany

Alopecia areata (AA) is a non-scarring, reversible, and circumscribed disorder of hair loss with a sudden onset and recurrent course. The site predominantly affected by AA is the scalp, although all hair-bearing areas of the skin may be affected. Episodes of hair loss typically start with isolated hairless patches which progress centrifugally and which may coalesce.AA is the second most common cause of hair loss after androgenetic alopecia and one of the most common autoimmune disorders in humans. The lifetime risk has been estimated to be around 1.7 % with similar rates in both sexes and no evidence for a peak incidence in any specific age group. There is general agreement, however, that the genetic basis of AA in the majority of patients appears to be multifactorial with both genetic and exogenic influences.

Many molecular-genetic studies of AA have been performed with the aim of identifying genes that contribute to disease susceptibility. We have one of the largest samples of AA patients available worldwide, which currently includes a total of almost 2,000 individuals of middle European origin. Through candidate gene studies we have been able to demonstrate the contribution of the HLA-complex and the genes PTPN22, TRAF1/C5, CTLA4, IL2RA, and the TNF/LTA locus to disease risk.

Recently, the first GWAS of alopecia areata (AA) was conducted in a North-American sample. We therefore aimed to perform a follow-up association analysis to confirm five of these eight loci (SNPs from three regions were not included as they had been identified in previous results from our laboratory) and to test 12 other loci from the GWAS, which did not surpass the threshold for genome-wide significance. Association was confirmed for all of the five loci with previously reported genome-wide significance. To detect robust evidence of association among the 12 other loci, a meta-analysis of the present association data and those of the recent GWAS was performed. Genome-wide significant association was found for rs20541 (P_{comb} = 7.52 x 10^{-10}; odds ratio (OR) = 1.30 (1.23–1.38)) and rs998592 (P_{comb} = 1.11 x 10^{-11}; OR = 1.28 (1.21–1.36)), thus establishing IL-13 and KIAA0350/CLEC16A as new susceptibility loci for AA with genome-wide significance. Interestingly, both genes are known as susceptibility loci for other autoimmune diseases, supporting the hypothesis of shared pathways for autoimmune susceptibility.

[CURRICULUM VITAE]

Regina C. Betz, M.D.
Institute of Human Genetics, University of Bonn, Bonn, Germany

Career :

Studied medicine at the Universities of Saarland and the Karolinska Institute, Stockholm. She was postdoctoral fellow at the Universities of Stockholm, Freiburg, Bonn and Antwerp before she started her Emmy Noether young investigator research group in 2004 at the Institute of Human Genetics at the University of Bonn. She acquired her medical specialisation (board certified) in Human Genetics in 2007.In 2010, she was appointed as Heisenberg Professor for Dermatogenetics in Bonn. Her particular research focus is dermatogenetics, with a main interest in diverse forms of monogenic and genetically complex alopecias. The work of Prof. Betz was rewarded by a number of prizes and awards and is documented in more than 80 publications, among them several publications in high ranking international journals (e.g.Nature Genet, Am J Hum Genet, J Invest Dermatol)

Androgen excess and hair growth

Wilma Bergfeld, M.D.

Dermatology and Pathology, Cleveland Clinic, Cleveland, Ohio USA

Androgen excess in females is a syndrome with specific clinical signs of seborrhea, acne, hirsutism and alopecia (SAHA) and is associated with metabolic syndrome and PCOS. The general onset is at puberty and is heralded by the elevation of the adrenal androgen, DHEAS. Androgen excess is commonly observed in the dermatology patient and should be easily recognized, evaluated and treated by the dermatologist. The presentation will stress the medical importance of early diagnosis, the health risks and the current therapies.

[CURRICULUM VITAE]

Wilma Bergfeld, M.D.

Professor, Dermatology and Pathology, Cleveland Clinic, Cleveland, Ohio USA

Education :

1956-1960	College of William and Mary, BS
1960-1964	Postgraduate, Temple University Medical School, MD
1964-1965	Internship, Cleveland Clinic Hospital
1965-1968	Fellowship, Dermatology, Cleveland Clinic Foundation, Earle Osborne Dermatopathology Fellow
1971-1972	AFIP with Elson B Helwig MD(1.5 years)

Career :

2009-current	Consultant to the Devise advisory committee
2011-2014	President of North American Hair Research Society
2008-9	President of the American Society of Dermatopathology
1992	President of The American Academy of Dermatology
1992-97	Cleveland Clinic's Board of Governors and Board of Trustees
1990	President of the Cleveland Clinic Staff

Recent advances in the pathogenesis of alopecia areata

Taisuke Ito, Ph.D.

Department of Dermatology, Hamamatsu University School of Medicine, Hamamatsu, Japan

Alopecia areata (AA) is now widely regarded to an organ-specific and cell-mediated autoimmune disease. Although detailed pathomechanisms are still need to be clarified, several lines of evidence suggest that peptides derived from melanogenesis-associated autoantigens expressed only by melanin-producing anagen HFs are persuasive candidates as key autoantigens in AA. In the lesion of AA,T lymphocytes densely surround lesional hair bulbs, which is histologically referred to as "swarm of bees". This unique pathological change implicates the autoimmune attacking against hair follicle autoantigens. Normal anagen hair follicles enjoy a relative "immune privilege" (IP). Hair follicle IP (HF-IP) appears to restrict auto-antigen presentation by downregulation of MHC class I and β2-microglobulin molecules and by the maintain of animmunoinhibitorysignalling milieu. Some inducer such as virus infection may induce the collapse of HF-IP by ectopic production of IFN-g. Actually, we faced several cases of the AA patients caused by swine flu virus infections. This excessive expression of IFN-g may induce CXCL10 production that accumulates $CXCR3^+$ cells. Recently, we reported that the infiltrating cells around hair bulbs are mainly composed by $CXCR3^+CD4^+$ Th1 cells and $CXCR3^+CD8^+$ Tc1 cells. These cells show higher velocity toward CXCL10 in AA patients compared to that of healthy donors by chemotaxis assay with EZ-TAXScan. In addition to Tc1 and Th1 cells, $NKG2D^+CD8^+$ T cells/NK cells also play an important role for the pathogenesis of AA. We have shown the infiltration of $NKG2D^+$ cells in and around HFs in AA lesions. MICA, the ligand for NKG2D, is also highly expressed on outer root sheath of HFs. This result is also supported by a genome-wide association study.

In this session, the recent advances of the pathogenesis of AA will be summarized, and the candidate of future therapy for AA is going to be introduced for the participants in this nicely arranged and fantastic 10th meeting of KHRS.

[CURRICULUM VITAE]

Taisuke Ito, Ph.D.

Assistant Professor of Department of Dermatology,
Hamamatsu University School of Medicine, Hamamatsu, Japan

Education & Career :

1995. 3	Graduate from University Occupational and Environmental Health, Kitakyushu, Japan
1995. 5	Department of Dermatology, Hamamatsu University School of Medicine, Hamamatsu, Japan
1996. 6	Shizuoka General Hospital, Shizuoka, Japan
1997. 9	Department of Dermatology, Hamamatsu University School of Medicine
2002.1-2004.1	Department of Dermatology, Hamburg University (Prof. Ralf Paus), Hamburg, Germany
2004. 2	Department of Dermatology, Hamamatsu University School of Medicine
2006. 4	Assisstant Professor of Department of Dermatology, Hamamatsu University School of Medicine

Section editor of "Journal of Dermatology"
The councilor of Japanese Society for Investigative Dermatology

Algorithmic approach for management of pattern hair loss

Won-Soo Lee, M.D., Ph.D.

Department of Dermatology and Institute of Hair & Cosmetic Medicine
Yonsei University Wonju College of Medicine, Wonju, Korea

The aim of treatment of pattern hair loss (PHL) is to increase scalp coverage or to retard the progression of hair thinning, or both. There are effective medical treatments available currently for some men and women with PHL, but clearly further treatment options are desired, particularly for women with female pattern hair loss. Agents used to treat PHL may be nonspecific biologic response modifiers that enlarge suboptimal hair follicles regardless of the underlying pathophysiologic process, androgen blockers to interrupt the 5a-reductase enzymes, or androgen receptor protein inhibitors to specifically block the binding and transport of androgens to the cell nucleus. The purpose of this lecture is to provide current information on an approach to the evaluation and medical treatment of pattern hair loss. This lecture discusses therapeutic options with current and emerging treatment modalities. Also management strategies for PHL will be covered in a setting of an algorithmic evaluation of pattern hair loss based on newly designed classification system, named Basic and Specific (BASP) classification.

[CURRICULUM VITAE]

Won-Soo Lee, M.D., Ph.D.

Education & Career :

1979-1985	Yonsei University College of Medicine, Seoul, Korea (MD)
1985-1989	Dermatologic Residency, Severance Hospital, Yonsei University College of Medicine, Seoul, Korea (Dermatologist, Korean Board of Dermatology)
1986-1992	Yonsei University Graduate School of Medicine, Seoul, Korea (PhD)
1992-2004	Research fellow, Instructor, Assistant, Associate Professor of Dermatology, Yonsei University Wonju College of Medicine, Wonju, Korea
1996-1998	Visiting Clinical Assistant Professor, Department of Dermatology, University of Minnesota, Minneapolis, USA
2006-2008	Korean Society of Cosmetic Dermatology, Secretary General
2007-2011	Executive board, Publication Chairman, 2011 World Congress of Dermatology

Current Position :

2004-present	Professor, Department of Dermatology, Director, Institute of Hair and Cosmetic Medicine,
2012-present	Chairman, Department of Dermatology, Yonsei University Wonju College of Medicine, Wonju, Korea
2008-present	Korean Hair Research Society, Secretary General
2010-present	Asian Regional Editor, International Journal of Trichology
2010-present	Congress President, 2014 World Congress for Hair Research

Summary of Academic Activities :

More than 180 peer-reviewed scientific publications including over 80 SCI publications
More than 60 international invited lectures and 160 domestic invited lectures
Fifteen academic awards internationally and domestically including

- Best Research Poster Award. 16th European Hair Research Society (2012. 6. Barcelona, Spain)
- Woo-Am Academic Award. Korean Society for Investigative Dermatology (2008. 3)
- Excellent academic faculty award. Yonsei University (2005. 3)
- Best Clinical Poster Award. International Meeting of Hair Research Societies. (1997. 7. Melbourne, Australia)
- Young Investigator Award. Tricontinental Meeting of Hair research Societies. (1995. 10. Brussels, Belgium)

Luncheon Symposium

(Korean speaking session)

The Korean Hair Research Society

Clobetasol propionate and seborrheic dermatitis

Weon Ju Lee, M.D.

Department of Dermatology, Kyungpook National University School of Medicine

Seborrheic dermatitis is a common dermatosis associating hyperseborrhea, erythema, itching, and dandruff occurring on the scalp. Malassezia furfur infection seems to be one of important causative factors in the development of seborrheic dermatitis, and causes inflammation by still poorly defined mechanisms. Seborrheic dermatitis tends to relapse after treatment. Treatment of seborrheic dermatitis usually consists of corticosteroids or antifungals, such as ketoconazole. The efficacy and safety of clobetasol propionate shampoo 0.05% for seborrheic dermatitis will be discussed in the presentation. An application of clobetasol propionate for a short time period provides effective and safe results in the treatment of seborrheic dermatitis of the scalp.

