

9<sup>th</sup> Annual Meeting of The Korean Hair Research Society

# 제9차 대한모발학회 학술대회



- 일시 : 2012년 6월 3일(일) 09:00~17:30
- 장소 : 백범김구기념관

## 대 한 모 발 학 회





## 초대의 글

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I would like to welcome everyone who joined us here at the 9th Meeting of The Korean Hair Research Society.

Time has come by, and it is the 9th time we are holding this Meeting of The Korean Hair Research Society. Neither many nor few, but I think that we have developed hair-related treatment techniques more and more, and made positive contributions to development of hair health-related products through the symposium. This was all possible thanks to active participations by all of you, and thanks to the passion of the medical staff striving at the site.

As you may well know, hair-related industry is rapidly growing, and on the other side, such growth is supported by the increasing trend of hair loss patients derived from complicated modern lives. Many people, however, are still mistaken that hair loss only occurs due to hereditary reasons, and there are numerous cases where people rely on non-medical methods. So Meeting of The Korean Hair Research Society has conducted The Green Hair Campaign last September to publicly promote the necessity of early diagnosis for hair loss and the appropriate treatment methods. We hope that The Green Hair Campaign continues in future, and medical treatment of hair loss positions itself as a common knowledge.

From that perspective, the Meeting of The Korean Hair Research Society where opinions on latest treatment methods are shared and new clinical activities are introduced can be said to provide a reliable matrix for various campaign activities held and hosted by the society.

Today, at the 9th Meeting, we have prepared lectures from renowned professors and medical staffs from all around the world in the field of hair. We express our infinite gratitude to Dr. Mayumi Ito of NYU, Dr. Maria Hordinsky of University of Minnesota, and Dr. Takashi Matsuzaki of Shimane University. Also, we would like to thank for the outstanding lecture preparations by domestic lecturers.

Anyhow, we wish that this be a fruitful hour for all participants today acquiring much knowledge through the lectures. Also, we hope that this be an opportunity for old acquaintances to share precious opinions and promote amity.

For the successful hosting of the 8th World Congress for Hair Research in 2014 where the competence of Korea Hair Research Society shall be revealed, we ask for the love and support of the members. Thank you.

June 2012



**Jin-Soo Kang**

President of the Korean Hair Research Society

## 제9차 대한모발학회 학술대회

# 일 정 표

Time	Convention Hall B	교육장
09:00		
09:30	<b>Session 1: Free Communication</b> (English speaking session) <b>(09:00-10:00)</b>	
10:00	Coffee Break (10:00-10:20)	
10:30	Opening (10:20-10:30)	
11:00	<b>Session 2: Hair Stem Cell and Morphogenesis</b> (English speaking session) <b>(10:30-12:05)</b>	
11:30		
12:00	Group Photo (12:05-12:20)	
12:30	Lunch & Exhibitions (12:20-13:20)	KHRS Board Meeting (12:20-13:20)
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13:30	<b>Session 3: Educational Lecture</b> (English speaking session) <b>(13:20-13:55)</b>	
14:00	<b>Session 4: Updates of Pattern Hair Loss</b> (Korean speaking session) <b>(14:00-14:40)</b>	
14:30	Coffee Break (14:40-15:00)	
15:00		<b>Satellite :</b> <b>Rumination on Diagnosis and Treatment Options</b> (Korean speaking session) <b>(15:00-16:00)</b>
15:30	<b>Session 5: Hair Transplantation</b> (Korean speaking session) <b>(15:00-17:15)</b>	
16:00		
16:30		
17:00		
17:30	Closing and General Assembly (17:15-17:25)	
18:00	Cocktail & Canapes (17:30-18:30) (Convention Hall A)	
18:30		

9<sup>th</sup> Annual Meeting of The Korean Hair Research Society

## 제9차 대한모발학회 학술대회

# 프 로 그 램

<b>Session 1</b>	<b>Free Communication</b> (English speaking session) Chairs: <b>Chull Wan Ihm, Kyung Hwan Cho</b>
09:00-10:10	Original & Case report
10:00-10:20	Coffee break
10:20-10:30	Opening Address <b>Jin-Soo Kang</b> ( <i>President, KHRS</i> )
	Congratulatory Address <b>Kyung Hwan Cho</b> ( <i>Vice-President, KDA</i> )
<b>Session 2</b>	<b>Hair Stem Cell and Morphogenesis</b> (English speaking session) Chairs: <b>Do Won Kim, Kyu Han Kim</b>
10:30-11:05	Coordinated activation of Wnt in epithelial and melanocyte stem cells initiates pigmented hair regeneration <b>Mayumi Ito</b> ( <i>NYU, USA</i> )
11:05-11:40	Expression of clock genes is differentially controlled between follicular epithelia and dermal papillae during hair cycles <b>Takashi Matsuzaki</b> ( <i>Shimane University, Japan</i> )
11:40-12:05	Defining the function of genes in differentiation of hair follicle stem cells : toward cure for baldness <b>Joonsung Hwang</b> ( <i>KRIBB</i> )
12:05-12:20	Group Photo
12:20-13:20	Lunch & Exhibitions
<b>Session 3</b>	<b>Educational Lecture</b> (English speaking session) Chair: <b>Won-Soo Lee</b>
13:20-13:55	Alopecia areata: biomarkers and clinical trials, quest for a safe and effective therapy <b>Maria Hordinsky</b> ( <i>University of Minnesota, USA</i> )

<b>Session 4</b>	<b>Updates of Pattern Hair Loss</b> (Korean speaking session) Chairs: <b>Byung In Ro