[CURRICULUM VITAE]

Weon Ju Lee, M.D.

Education :

1986-1992 Bachelor's degree: Kyungpook National University School of Medicine
1993-1995 Master's degree: Kyungpook National University School of Medicine
2001-2004 Doctor's degree: Kyungpook National University School of Medicine

Postgraduate Training :

1992-1993 Kyungpook National University Hospital, Internship
1993-1997 Department of Dermatology, Kyungpook National University Hospital, Residency

Past Career :

2000-2004 Chuncheon Sacred Heart Hospital, Department of Dermatology, College of Medicine, Hallym University, Assistant Professor
2007-2009 Department of Dermatology, University of Michigan, Research Fellow

Professional Affiliations :

A board director of the Korean Society for Skin Barrier Research
A board member of the Korean Society for Acne Research
A board member of the Korean Society for Investigative Dermatology
A board member of the Korean Society for Medical Mycology
A board member of the Korean Medical Society for Cosmetics
An editorial board member of the Korean Dermatological Association
A member of the Korean Hair Research Society

SESSION 3

Hair Stem Cell and Morphogenesis

(English speaking session)

The Korean Hair Research Society

Multi-layered environmental regulation on the homeostasis of stem cells

Chih-Chiang Chen, M.D.

Department of Dermatology, National Yang-Ming University, Taipei, Taiwan

The hair follicle is a great model in studying stem cell regeneration and aging owing to the characteristic features that it can undergo cyclic bouts of degeneration and regeneration throughout life. Stem cell homeostasis has been thought to be mainly regulated by signals from their adjacent micro-environment named the "stem cell niche". The activation of hair stem cells is associated with periodic Wnt/β-catenin signal emitted from dermal papilla, the so called niche. However, base on our previous researches which identify the periodic extra-follicular expression of Bmp2 could regulate the activation of hair stem cell, we introduce the concept that the extra-follicular macro-environment could regulate the stem cell activity. In addition, our recent study also support this idea through discovering that some Wnt signaling inhibitors, including Dkk1 and Sfrp4, which are cyclically expressed in the intra-dermal adipose tissue enable to inhibit the activation of hair stem cells. Not only inhibitors, other group also reveals that the extra-follicular macro-environment, can induce anagen re-entry through releasing the activator PDGFA by the adipocyte precursor cells located in the extra-follicular dermal region. Furthermore, there are some more evidences indicated that not only intra-dermal adipose tissue, hair stem cells could also be modulated by multiple layers of environment, including body hormone status, immune function, neural activities, aging, circadian rhythms and changing seasons. The interactive networks of these environmental factors provide new understanding on how stem cell homeostasis is regulated, inspiring new insights for regenerative medicine. Therapies do not necessarily have to be achieved by using stem cells themselves which may constitute a higher risk but by modulating stem cell activity through targeting one or multiple layers of their micro- and macro-environments.

[CURRICULUM VITAE]

Chih-Chiang Chen, M.D.

Lecturer, Department of Dermatology, National Yang-Ming University, Taipei, Taiwan

Education & Career :

1991.9-1998.7 M.D., National Yang-Ming University, Taipei, Taiwan
2000.5-2004.4 Residency, Department of Dermatology, Taipei Veterans General Hospital
2004.5-2006.4 Attending physician, Department of Dermatology, Taoyuan Veterans Hospital
2008.6-2010.7 Visiting Scholar, Department of Pathology, University of Southern California, USA
2006.5-present Attending physician, Department of Dermatology, Taipei Veterans General Hospital

Present Position :

Lecturer, Department of Dermatology, National Yang-Ming University, Taipei, Taiwan
Attending physician, Department of Dermatology, Taipei Veterans General Hospital, Taipei, Taiwan

Role of keratin 15 in hair growth

Chang Deok Kim, M.D.

Department of Dermatology, Chungnam National University

Hair growth cycle is regulated by hair follicle stem cells in bulge region. Many investigators have identified the hair stem cell markers that are used for purification and analysis of hair follicle stem cells. For example, CD34, α6 integrin and keratin 15 have been used successfully to understand the stem cell behavior in many experimental animal models. In this study, we investigated the putative roles of keratin 15 in hair growth using keratin 15 knockout mouse. FACS analysis showed that CD34 positive, α6 integrin negative cell population was decreased in keratin 15 mice. However keratin 15 knockout mice showed normal phenotype and there was no obvious difference in hair growth compared to normal mice. Real time RT-PCR analysis showed that keratin 16 and keratin 17 were increased in CD34 positive, α6 integrin positive cells of keratin 15 knockout mice. These results suggest that other keratin molecules may compensate the function of keratin 15 in the absence of keratin 15 gene.

[CURRICULUM VITAE]

Chang Deok Kim, M.D.

Department of Dermatology, Chungnam National University

Education :

1986.3-1990.2	Department of Zoology, School of Natural Sciences, Seoul National University, Seoul, Korea (BS)
1990.3-1992.2	Department of Molecular Biology, School of Natural Sciences, Seoul National University, Seoul, Korea (MS)
1992.3-2002.8	School of Biological Sciences, Seoul National University, Seoul, Korea (PhD)

Career :

1992.1-2001.1	LG Household & Health Care Ltd., Daejeon, Korea (Researcher)
2002.9-2003.8	OBM Lab Ltd., and Oriental Medical College of Daejeon University, Daejeon, Korea (Researcher)
2003.9-2006.2	Department of Dermatology, School of Medicine, Chungnam National University, Daejeon, Korea (Postdoctoral researcher)
2006.3-present	Department of Dermatology, School of Medicine, Chungnam National University, Daejeon, Korea (Assistant professor)

Age related expression changes of Wnt signalling associated genes in human hair follicle

Suna Kim, Ahreum Kim, Won-Seok Park

AMOREPACIFIC R&D Unit, Yongin-si, Republic of Korea

The effect of age on various features of scalp and hair shaft, for example, hair loss, hair graying and hair luster reduction have been previously investigated. However, the mechanism and key regulators of hair aging process were largely unknown. This study aimed to determine the crucial genetic factors of hair aging in human hair bulb area using microarray analysis. We collected ten scalp hairs plucked from the vertex area of each subject of 26 young (22–29 years) and 29 old (61–69 years) Korean women. Total RNAs isolated from the hair bulb region were pooled in two age groups as young (20s) and old (60s). The gene expression profile of the hair bulb area of each group was analyzed using microarray (Affymetrix GeneChip® Scanner 3000 7G) and real-time PCR. From 54,675 human genome probes, 1179 genes showed >2-fold differential expressions with aging including 649 up-regulated and 530 down-regulated genes. Among the changed genes, the expression of five genes associated with Wnt signaling pathway, *WIF1, DKK3, FRZB, SHH* and *GSK3B,* confirmed with real-time PCR. As a result, three genes known as Wnt inhibitors, *WIF1, DKK3* and *FRZB*, showed consistent increasing expression pattern in aged hair bulb area. In conclusion, Wnt pathway in normal hair might be inactivated with aging following aging related hair loss or senescent alopecia. This study suggested that Wnt signaling pathway plays important role in hair aging as well as hair development. Further studies are required to understand the specific role of Wnt-related genes on hair follicle aging.

[CURRICULUM VITAE]

Won-Seok Park, M.D.

AMOREPACIFIC R&D Unit, Yongin-si, Republic of Korea

Education :

2005.7-present	Ph.D. in Department of Dermatology, Seoul National University College of Medicine, Seoul, Korea
1995.3-1997.2	M.S. in Food and Biotechnology, Yonsei University, Seoul, Korea
1991.3-1995.2	B.S. in Food and Biotechnology, Yonsei University, Seoul, Korea

Research Career :

2011.1-present	Team manager in Aesthetic Research Team, AmorePacific Co. R&D Center, Yong-in, Seoul, Korea
2003.9-2010.12	Team manager in dermatologic drug research team, AmorePacific Co. R&D Center, Yong-in, Seoul, Korea
2000.4-2009.2	Researcher in skin research institute & pharmaceutics institute, AmorePacific Co. R&D Center, Yong-in, Seoul, Korea
1997.1-2000.3	Researcher, Lotte Central R&D Center, Seoul, Korea
1993.8-1995.2	Undergraduate Researcher, Dep. of Food and Biotechnology, Yonsei University, Seoul, Korea

Major Interest :

Hair biology, Aesthetic dermatology, Cosmeceutical

Neofolliculogenesis using hair patch assay and lessons from epidermal stem cells

Hye-Ryung Choi, Kyung-Mi Nam, and Kyoung Chan Park

Department of Dermatology, Seoul National University Bundang Hospital

With the introduction of hair regeneration techniques, hair follicle regeneration became much easier and faster. Current success has been dependent on the availability of cells from newborn or embryonic mice. We observed that the hair-inducing ability of newborn mouse dermal cells disappeared in the first few days of life and there was a drastic decrease of histidine decarboxylase (HDC) gene expression. The aim of this study was to study the role of HDC in hair follicle induction. To test the effect of HDC, HDC expression was suppressed with small interfering RNA (siRNA) transfection. Mock treated and HDC siRNA treated cells were then injected with adult epidermal cells into nude mice skin. Three weeks later, the number, length and thickness of induced hairs were compared. Results showed that the HDC plays essential roles in the hair-inducing ability of newborn mouse dermal cells. In addition, epidermal stem cells can contribute to the maintenance of the epidermis via their self-renewing ability. Epidermal cells are surrounded by neighboring cells and tissues. Thus, it is possible that epidermal proliferation and differentiation are under the control of surrounding environment. In this presentation, the effects of neighbor cells are discussed in regeneration phenomenon. Furthermore, applicability of FUE can be discussed to investigate hair follicle stem cells in terms of environment

[CURRICULUM VITAE]

Kyoung Chan Park, M.D., Ph.D.

Present Position :

Professor of Department of Dermatolgy, Seoul National University College of Medicine
Chairman of Department of Dermatology, Bundang Seoul National University Hospital

Education and Training :

1974-1980	M.D., Seoul National University, College of Medicine
1987-1990	Ph.D., Seoul National University, College of Medicine
1980-1984	Resident (Dermatology), Seoul National University Hospital

Career :

2000	Professor, Seoul National University, College of Medicine
2003	Chairman of Department of Dermatology, Seoul National University Bundang Hospital
2007	Secretary General of Korean Society for Cosmetic Dermatology
2008	President of Asian Society for Pigment Cell Research
2011	President of Korean Society for Pigment Cell Research

Memberships :

1984	Korean Association of Dermatology
1984	Korean Association of Investigative Dermatology
1993	Society for Investigative Dermatology
1993	Japanese Society for Investigative Dermatology
1996	Korean Society for Biomaterials
1996	Pan American Society for Pigment Cell Research
2007	Asian Society for Pigment Cell Research

Major Interests :

Melanocyte biology including vitiligo and melasma
Artificial skin and skin stem cells
Cosmetics etc

SESSION 4

Updates of Hair Disorders

(English speaking session)

The Korean Hair Research Society

Lichen planopilaris(Frontal Fibrosing Alopecia) update

Wilma Bergfeld, M.D.

Dermatology and Pathology Cleveland Clinic, Cleveland, Ohio USA

Lichen planopilaris variant frontal fibrosing alopecia affects post-menopausal women and involves primarily the frontal hair line which includes the widow's peak, temples, pre auricular areas and frequently the eyebrows. It is highlighted by perifollicular erythema, follicular hyperkeratosis and more recently described hypopigmentation of the involved sites which includes the forehead and eyebrows. On biopsy the histologic changes are similar to lichen planopilaris. Like lichen planopilaris there is frequently an associated autoimmune thyroid disorder, elevated ANA, and occasional signs of androgen excess. Frontal fibrosing alopecia and lichen planopilaris are notoriously difficult to treat. This presentation will highlight the most recent treatments, and a reveal the histologic changes of the hypopigmentation.

[CURRICULUM VITAE]

Wilma Bergfeld, M.D.

refer to page 25

Update of pattern hair loss

Gwang Seong Choi, M.D.

Department of Dermatology, College of Medicine, Inha University, Incheon, Korea

This lecture will give a brief overview of the progress in the basic hair research and pathogenesis and treatment of pattern hair loss(PHL) such as male and female PHL.

In the genetic studies of MPHL, candidate gene and genome-wide association studies have reported that single-nucleotide polymorphisms (SNPs) at various genomic loci: the X-chromosomal AR / EDA2R locus, the PAX1 /FOXA2 locus and HDAC9 locus. However, a significant fraction of the overall heritable risk still awaits identification, and each newly associated locus may provide novel insights into contributing biological pathways. Recent study identified 4 genetic risk loci(2q35, 3q25.1, 5q33.3, 12p12.1) and suggested WNT signaling is associated. While the complete genetic picture is not clear, some claimed that gene polymorphism based diagnostic test would predict the future male PHL development, others reported that responsiveness of 5-a reductase inhibitors to the PHL is also dependent on androgen receptor gene polymorphism.

Drug therapies approved for treating MPHL are limited to minoxidil, finasteride and dutasteride. Several other drugs or treatments are also used off label or on the phase of clinical trials: prostaglandin F2α analogues latanoprost and bimatoprost, shampoo containing ketoconazole, synthetic anti-androgens, topical estrogen compounds, laser/light treatment and cell mediated treatment(stem cell, culture supernatant, platelet rich plasma). Numerous blends of herbal, vitamin and minerals were available, but independent data supporting their claims as hair growth effects are absent.

Significant advances have been made in hair transplantation. Follicular unit transplantation (FUT) is accepted as a standard methods of transplantation. Recently, individual hair follicle unit extraction (FUE) to avoid scar from strip graft harvesting was introduced. More recently robots capable of automated FUE have been developed and are commercially available.

[CURRICULUM VITAE]

Gwang Seong Choi, M.D., Ph.D.

Professor and Director, Department of Dermatology, Inha University College of Medicine

Education :

1983-1985	Finished pre-medical course in Yonsei University, Seoul, Korea
1985-1989	Graduated from Yonsei University College of Medicine, passed the National Examination for Medical Doctor's degree, Korea
1994-1996	Received the Master's degree atGraduate School of Ajou University
1997-1999	Received the Ph.D. at Graduate School of Yonsei University

Career :

1989-1990	Internship in Severance Hospital, Yonsei University College of Medicine
1993-1997	Resident in the Department of Dermatology, Yonsei University College of Medicine
Feb. 1997	Passed the National Board qualified for Dermatology, Korea
1997-1999	Research instructor in the Department of Dermatology, Inha University College of Medicine
1999-present	Clinical instructor, Assistant professor, Associate professor and Professor in the Department of Dermatology, Inha University College Medicine
2005-2006	Visiting Investigator, Center for Cutaneous Research, Bart and London, London University

Society :

Member of Korean Dermatological Association
Information director of Korean Society for Investigative Dermatology
Financial director of Korean Hair Research Society
Financial director of Korean Society for Dermatological Surgery
Academic director of Korean Academy of Vitiligo
Academic director of Korean Society for Chemical Peeling

Identification of genes for hypotrichosis simplex

Regina C. Betz, M.D.

Institute of Human Genetics, University of Bonn, Bonn, Germany

Monogenic isolated alopecias comprise a group of clinically and genetically heterogeneous forms of hairlessness or hair loss. Clinical classification of the isolated alopecias is based on the onset of the disorder, the regions affected, and the structure of the hair shaft. Men and women are equally affected, and the mode of inheritance is autosomal dominant or autosomal recessive. Since the identification of the keratin gene KRT86 as a cause of the so-called monilethrix in the late nineties, mutations in several other genes have been identified for various isolated alopecias, e.g. HR, DSG4, LIPH, LPAR6 (P2RY5), APCDD1, RPL21 and CDSN. Nevertheless, the pathogenetic causes of a large number of families suffering from hypotrichosis (HS) or alopecia are still unsolved and these families are in the focus of further research studies.

We recently mapped an autosomal dominant form of HS to chromosome 1q31.3-1q41 in a Spanish family and identified heterozygous mutations in this family and two sporadic patients in SNRPE. SNRPE encodes a core protein of U snRNPs, the key factors of the pre-mRNA processing spliceosome. Further functional analyses, comprising Western blot analyses and incorporation studies will be presented. Here, we link a core component of the spliceosome to hair loss, thus adding another specific factor in the complexity of hair growth.

[CURRICULUM VITAE]

Regina C. Betz, M.D.

Refer to page 23

Hair and nail: similarities and differences

Dong-Youn Lee, M.D., Ph.D.

Department of Dermatology, Samsung Medical Center, Sungkyunkwan University, Seoul, Korea

Like the skin hair and nail are composed of epithelial components and mesenchymal components. Hair and nail have similarities and differences. They have many things in common in relation to their origin, anatomical structures, and common involvement in many diseases. Epithelial components of hair and nail are composed of a structural protein called keratin. Especially, hard keratin is expressed exclusively in hair and nail.

β-catenin plays an important role in hair morphogenesis. Previously, nuclear and cytoplasmic localization of β-catenin in hair matrix cells were reported. We recently found that β-catenin was expressed in the nucleus and cytoplasm of the suprabasal nail matrix cells, suggesting that β-catenin plays an important role in nail formation. Only the cell membrane was β-catenin-positive in other epithelial cells.

In the hair follicle, the follicular dermal papilla and follicular dermal sheath represent a specialized part of the hair mesenchymes that are distinct from the dermis of the adjacent skin. Follicular papilla cells and follicular dermal sheath cells can induce hair follicle development in vivo. Based on the findings in hair follicles we thought that there might be also specialized nail mesenchyme in the nail unit. We demonstrated the presence and localization of a specialized nail mesenchyme in a well-defined area beneath the nail matrix and nail bed. Thus, we proposed the terminology onychodermis for the specialized nail mesenchyme because it is histologically and immunohistochemically distinct from the dermis of other parts of the nail unit.

However, hair and nail have some differences. For example, hair has growth cycle while nail shows continuing growth.

[CURRICULUM VITAE]

Dong-Youn Lee, M.D., Ph.D.

Education :

1986-1992	Seoul National University, College of Medicine, Seoul, Korea

Postgraduate Training and Education :

1992-1993	Internship, Seoul National University Hospital
1993-1997	Resident, Department of Dermatology, Seoul National University Hospital
2000-2003	Ph.D., Seoul National University, College of Medicine
2002-2007	Assistant Professor, Department of Dermatology, Samsung Medical Center, Sungkyunkwan University School of Medicine, Seoul
2004	Diplomate, International Board of Dermatopathology
2006-2008	Visiting scholar, Department of Dermatology, UCSD, San Diego, CA, USA
2007-2013	Associate Professor, Department of Dermatology, Samsung Medical Center, Sungkyunkwan University School of Medicine, Seoul
2013-present	Professor, Department of Dermatology, Samsung Medical Center, Sungkyunkwan University School of Medicine, Seoul

Member in Academic Society :

Korean Society for Investigative Dermatology
Korean Dermatopathology Society
Korean Hair Research Society
Korean Skin Cancer Society
Korean Vitiligo Society
Society for Investigative Dermatology
American Academy of Dermatology
Council for Nail Disorders
American Society of Dermatopathology
International Society of Dermatopathology

SESSION 5

What's new? : Hair Clinic and Hair Research

(Korean speaking session)

The Korean Hair Research Society

New therapeutic devices for hair loss

Beom Joon Kim, M.D., Ph.D.

Department of Dermatology, Chung-Ang University College of Medicine

Hair loss is one of the dermatological conditions most commonly faced by the dermatologist or general physician. The near universal hair loss complaint is androgenetic alopecia (AGA) in men and women. Androgenetic alopecia, also known as male or female pattern hair loss, is a hereditary condition in which disruption of proper androgen signaling results in decreased proliferation of follicle epithelia and progressive miniaturization of terminal hairs on the scalp. Currently, the only FDA-approved medications for androgenetic alopecia are finasteride and minoxidil. Because there are a number of refractory and unsatissfactory cases for approved treatment, many treatment modalities are being developed such as platelet rich plasma(PRP), light emitting diode(LED), low-level laser therapy(LLLT) and hair harvesting robot.

Platelets are a natural source of growth factors. The in vitro effects of PRP-derived growth factors on wound repair, differentiation and proliferation of adipose precursor cells, and angiogenesis are well documented. Several recent reports suggest that PRP might enhance the growth of hair. The PRP is prepared with a small volume of blood extracted from a peripheral vein using a PRP kit. LED and LLLT has recently increased in popularity as a stand-alone or adjunctive treatment. These products are medically tested, effective and proven methods using low level laser energy to effectively treat and control hair loss. The goal of these devices is to increase the blood flow to the scalp to stimulate the hair organ. By increasing the microcirculation of the scalp, the LLLT allows nutrients and freshly oxygenated blood to access the hair follicle to enhance or speed up the natural hair growth cycle.

Follicular unit extraction has become a popular hair transplanting method. However, manually harvesting hairs one by one is a tedious and time-consuming job to doctors. To save time and efforts, accurate hair harvesting robot with a novel and efficient end-effector which consists of one digital microscope and a punch device is designed. The microscope is first employed to automatically localize target hairs and then guides the punch device for harvesting after shifting.

Dermatologists caution that more scientific data are needed before these new therapeutic devices for hair loss can be recommended, but these developments could lead to even better treatment options or adjuvant modalities in the future.

[CURRICULUM VITAE]

Beom Joon Kim, M.D.

Education :

Graduated College of Medicine, Chung-Ang University, Korea
Clinical fellow, Seoul National University Hospital, Korea
Assistant Professor, Department of Dermatology, Dong-Guk University International Hospital, Gyeunggi, Korea
Present : Associate Professor, Department of Dermatology, Chung-Ang University College of Medicine, Seoul, Korea

Societies :

Editorial Board, Journal of the American Academy of Dermatology, International Journal of Dermatology, Journal of Neural Regeneration, Korean Journal of Medical Mycology, Asian Aesthetic Guide
Planning Committee for National Project, Ministry of Knowledge Economy, Department of Health and Human Services, National Academy of Agricultural Sciences, Korea
Assessment Committee for Basic Science, The Korean Society for Investigative Dermatology
Assessment Committee for Drug Development, Ministry of Education, Science and Technology
Assessment Committee for National Research Service Project, Korea Centers for Disease Control and Prevention
Deliberative Committee for Medical Equipment, Food and Drug Administration
Committee for Medical Equipment Board, Department of Health and Human Services

Awards :

Novartis Award, Korean Society for Medical Mycology
Scholarship, The Korean Society for Investigative Dermatology
Excellence Academic Books, The Ministry of Culture and Tourism
International Biographical Center Award, Cambridge, U.K.
Best Paper, Symposium of Korea Information Processing Society
Dr. Paul Janssen Award, Korean Dermatological Association
Scholarship, The American Academy of Dermatology, USA.
Scholarship. The Korean Hair Research Society
Academy award, Chung-Ang University, Korea
Outstanding book, 'Aesthetic Dermatology', Ministry of Culture, Sprots and Tourism, Korea
Chungsan Academic Award, Korean Academy of Asthma, Allergy and Clinical Immunology
Excellent assessor of R&D projects, National Research Foundation of Korea, Ministry of Educational Science and Technology, Korea
Donga Academic Award, Korean Dermatological Association

Dermoscopy in hair clinic

Moon Bum Kim, M.D., Ph.D.

Department of Dermatology, Pusan National University College of Medicine

Dermoscopy, called as skin surface microscopy, epiluminescence microscopy and incident light microscopy, is non-invasive diagnostic technique for the in vivo observation of skin lesion, allowing a better visualiizaiton of surface and subsurface structures. Dermoscopy increases the clinician's diagnostic accuracy by as much as 30% over that of unaided visual clinical inspection alone. Thus, it can be viewed as an in vivo bridge between clinical morphology and histopathology. At first, it was usually used for pigmentary skin lesions such as nevomelanocytic nevus, melanoma, basal cell carcinoma, and etc. And then its clinical application was extended to other non-pigmentary diseases including inflammatory and even infectious conditions.

Trichoscopy is the term when dermscopy is tried for hair and scalp abnormalities. It's history dates back to the early 1990s, but it gained popularity in recent years. According to the contribution of leading groups (Tosti A I Miami university, Rudnicka L in CSK MSWiA, and Inui S in Osaka university in trichoscopy) and other trichoscopists, specific or characteristic trichoscopic findings of various hair and scalp disorders have been identified. These trichoscopic findings could be very helpful for the dermatologists dealing with hair and scalp abnormalities.

Here, I am going to present various trichoscopic structures, characteristic trichoscopic findings in each hair and scalp disorder, and my data on trichoscopic algorithmic appraoch for small round or oval hairless patch.

[CURRICULUM VITAE]

Moon Bum Kim, M.D., Ph.D.

Associate professor, Department of Dermatology, PNUH

Education :

1986-1988	Pre-Medicine, College of Natural Sciences, PNU
1988-1992	M.D. degree from College of Medicine, PNU
1992-1993	Internship, Pusan National University Hospital(PNUH), Pusan, Korea
1997-2001	Residency of Dermatology, PNUH
1997-1998	Master degree from Graduate School, PNU
2003-2009	Doctor degree from Graduate School, PNU
2001-2002	Fellow, Department of Dermatology, PNUH
2003-2005	Clinical assistant professor, Department of Dermatology, PNUH
2006-2007	Assistant professor, Department of Dermatology, College of Medicine, PNU
2008-	Associate professor, Department of Dermatology, College of Medicine, PNU

Administrative Positions :

1993-1996	Korean Army Doctor

Honors and Awards :

2001	Travel Award, the 12th Japan-Korea Joint Meeting of Dermatology
2002	Poster Award, the 54th Annual Meeting of KDA
2003	Poster Award, the 55th Annual Meeting of KDA

Memberships :

1992-	The Korean Medical Association
1997-	The Korean Dermatological Association
2006-	The Korean Hair Research Society Board of Director
2006-	The Korean Society for Dermatopathology Board of Director
2006-	The Korean Society of Investigative Dermatology Board of Director
2006-	The Korean Society for Atopic Dermatitis Board of Director
2005-	The Korea Society for Vitiligo

Developing and interesting therapeutic options

Yang Won Lee, M.D., Ph.D.

Department of Dermatology, Konkuk University School of Medicine

Male pattern hair loss, also known as androgenic alopecia, is shown to occur in about 50% of both sexes. Although it has predilection to affect mainly adults in their 40's to 50's, adolescents may also develop the disorder in severe cases.

In both males and females, hair loss begins in the parietal area and gradually spreads toward the entire scalp; in males, hair loss most commonly manifest as fronto-temporal recession; in females, so-called "Christmas-tree" pattern, mainly involving the parietal area, is very typical, while the hairline in the fronto-temporal areas is fairly well maintained.

Valproic acid (VPA) is a mood stabilizer commonly prescribed for the treatment of epilepsy and bipolar disorders over the last several decades. VPA is known as a histone deacetylase inhibitor that exerts its effects through modification of chromatin structure and gene expression. VPA is also known to affect several different signaling pathways including protein kinase C, extracellular signal-regulated kinase (ERK), and Wnt/b-catenin pathways. VPA activates the Wnt/b-catenin pathway by inhibiting GSK3b, leading to axonal remodeling, synaptic protein clustering, and differentiation of neuronal progenitors. According to the recent report, valproic acid induces hair regeneration in murine model and activates alkaline phosphatase activity in human dermal papilla cells.

In addition, latanoprost, a prostaglandin analogue which is used in treatment of glaucoma, was accidently found to promote the growth of eyelashes and eyebrow, and its applicability in treatment of pattern hair loss is currently being investigated. Studies on the efficacy of minoxidil/tretinoin combination formula, and topical form of finasteride, an oral agent for treating pattern hair loss are also being investigated.

Besides the development of new topical agents, studies on novel preparation or devices which would maximize the transepidermal absorption of the conventional drugs are currently underway; recently, a study showed that promotion of hair growth can be achieved through physical stimulation of the scalp with microneedle roller alone, without drug therapy.

[CURRICULUM VITAE]

Yang Won Lee, M.D., Ph.D.

Education :

1996. 2	B.S in Genetic Engineering, College of Biomedical Science, Kyunghee University
2000. 2	Doctor of Medicine (MD), School of Medicine, Konkuk University
2006. 2	Ph.D. Konkuk University School of Medicine Graduate School

Training and Fellowship :

2000-2001	Residency training (internship), Konkuk University Hospital
2001-2005	Residency training in Dermatology, Konkuk University Hospital
2005-2006	Fellowship training in Dermatology, Konkuk University Hospital

Faculty Appointment :

2006-2007	Clinical assistant professor in Dermatology, Konkuk University Hospital
2007-2011	Assistant professor in Dermatology, Konkuk University Hospital
2010-2011	Visiting professor in Dep. of Biomechanical Engineering, Michigan State University
2011-present	Associate professor in Dermatology, Konkuk University Hospital

Memberships :

2011-present	Planning director, Korean Society for Medical Mycology
2006-present	Member of International society for human and animal mycology (ISHAM) Malassezia working group
2013-present	Planning director, Korean Society for Aesthetic and Dermatologic Surgery
2010-present	Member of board of directors, The Korean Hair Research Sociey

Hair growth-related genes

Oh Sang Kwon, M.D., Ph.D.

Department of Dermatology, Seoul National University College of Medicine, Seoul, Korea

Hair is one of the representative characteristics of mammalian species. The evolutional development of hair seems to tightly link to energy metabolism and thermoregulation and considered to contribute to the prosperity of mammals.

Histologically, hair is a highly keratinized tissue produced by the hair follicle (HF) that is developed through close reciprocal interactions between the ectoderm and mesenchyme during embryogenesis. Several signaling pathways, such as Wnt and Shh signaling have been elucidated to play crucial roles in HF development. After the HF becomes fully mature, it undergoes dynamic cell kinetics, throughout postnatal life, which is composed of the anagen (growth) phase, the catagen (regressing) phase, and the telogen (resting) phase. This capacity for self-renewal is maintained by the two kinds of stem cells, epithelial stem cells in the bulge of the HF and mesenchymal stem cells localized in lower portion of dermal sheath.

Recent advances in molecular biology and genetic researches involving family-based linkage and/or genome-wide association studies have enabled to identify a variety of genes and pathways that are involved in HF morphogenesis and cycling. In this review, we will look around together our current awareness of gene expression patterns and developmental mechanisms involved in the outgrowth and patterning of HF that have widely contributed to our understanding of the crucial roles of these genes in HF morphogenesis, development, and hair growth in humans.

[CURRICULUM VITAE]

Oh Sang Kwon, M.D., Ph.D.

Education :

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Hair and sebaceous glands

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Normal development and function of the sebaceous gland are very important for correct hair development and cycling. On the contrary, abnormal development and malfunction of the sebaceous glands can lead to hair loss. It has been known that abnormal sebaceous gland function is associated with hair loss in several animal models for alopecia. The BALB/c strain of mouse characterized by an absence of sebaceous glands and alopecia has been occurred spontaneously. Mouse model with primary cicatricial alopecia showed asebia, perifollicular inflammation, hair shaft granuloma and cicatricial follicle drop-out resulted from the mutation of one very important sebaceous gland gene. Other report showed that sebaceous gland loss is known to be a common and early finding among scarring alopecia. In addition, sebaceous gland and/or duct inflammation may play a role in initiating or accelerating follicular damage during the development of scarring alopecia. Treatment of rat with doxorubicin induced sebaceous gland regression and occasionally caused their complete disappearance. The damage and disappearance of sebaceous glands preceded doxorubicin-induced hair loss. Lipid metabolism dysregulation by a defect of stearoyl coenzyme A desaturase leads to abnormal fatty acid composition in the sebaceous glands resulting in its atrophy and defected secretion with hair loss. PPAR-γ deficiency occurrs in primary cicatricial alopecia with permanant hair loss. Nevus sebaceus is characterized by a congenital yellow-brown verrucous plaque with lack of anagen hair. Sebaceous glands of nevus sebaceus showed increased expression of hair growth inhibitors such as FGF5, DKK-1, TGF-β2 and IL-6. Sebaceous gland is very important in hair follicle homeostasis.

[CURRICULUM VITAE]

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POSTER

The Korean Hair Research Society

P01

A method to accurately evaluate hair growth in organ cultured hair follicles

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Hair follicle (HF) organ culture techniques are widely used in the hair biology research. In HF organ culture, hair growth is commonly employed as a measurement of follicular activity. For measurement of hair growth, the microscope fitted with an eyepiece graticule is routinely used. However, using this method, it is difficult to measure the crooked hair growth which is always showing in the cultured HFs. Furthermore, even in same anagen phase, individual HFs are not consistent and showing different hair growth ability, dependent on the hair bulb size. In this study, we propose an improved method that is designed to accurately measure the HF length in organ cultured HFs. The improvement focused on the measurement of crooked hair growth and the detection of effective hair growth relative parameters to minimize the difference in hair length of individual HFs in same phase. We showed that there is a significant difference in HF length between linear length which is measured by routine method and crooked length which is measured by improved method using in this study. Auber's line was the most effective hair growth relative parameters to minimize the difference in hair length of individual HFs in same phase. With this improvement, the discrete trend of individual HFs was significantly reduced. Altogether, these results indicate that the current novel method should be more accurate measurement of hair growth.

P02
The role of ceramide in human hair cycle

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Ceramide, a major class of hair lipid, may help determine the physicochemical properties of human hairs. It also triggers apoptogenic signals in many cell lines. Transformation of anagen to catagen is considered to be caused by apoptosis and terminal differentiation of hair follicles (HFs). However, the influence and role of ceramide in HFs and hair cycle has not yet been studied. The purpose of current study was to investigate the role of ceramide in human HFs, especially its association with hair cycle. We examined the expression of nCDase and aCDase, an enzyme that catalyzes the hydrolysis of ceramide, according to the hair cycle. Furthermore, we examined whether ceramide accumulation induced by N-oleoylethanolamine (NOE), a competitive inhibitor of ceramidase, influences human hair growth, a change in hair cycle and proliferation/apoptosis-related molecular expression. During the transformation from anagen to catagen, nCDase and aCDase expression appeared to be down-regulated. NOE inhibits the human hair growth and promotes the transformation from anagen to catagen in organ cultured human HFs. Altogether, these results indicate that ceramide might be an important regulatory factor for human hair cycle.

P03

Treatment of frontal fibrosing alopecia with oral dutasteride in postmenopausal women

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The frontal fibrosing alopecia (FFA) is a subtype of primary cicatricial alopecia characterized by a symmetric recession of the frontal hair line. However, its pathophysiology and progress is still not well known and it is more rarely reported to Asian. Treatments of FFA were tried by various methods with the oral steroid, antimalarial agents, oral finasteride and topical tacrolimus but the secured treatment was not presented. A 62-year-old woman visited us complaining about hair loss on scalp with duration of 2 years. On physical examination, she had recession of frontal hair line without any symptoms. Histopathologically, the number of hair follicles reduced and the diffuse dermal fibrosis was observed. We diagnosed as FFA and started treatment with the oral steroid and topical tacrolimus but hair recession had continuously progressed. We prescribed oral dutasteride 0.5mg/day after confirming her menopause. The hair retraction stopped after 3 months and the new hair growth was observed after 6 months. Dutasteride is a new 5-alfa-reductase inhibitor that blocks both type I and II isoenzymes and more potent than finasteride in inhibiting 5-alfa reductase. The treatment mechanism about FFA is not certain but the hair loss progression is interrupted or the new hair growth is observed after the use of dutasteride in the several reports. However, there was no report using the dutasteride in the treatment of FFA to Korean patients. Herein, we present that the use of oral dutasteride is effective alternative treatment in FFA of postmenopausal women.

P04

Multiple arc-shaped lupus erythematosus panniculitis involving scalp and upper extremity

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Lupus erythematosus panniculitis (LEP) is a chronic recurrent panniculitis that can result in alopecia on scalp and tender subcutaneous nodules or plaques on extremities. So far, there have been reports of unusual shapes of LEP, such as linear LEP of the scalp. However, LEP that presents as arc-shape and involving scalp and other body sites simultaneously are very rarely reported. An 18-year-old male visited our clinic complaining of alopecia on his scalp and multiple crusted plaques on his left upper arm. It persisted more than 1 year. On physical examination, non-scarring alopecic patches were seen on his left temporal and right parietal scalp, and they were arc-shaped. The plaques on his left upper arm were hard, indurated, and arc-shaped which are similar in shape with alopecic patches. Histopathological examination was performed on his scalp and left upper arm. It revealed panniculitis with mucin deposition that is compatible with the findings of LEP. The patient was treated with hydroxychloroquine and showed favorable response. Although the exact mechanism in unknown, we suggest that this unique presentation of LEP is thought to be related with anatomical characteristics of the subcutaneous fatty tissue which is compartmentalized.

P05

Impaired IK cytokine and its related molecular dysfunction contribute to alopecia areata development

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Alopecia areata (AA) is a putative autoimmune hair loss disease. Anagen stage hair follicles may have immune privilege comprising downregulation of MHC class I and II and production of immunoregulatory agents. IK cytokine and its related molecules, such as interferons (IFN) are important immune system mediators that could impact the initiation or amplification of autoimmunity and tissue damage through their diverse action on dendritic cells, T and B lymphocytes, NK cells and mononuclear phagocytes. This study was done to explore the exact role of IK cytokines and hair immune privilege maintaining several kinds of cytokines including IFNα, IFNβ, IFNγ, and IFN inducible genes in the AA like conditioned in vitro environment. Hair follicles were obtained from subjects with normal hair growth undergoing cosmetic scalp surgery. Tissues were placed in an RNA stabilizer. Hair follicles were trimmed and microdissected for the organ cultures. Telogen stage and dystrophic anagen hair follicles were discarded based on length and absence of a recognizable hair bulb. After making the in vitro AA like conditioned environment, each cultured hair follicles were analyzed with quantitative real-time PCR analysis to determine the IK cytokine and its related target gene expression. Immunohistology for selected gene products was subsequently conducted. 7 genes in AA conditioned hair follicles were significantly changed as compared to controls. Of these genes, IK cytokine and TLR9 increased fold changes. When the AA conditioned group was subdivided according to culture duration, downregulated IK cytokine gene expression was more prominent in the long term cultured group and upregulated TLR9 gene expression was prominent in in the long term cultured group also. The expressional changes of IK cytokine gene, IFN associated genes and their products, particularly TLR9, suggest that these factors may involve in AA chronicity and recurrent AA immune collapse

P06

Epidemiologic and clinical study of androgenetic alopecia patients in Korea

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Androgenetic alopecia (AGA) is one of the most common type of alopecia among all men and women. The prevalence of AGA seems to be gradually increasing. The objective of this study was to evaluate the clinical features, medical history and family history of AGA patients in Korea. Total of 1,352 patients were enrolled. The demographics, past medical history, family history of AGA and past treatment for AGA were investigated with medical records, laboratory results and interviews. There were 862 male patients and 490 female patients (M:F=1.7:1). The most prevalent age groups were the patients in their thirties (24.8%) and forties (20.8%). About 22.3% of the patients had family history of AGA. Paternal side is more predominant than maternal side (Paternal:Maternal=2.0:1). The duration of AGA was less than five years in the majority of patients (81.0%). Only 40% of patients had received treatment for hair loss in the past. Most of the patients were treated with oral finasteride and topical minoxidil. 374 patients were assessed by Basic and Specific (BASP) classification. M type (55.9%) was the most common basic type and V type (34.2%) was the most common specific type. 18.5% of the patients already had past history of medical problems. Most commonly associated diseases were hypertension (HTN)(13.8%) followed by diabetes mellitus (DM)(8.0%) and hypercholesterolemia (3.4%). About 22.3% of the patients had family history of AGA with the paternal side predominant. Among patients assessed by BASP classification, M type and F type were the most common basic type and specific type. The prevalence of HTN, DM, hypercholesterolemia did not show significant difference compared to the prevalence in general population. These findings are different to previous studies conducted in Caucasian ethnicity, which showed higher prevalence of associated diseases in AGA patients. We assume that these findings may be related to racial characteristics.

P07

Patients' satisfaction on phototrichogram in androgenetic alopecia patients

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Various measurement methods for human scalp hair have been introduced. Phototrichogram has been employed as a standard method for the determination of hair count and thickness. But, the satisfaction with phototrichogram has not been evaluated. The objective of this study was to evaluate patients' satisfaction with phototrichogram. Patients with androgenetic alopecia (AGA) who were measured with phototrichogram[FolliscopeTM (LeedM®) 2.8, Republic of Korea] participated. The patients answered to questionnaires composed of three domains; patients' satisfaction, the convenience and comparison to treatments without using phototrichogram. A 5-point scale was used; 1=very poor, 2=poor, 3=fair, 4=good, 5=excellent. We considered 4 and 5 point as a positive response. 199 patients with AGA were enrolled. In patients' satisfaction domain, more than 50% of the patients answered that they could realize accuracy in diagnosis and receive objective information about their conditions. They could also objectively compare the therapeutic effects through phototrichogram and increase the confidence in the treatment. Overall 63% of patients considered phototrichogram as a useful measurement tool in AGA treatment. In domain of the convenience, 4.2% of patients replied that the process was time consuming and 13.5% of them felt discomfort in the measurement. 55.6% of the patients experienced an increase in patients' satisfaction compared to the treatments without using phototrichogram. Clinicians have considered phototrichogram as a standard tool for evaluation of AGA. But only 63% of the patients considered phototrichogram as a useful measurement tool in AGA treatment. This percentage was certainly under our expectation. These results may be related to the facts that the patients were not fully informed about its uses and importance in the process of diagnosis and treatment of AGA. We expect an increase in the patient satisfaction by providing sufficient information about phototrichogram

P08
Quantitative analysis of MPHL patient's occipital scalp hair parameters in hair transplantation

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Hair restoration surgery is an important treatment option in pattern hair loss. Exact calculation of the donor area and the expected number of transplanted hair follicles is crucial for patient satisfaction and efficient cost calculation. The aim of this study is to provide data on donor area hair density in hair transplantation before the procedure, using global photography and digital imaging software. Hair density will be compared to the number of extracted hair per cm^2. Global photographs were taken before and after administration of tumescent anesthesia directly before the donor strip harvesting. Hair density will be measured using the digital imaging tool and software Folliscope®. The total expected number of follicles in the donor strip is calculated and later correlated to the number of harvested and transplanted hair. 89 Korean male pattern hair loss patients were enrolled in the study. Hair density ranged between 87 and 134 terminal hair/cm2. After the administration of the local anesthetic the skin stretches and hair density decreased by 2-7%. The number of the harvested and transplanted hairs correlated well with the calculated number. The transection rate was less than 2%. Using digital devices and calculation of computer program allows a better calculation of the donor strip size and dissection and transection rates. Transection and dissection rate can be calculated more exactly. Decrease in hair density of up to 7% after the administration of the tumescent anesthesia has to be taken into account.

P09
Linear dissecting cellulitis with unusual morphology

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Dissecting cellulitis is a rare chronic inflammatory disease resulting in scarring alopecia. The disease is reported to be very rare in East Asia including Korea. The skin lesions begin as follicular pustules on the scalp that progress to painful, fluctuant nodules. Exact pathogenesis is unknown, but abnormal follicular keratinization and occlusion with secondary bacterial infection and subsequent granulomatous response is suggested. There is no well established treatment for dissecting cellulitis, but isotretinoin is assumed to be the treatment of choice, and tumor necrosis factor-alpha blocker also has been reported to be successful. Complete scalp excision followed by split-thickness skin grafting was reported as a successful therapeutic option for localized lesions or non-responsive lesions to systemic medications. A 48-year-old male presented about 3x10cm sized linearly arranged hairless skin colored nodules on his occipital scalp. Fluctuation of the lesion and tenderness was revealed by pressing the lesions. Histopathologic findings showed mild follicular plugging with perifollicular lymphohistiocytic infiltration. The skin lesion was diagnosed as dissecting cellulitis, and as the lesion localized only on the occipital scalp, the patient was referred to plastic surgeon and had a complete excision of the lesion. No remission of the disease showed for 6 months follow up after the surgery. The unusual linear morphology of our case may have occurred due to the tendency of the lower occipital scalp toward folding and protrusion in linear pattern, or to the chronic contact with hand or pressure. These may have resulted in occlusion of hair follicles, followed by secondary infection.

P10

Antagonizing effect of Scutellaria baicalensis extract and baicalin on the androgen receptor

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Title Antagonizing effect of Scutellaria baicalensis extract and its active compound, baicalin, on the androgen receptor with implications for preventing androgenetic alopecia Abstract Androgens affect several human skin and prostate functions, and the androgen receptor (AR) is crucial for regulating the androgen-related mechanisms. In this study, we assessed the antagonizing effects of a Scutellaria baicalensis extract (SB-Ext) and its main component baicalin on proliferation of human scalp dermal papillae cells. First, the SB-Ext and baicalin slightly dissociated the radioisotope-labeled AR-agonist complex in the AR binding assay, and the IC50 values were measured to assess the AR antagonistic effect of the SB-Ext (93 μg/ml) and baicalin (54.1 μM). Second, the SB-Ext and baicalin treatments dose-dependently inhibited the overgrowth of LNCap prostate cancer cells, which were stimulated by dihydrotestosterone (DHT). Third, 50 μg/ml of the SB-Ext and 3 μM baicalin inhibited nuclear translocation of the AR stimulated by DHT in human dermal papillae cells. Additionally, the SB-Ext (50 μg/ml) and baicalin (3 μM) enhanced proliferation of immortalized dermal papillae cells in vitro. These results show that the SB-Ext and baicalin inhibited androgen activation signaling and promoted iDPC proliferation, suggesting that they could be used as active ingredients for treating androgen-associated disorders, such as androgenetic alopecia.

P11

Low dose diphenylcyclopropenone treatment: an effective alternative treatment for alopecia areata

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Diphenylcyclopropenone (DPCP) is commonly used contact sensitizer in the immunotherapy of alopecia areata (AA). Despite its beneficial treatment response, common side effects of contact dermatitis with current high sensitization dose of 1 or 2% DPCP decrease the compliance of the patients, which eventually cause failure in consistency of the treatment. The aim of this study is to investigate the effect of immunotherapy with low-dose DPCP of AA. 127 patients with AA who received immunotherapy of low dose DPCP for at least 3 months were enrolled. Patients who received other treatments were excluded. Medical records of patients were reviewed in categories of alopecia type, treatment response, adverse effects and laboratory results. Patients were categorized by alopecia type of AA, alopecia totalis (AT) and alopecia universalis (AU). Low dose DPCP treatment was started with 0.1% sensitization. After a week, DPCP challenge was started with dose of 0.01%, in increasing doses of 0.025%, 0.05% and 0.1%. Treatment response was categorized by percentage of hair regrowth. Hair regrowth under 30% is classified as mild improvement, 30 to 90% hair regrowth as moderate, more than 90% hair regrowth as much improvement. Treatment response was defined with presence of at least mild or more improvement. Out of 127 patients, 101 (79.5%) patients marked improvements. There were differences in average duration of total treatment and initial response between the groups, but there was no statistical significance. 98 (77.2%) patients had no sign of adverse effects and the other 29 (22.8%) patients complained only minor events such as itching. Low dose DPCP treatment for AA proved to show similar benefits and less frequent events of side effects compare to conventional high dose treatment. We suggest that low dose DPCP elicits sufficient sensitization in the alopecia patches that eventually promotes hair regrowth. Low dose DPCP treatment might be an effective alternative treatment for AA.

P12
Dermoscopic features of tinea capitis

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Diagnosis of tinea capitis is sometimes challenging when it mimics other hair and scalp diseases including alopecia areata, trichotillomania and seborrheic dermatitis. Trichoscopy is non invasive diagnostic technique that is useful diagnosing of various hair and scalp disorders. Till now, a few case report or series regarding trichoscopic findings of tinea capitis have been reported. We studied to know characteristic trichoscopic features of tinea capitis in Koreans and to assess the potential usefulness of a handheld dermoscopy in clinical diagnosis of tinea capitis. We performed clinical, dermoscopical and mycological study of seventeen cases of tinea capitis which had been diagnosed by KOH examination or fungus culture. We compared to 160 normal controls and 400 non-scarring alopecia at Dermatology, Chonbuk National University Hospital. Dermoscopic examination was performed with polarized hand-held dermoscope (Dermlite DL3) at 10-maginfication and dermoscopic images were documented with a digital camera.

P13

DKK1 regulates hair follicle growth degeneration in human DPC through inflammation-associated factor

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Dickkopf-1 (DKK-1) is inhibited canonical Wnt/β-catenin signaling in maintaining follicle anagen. In previous study, we found that DKK-1 suppressed the expressions of VDR and β-catenin in dermal papilla cells. This study studied that the roles of DKK1 in human dermal papilla cells (DPCs). Cell proliferation in human hair DPCs was assessed by MTT assay. We performed the expression levels of VDR, GSK-3β, and β-catenin by Western blot analysis. Also, VDR expression was determined using immune-fluorescence assay in DKK1-treated cell. The role of DKK1 in human DPCs was examined by the level of IL-1β, IL-6, and TNF- alpha for enzyme-linked immunosorbent assays (ELISA) and by expression levels of VDR, GSK-3β, and β-catenin using reconstruction of living skin equivalents (LSEs). (This research was supported by Basic Science Research Program through the National Research Foundation of Korea (NRF) funded by the Ministry of Education, Science and Technology (2010-0021960)) We found that DKK1 was not changed DP cell proliferation in a dose-dependent manner. However, we found that DKK1 treatments reduced expressions of VDR and β-catenin in human DPCs in time- and dose-dependent manner. As shown by immune-fluorescence analysis, DKK1 attenuated levels of VDR expression at 50 ng/ml concentration. In addition, LSEs system contains human keratinocytes and DPCs showed that DKK1 down-regulation of VDR and β-catenin, whereas up-regulation of GSK-3β. We observed that DKK1-treated DPC cells showed up-regulation of TNFR2 expression and enhanced cytokine level of IL-1β, IL-6, and TNF- alpha compare with non-treated cells. In summary, the results of the present study demonstrate that these DKK1 reduced expression level of VDR and β-catenin expressions in DPCs through a cooperative effect of inflammatory cytokines. Therefore, we suggest that DKK1 promote of hair loss by inflammation factor in human hair DPCs.

P14

PRP promoting hair growth in human hair follicle dermal papilla cells associated VEGF and VEGFR-2

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Autologous Platelet-rich plasma (PRP) has been used to accelerate wound repair. It has been reported that PRP contains various growth factors such as platelet-derived growth factors (PDGF), transforming growth factors (TGF), fibroblast growth factors (FGF), and vascular endothelial growth factors (VEGF). Previously, we have proposed that PRP promote the hair growth in male pattern baldness surgery. In this study, we investigated effect of PRP to enhance hair growth on human hair dermal papilla (DP) cells. We assessed cell proliferation in cultured human DPCs by MTT assay and measured the expression levels of VEGF, VEGFR-2, p63, Wnt5a, Wnt10b, and β-catenin by Western blot analysis. (This research was supported by Basic Science Research Program through the National Research Foundation of Korea (NRF) funded by the Ministry of Education, Science and Technology (2011-0008687)) To elucidate this hair growth effect regarding proliferative effect of PRP on DP cells, we treated human dermal papilla cell with PRP in both a time- and dose-dependent manner. We showed that PRP increased DP cell proliferation in a time- and dose-dependent manner. We further evaluated the expression VEGF and VEGFR-2 on human hair follicle DP cells. The expression of VEGF and VEGFR-2 on DP cells were examined by Western blot analysis. We found that the PRP strongly enhanced VEGF and VEGFR-2. We also found that PRP increased expressions of β-catenin, Wnt5a, and Wnt10b, potent hair growth factor and enhanced the level of p63, stem cell factor. These results suggest that the PRP hair growth effect in DP may result from up-regulation of β-catenin, Wnt5a, and Wnt10b expression due to increased VEGF and VEGF-R. Thus, our results provide support for possible therapeutic materials of autologous PRP to promote hair growth.

P15

LED irradiation stimulates hair growth through activated ERK and Akt from human dermal papilla

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This study was aimed to investigate the effects of light emitting diode (LED) irradiation on hair growth promotion in vitro. We assessed cell proliferation in cultured human DPCs by MTT assay and determined the level of KGF by RT-PCR and measured the expression levels of extracellular signal-regulated kinase (ERK), Akt, GSK-3β, and β-catenin by Western blot analysis. (This research was supported by Basic Science Research Program through the National Research Foundation of Korea (NRF) funded by the Ministry of Education, Science and Technology (2011-0008687)). LED irradiation was not influenced the proliferation of cultured human DPCs in various wavelengths (415, 530, 630, 660, 850, 940), while increased the proliferation of cultured DPCs at 830 nm irradiation. Similarly, RT-PCR analysis revealed increase in the amount of mRNA for KGF after LED irradiation at 830 and 940 nm in human DPCs. Also, LED irradiation (830, 850, and 940 nm) enhanced the expression levels of phosphorylated ERK and phosphorylated Akt and increased β-catenin expression. LED irradiation enhances survival of human DPCs by stimulating together ERK, Akt and β-catenin at 830, 850, and 940 nm. In addition, LED irradiation at 830 nm induced the proliferation of human DPCs by the activation of β-catenin and release of KGF. Thus, we suggest that LED irradiation promotes human hair growth.

P16

Effect of recombinant growth factors mixture on hair growth promotion in vitro and in vivo

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Although hair loss may not be a life-threatening disorder, it has a great impact on a person's self-respect, mental health, and quality of life. Thus, it is important to develop new therapeutic materials that prevent hair loss and enhance hair growth. This study was aimed to investigate the effects of recombinant growth factors mixture (RGFM) on hair growth promotion in vitro and in vivo. We evaluated cell proliferation in cultured human DPCs by MTT assay and determined cell migration in DPCs using Phage contrast microscopy and measured the expression levels of extracellular signal-regulated kinase (ERK), Akt, GSK-3β, and β-catenin by Western blot analysis. We also performed topical application onto the back skins of the 7 week-old C57BL/6 mice after depilation. (This research was financially supported by the Ministry of Knowledge Economy (MKE), Korea Institute for Advancement of Technology (KIAT) through the Inter-ER Cooperation Projects) RGFM treatment increased the proliferation of cultured human DPCs in dose-dependent manners. Also, RGFM treatment enhanced the migration of cultured DPCs at 1,000 ng/ml concentration. The expression levels of phosphorylated ERK and phosphorylated Akt significantly increased at 1,000 ng/ml of RGFM. RGFM also decreased GSK-3β expression and increased β-catenin expression. In addition, RGFM treatment on the back skins of C57BL/6 mice significantly promoted hair growth compared with control treatment. RGFM promotes the proliferation and migration and survival of human DPCs by activating both ERK and Akt. Moreover, RGFM induced the proliferation of human DPCs by the upregulation of β-catenin accompanied by inhibition of GSK-3β. Thus, we suggest that RGFM promotes human hair growth through these proliferative effects on human DPCs.

P17

Characteristic aging features in Chinese women's hair and scalp

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Aging appears in various ways throughout the body. Like skin, hair suffers physical and physiological changes with the passing times. It turns up through losing, weakening, and functional declining of what had been healthy and active before. Hair loss and gray hair are the representative aging features, but there are lots of factors when looking specifically: hair color fadedness, scalp sebum secretion and scalp conditions. It has been studied that the characteristic of aging hair in Asian women. China has a portion about 30% in population of Asia, so it has an important meaning to study their aging features of hair. In this study, we investigated hair aging of Chinese women by measuring their hair and scalp conditions with various instruments, evaluating, and surveying subjects. As a result, Chinese females undergo reduction of their hair density with aging and the hair diameter reached the peak at 40s and then decreased. We also figured out both hair graying and fadedness was increased with aging. Those age related changes of hair color kept similar degree between 20s and 30s, but the gap was widening after 40s. On the scalp, we found out several age dependent factors. Chinese female had relatively higher degree of scalp sebum in their 20, 30s but it fells sharply in the beginning of 40s. This phenomenon appeared similarly in the amount of dandruff. Another scalp condition, redness, was getting severer with aging and there was dramatic increase over 40s. This study presents physical and physiological changes in hair and scalp of Chinese women and some of factors, such as hair diameter changing and dandruff, are different from that of Korean women.

P18
A case of lipedematous scalp

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Lipedematous scalp is a rare condition of unknown origin with an increased thickness of fat layer in the scalp, without any hair loss. It usually occurs on the vertex and occiput of healthy women. Soft spongy appearance of scalp is characteristic feature of lipedematous scalp and it occasionally causes pruritus and pain in the lesion. A 30-year-old woman visited our clinic with the complaint of scalp thickening and softening predominantly in the vertex and occiput. During the prior 1 year, the thickening and softening had progressed to the entire scalp, accompanied by intermittent pain. A thickened tissue with suspicious fat density in the subcutaneous fat layer was detected by magnetic resonance imaging (MRI). Maximal thickness of the scalp measured by MRI was 12mm on the vertex and mean thickness of the scalp was 10mm that was thicker than regular mean thickness of scalp ranged 5 to 8mm. Histopathological examination of the vertex revealed hyperplasia of the subcutaneous fat without any mass formation that extended upward into the papillary dermis. Lipedematous scalp was diagnosed with these findings. To our knowledge, over 46 cases had been reported in the English literature with only 1 Korean patient. Herein, we report a rare case of lipedematous scalp.

P19

Valproic acid activates Wnt pathway and ALP activity in mice and human dermal papilla cell lines

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Alopecia is the common hair loss problem that can affect many people. However, current therapies for treatment of alopecia are limited by low efficacy and potentially undesirable side effects. We have identified a new function for valproic acid (VPA), a GSK3beta inhibitor that activates the Wnt/beta-catenin pathway, to promote hair re-growth in vitro and in vivo. Topical application of VPA to male C3H mice critically stimulated hair re-growth and induced terminally differentiated epidermal markers such as filaggrin and loricrin, and the dermal papilla marker alkaline phosphatase (ALP). VPA induced ALP in human dermal papilla cells by up-regulating the Wnt/b-catenin pathway, whereas minoxidil (MNX), a drug commonly used to treat alopecia, did not significantly affect the Wnt/beta-catenin pathway. VPA analogs and other GSK3beta inhibitors that activate the Wnt/beta-catenin pathway such as 4-phenyl butyric acid, lithium chloride, and beryllium chloride also exhibited hair growth-promoting activities in vivo. Importantly, VPA, but not MNX, successfully stimulate hair growth in the wounds of C3H mice. Our findings indicate that small molecules that activate the Wnt/beta-catenin pathway, such as VPA, can potentially be developed as drugs to stimulate hair re-growth.

P20
Follicular unit extraction using robot system (Artas™) in Asian

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Follicular unit extraction (FUE) has become a popular harvesting method for hair restoration because it provides many advantages over strip method including absence of linear scar, much less pain, and short recovery time. However, FUE is a time-consuming, technically hard job for surgeons. ARTAS™ system (Software version 4.8.2, Restoration Robotics, Mountain View, CA, USA) is an interactive, computer-assisted, and physician-controlled robotic system used for the FUE harvest. There's no data for robot harvested follicles. Data of total of 22 patients who underwent FUE hair restoration surgery in Seoul National University Bundang Hospital with ARTAS™ system were analyzed. First harvested standard 3 grids were selected for analyze, to minimize variation according to the patients. Total Follicular Unit(FU), Hair Number, Transection rate(TR), Yield, and so on, were calculated from patients record. The mean age of patients was 49.4±12.3 years old. Total Punch numbers were 5213, total FU number was 4955. Thus, calculated yield was 95.05%. Among the 12017 harvested hairs, 590 hairs were transected which is 4.91% of TR. Among the harvested hairs, 1244(10.35%) were telogen hairs and 146(1.22%) were vellus hairs. FU of double hairs were majority of harvested FUs(44.10%), and then triple follows(31.94%). Most of transected FUs were multiple hairs; 29.10% of quintuple was transected, but 4.82% in single. No significant side effect or complication was detected during and after the surgery. We could prove harvested hairs with ARTAS™ system is good enough for hair restoration surgery. Not only it harvest single hairs, but multiple hairs also efficiently. But TR is little bit increased in multiple hairs.

대한모발학회 회칙

제 1 장 총 칙

제 1 조 (명칭) 본회는 대한모발학회(The Korean Hair Research Society)라 하며 대한피부과학회의 산하 학회이다.

제 2 조 (구성) 본회는 모발 및 모발과 관련된 질환을 다루고 연구하는 사람으로 구성한다.

제 3 조 (목적) 본회는 모발에 대한 연구, 교육 및 학술활동을 수행하고 회원 간의 친목을 도모함을 목적으로 한다.

제 4 조 (사업) 본회는 전항의 목적을 달성하기 위하여 다음과 같은 사업을 수행한다.

1. 총회 및 학술대회 개최
2. 초록집, 학술지 및 소식지의 발간
3. 모발 및 모발질환에 대한 연구, 교육 등 제 문제에 대한 사업
4. 국내외 관련 학술단체와의 교류 및 제휴
5. 기타 본 학회 목적 달성에 필요한 사업

제 2 장 회 원

제 5 조 (자격) 본회의 회원은 모발 관련 진료 및 연구에 종사하거나 관심을 가지고 본 학회의 취지에 찬동하는 자로서 소정의 입회 수속을 밟고 이사회의 의결을 거쳐 총회에서 인준을 받은 자로 한다.

제 6 조 (구분) 본회의 회원은 다음과 같이 구분한다.

1. 정회원: 대한피부과학회 정회원 자격자로 본 회 목적에 찬동하는 자로 한다.
2. 명예회원: 모발 관련 진료 및 연구 업적이 탁월하고 본 회 발전에 공헌이 지대한 자로 한다.
3. 연구회원: 생명과학 관련분야에 종사하는 박사학위 소지자이거나 이에 준하는 경력자로 본회 목적에 찬동하는 자로 한다.
4. 전공의준회원: 대한피부과학회 준회원 자격자로 피부과 수련병원에서 수련받는 전공의로 한다.
5. 연구준회원: 정회원 또는 연구회원의 지도를 받거나 생명과학 관련분야에 종사하는 연구원 또는 이에 준하는 경력자로 본 회 목적에 찬동하는 자로 한다.

제 7 조 (의무) 회원은 본 회의 회칙, 제 규정 및 결의 사항을 준수하여야 하고, 정회원 및 연구회원은 회비 및 기타의 부담금을 납부할 의무가 있다.

제 8 조 (권리) 모든 회원은 본회에서 발간하는 소식지 및 학회지를 배부 받을 권리가 있으며 정회원은 선거권, 피선거권 및 기타 소정의 의결권을 가진다.

제 9 조 (제명) 본회의 의무를 준수하지 않거나 명예를 훼손한 회원은 이사회를 거쳐 총회의 인준을 받아 제명할 수 있다.

제 3 장 임 원

제 10 조 (임원) 본회는 회장, 부회장 3명 이내, 총무, 학술, 교육, 재무, 홍보, 간행정보, 기획 및 의무의 상임 이사와 부이사, 감사 2명 및 약간 명의 고문을 두며 이사의 정원은 30명 내외로 한다.

제 11 조 (선임)

1. 회장, 감사는 총회에서 선출한다.
2. 부회장, 상임이사 및 상임부이사는 회장이 위촉한다.
3. 이사는 상임이사회에서 추천하여 회장이 위촉한다.
4. 고문은 회장이 위촉한다.

제 12 조 (임기) 임원의 임기는 2년으로 하며 연임할 수 있다.
전임자의 유고로 인해 보선된 임원의 임기는 전임자의 잔여 임기로 한다.

제 13 조 (직무)

1. 회장은 본회를 대표하여 업무를 총 관리하고 총회, 이사회의 의장이 된다.
2. 부회장은 회장의 유고시 그 직무를 대행하며, 본 회 운영의 주요한 사항을 심의하고 제반 업무를 집행한다.
3. 총무이사는 본회 운영의 주요한 사항을 심의하고 제반 업무를 집행한다. 총무부이사는 총무이사를 보좌하여 제반 총무업무를 수행한다.
4. 학술이사는 학술 모임에 관한 업무를 집행한다. 학술부이사는 학술이사를 보좌하여 제반 학술업무를 수행한다.
5. 교육이사는 회원 교육에 관한 업무를 집행한다. 교육부이사는 교육이사를 보좌하여 제반 교육업무를 수행한다.
6. 재무이사는 재무에 관한 업무를 집행한다. 재무부이사는 재무이사를 보좌하여 제반 재무업무를 수행한다.
7. 홍보이사는 홍보 및 대중 매체에 다루어지는 업무를 집행한다. 홍보부이사는 홍보이사를 보좌하여 제반 홍보업무를 수행한다.
8. 간행정보이사는 간행 및 정보에 관한 업무를 집행한다. 간행정보부이사는 간행정보이사를 보좌하여 제반 간행정보업무를 수행한다.
9. 기획이사는 기획에 관한 업무를 집행한다. 기획부이사는 기획이사를 보좌하여 제반 기획업무를 수행한다.
10. 의무이사는 의무에 관한 업무를 집행한다. 의무부이사는 의무이사를 보좌하여 제반 의무업무를 수행한다.

11. 감사는 본 학회의 재산 상황과 사업과 관련된 사항을 감사하고 이를 총회에 보고한다.
12. 이사와 부이사는 이사회를 구성하여 본 학회 운영의 주요 사항을 심의 의결한다.
13. 고문은 본 학회의 운영 전반에 대한 자문을 한다.

제 4 장 회 의

제 14 조 (구분) 본회에는 총회와 이사회, 상임이사회를 둔다.

제 15 조 (총회)

1. 정기총회는 연 1 회 회장이 소집한다. 단 정회원 5분의 1이상의 요구나 이사회의 요청이 있으면 임시 총회를 소집하여야 한다.
2. 총회는 출석 정회원으로 성립되고 재석 인원 과반수로 의결한다.
3. 총회는 다음과 같은 사항을 의결한다.
   (1) 회장, 감사 선출
   (2) 예산과 결산의 인준
   (3) 회칙 개정의 인준
   (4) 기타 이사회에서 제출한 사항

제 16 조 (이사회)

1. 이사회는 임원, 이사 및 부이사로 구성하며 회장이 의장이 되어 회의를 진행한다.
2. 이사회는 과반수 출석으로 성립하고 재석 인원 과반수로 의결한다.
3. 이사회는 총회에 제출하여 인준 또는 의결할 사항, 제 규정의 제정과 개정, 회원의 자격과 제명 및 기타 필요한 사항에 대하여 심의 의결 또는 인준한다.

제 17 조 (상임이사회)

1. 상임이사회는 상임이사로 구성하며 회장이 의장이 되어 회의를 진행한다.
2. 상임이사회는 이사회 및 총회에 제출하여 인준 또는 의결할 사항을 포함하여 회무 전반에 관한 사항을 심의 의결 또는 인준하여 집행한다.

제 18 조 (각종 위원회)

1. 이사회의 의결을 거쳐 각종 위원회를 둘 수 있다.

제 5 장 재 정

제 19 조 (재원) 본 회의 재원은 회비, 입회비, 찬조금 및 기타 수입금으로 한다.

제 20 조 (회계년도) 본 회의 회계연도는 매년 정기 총회 일에서 다음 정기 총회 전일까지로 한다.

제 21 조 (임기) 본 회의 수지 결산은 감사의 감사를 거쳐 차기 정기 총회에 보고한다.

제 6 장 부 칙

제 22 조 본 회칙에 규정되지 않은 세칙은 일반 관례에 준한다.
제 23 조 본 회칙의 개정은 이사회의 심의를 거쳐 총회의 인준을 받아야 한다.
제 24 조 본 회칙은 공포일로부터 시행한다.

2004. 7. 1 제정
2006. 5. 28 개정
2009. 5. 24 개정
2010. 10. 16 개정
2012. 6. 3 개정
2012. 10. 20 개정

대한모발학회 임원명단

(2012년 6월 - 2014년 5월)

- **고 문** 김풍명, 노병인, 박장규, 임철완, 강진수
- **회 장** 김도원
- **부 회 장** 심우영

- **총무이사** 이원수
- **학술이사** 강 훈
- **교육이사** 김문범
- **재무이사** 최광성
- **홍보이사** 허창훈
- **간행정보이사** 권오상
- **기획이사** 이동윤
- **의무이사** 민복기
- **총무 부이사** 이양원
- **학술 부이사** 김범준
- **교육 부이사** 이상훈
- **재무 부이사** 조성빈
- **홍보 부이사** 이 영
- **간행정보 부이사** 박병철
- **기획 부이사** 유박린
- **의무 부이사** 이드보라
- **감 사** 신기식, 박성욱

- **이 사** 강광영, 계영철, 김규한, 김기호, 김성진, 김시용, 김양제, 김정철, 김형옥, 김홍직, 서구일, 윤태영, 은희철, 임이석 장승호, 조성환, 조항래, 홍창권, 황성주

대한모발학회 연혁

● 대한모발학회 소개 ●

대한모발학회는 1998년 10월 29일 대한피부과학회 내에 모발연구분과위원회를 설립하기 위한 발기인 모임을 가진 것을 시작으로 하여 태동이 되었습니다. 이후 모발연구분과위원회의 주도로 매년 대한피부과학회 춘추계학술대회때마다 모발심포지엄을 개최하여 왔습니다. 이후 기존의 모발연구분과위원회를 확대 개편하여 대한모발학회를 창립하기로 하고 2004년 7월 11일 제주도 샤인빌 호텔에서 창립총회를 가졌습니다. 초대회장으로 노병인 교수를 비롯한 임원진이 선출되었고, 이후 본격적인 활동을 시작하였습니다. 2006년 5월 28일 제2대 회장으로 박장규 교수가 선출되어 2기 임원진을 구성하여 학회를 이끌었고, 2008년 5월 25일 제3대 회장으로 임철완 교수가 선출되어 제3기 집행부를 구성하여 회무를 담당하였고 2010년 6월 13일 개최된 제7차 학술대회에서 강진수 회장이 선출되어 제 4기 집행부를 구성하여 회무를 담당하였으며, 현재는 2012년 6월 3일 개최된 제9차 학술대회에서 김도원 회장이 선출되어 제5기 집행부를 구성하여 회무를 담당하고 있습니다.

현재 대한모발학회는 북미모발연구학회, 유럽모발연구학회, 일본모발연구학회, 호주모발연구학회와 함께 세계모발연구학회를 구성하는 5대 메이저 학회로서 당당히 어깨를 겨누는 세계속의 모발학회로 성장하였습니다. 더우기 2014년 제 8차 세계모발연구학회의 한국유치에 성공하여 그 위상을 세계에 드높이고 있습니다.

● 학술활동 소개 ●

1. 대한모발학회 학술대회

대한모발학회 학술대회는 1년에 한 번 개최되며, 해외학자 초청강연, 특강 및 교육 강연, 각종 구연 및 포스터 연제 발표 등으로 이루어지는 대한모발학회의 꽃이라고 할 수 있습니다. 제 1차 및 제 2차 심포지엄을 거쳐 2006년 제 3차 대회 때부터 정식 학술대회의 면모를 갖추게 되었습니다.

1) 제1차 대한모발학회 심포지엄
   - 2004년 11월 7일 밀레니엄 힐튼 호텔
   - 탈모에서 Mesotherapy 외 9 강좌

2) 제2차 대한모발학회 심포지엄
   - 2005년 6월 19일 밀레니엄 힐튼 호텔
   - 탈모증의 진단 외 12강좌

3) 제3차 대한모발학회 학술대회
- 2006년 5월 28일 밀레니엄 힐튼 호텔
- 원형탈모증의 임상적 특징 외 8강좌 및 일반연제

4) 제4차 대한모발학회 학술대회
- 2007년 5월 27일 밀레니엄 힐튼호텔
- 원형탈모증의 원인과 발생기전 외 10강좌 및 일반연제

5) 제5차 대한모발학회 학술대회
- 2008년 5월 25일 밀레니엄 힐튼호텔
- 모낭과 안드로겐 외 15강좌 및 일반연제

6) 제6차 대한모발학회 학술대회
- 2009년 5월 24일 밀레니엄 힐튼 호텔
- 모낭의 발생 외 12 강좌 및 일반연제

7) 제7차 대한모발학회 학술대회
- 2010년 6월 13일 밀레니엄힐튼호텔
- New insights into hair biology 외 14 강좌 및 일반연제

8) 제8차 대한모발학회 학술대회
- 2011년 9월 18일 코엑스 회의실 Hall E (3층)
- Current and new aspects of female pattern hair loss 외 23 강좌 및 일반연제

9) 제9차 대한모발학회 학술대회
- 2012년 6월 3일 백범김구기념관
- Defining the function of genes in differentiation of hair follicle stem cells 외 13 강좌 및 일반연제

2. Hair Forum

2001년 시작하여 해마다 참석하는 인원이 늘어나고 있는 Hair Forum은 모발학회 회원들 간의 격식 없는 모임입니다. 이는 자유로운 토론과 회원 상호간의 친목도모를 위하여 마련되고 있으며, 주로 진단 및 치료가 어려운 증례에 대한 토론, 그동안 연구했던 내용 발표, 해외모발학회 참관기 소개 등 다른 회원들과의 의견공유를 위해서 밤늦은 시간까지 진행됩니다. 최근에 개최된 Hair Forum 현황은 다음과 같습니다.

1) 2004년 8월 28일 대전 유성 스파피아 호텔
모낭유래세포에서의 androgen receptor, estrogen receptor의 발현 양상 외 13건 발표

2) 2005년 8월 20일 대전 유성 스파피아 호텔
원형탈모증 환자 400명의 임상적 고찰 외 8건 발표

3) 2006년 8월 19일 대전 유성 레전드호텔
Acute diffuse alopecia areata 외 11건 발표

4) 2007년 8월 18일 대전 유성 리베라 호텔
모낭유래세포의 특성분석 외 13건 발표

5) 2008년 8월 23일 대전 유성 리베라호텔
전두탈모증 환자에서 모반 제거후 모발재생의 치료 경험 외 18 건 발표

6) 2009년 8월 22일 대전 유성 리베라 호텔
원형 탈모증 환자에서 스트레스 평가에 대한 예비 연구 외 9건 발표

7) 2010년 8월 21일 대전 유성 리베라호텔
Effect of radiofrequency radiation on human hair follicle cells 외 16건 발표

8) 2011년 8월 27일 대전 유성 호텔아드리아
Uitraviolet radiation alters lipid metabolism in human hair follicle 외 11건 발표

9) 2012년 8월 18일 대전 유성 호텔아드리아
Effects of Mycophenolic acid and Rapamycin on hair growth외 12건 발표

3. 대한피부과학회 학술대회 시 모발심포지엄 개최

대한모발학회는 대한피부과학회 산하의 모발연구분과위원회이기도 하므로, 1999년부터 매년 대한피부과학회의 춘추계 학술대회에서 모발심포지엄을 진행하고 있습니다. 2009년부터는 대한피부과학회 춘추계학술대회시 한 번에 한해 분과심포지엄을 개최할 수 있는 대한피부과학회의 새로운 자체 규정에 따라 추계학술대회에서 모발심포지엄을 개최해 오고 있습니다.

대한모발학회 학술대회 전시 및 광고회사

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The Korean Hair Research Society

2013년 제10차 대한모발학회 학 술 대 회

인 쇄 2013년 5월 24일
발 행 2013년 5월 26일

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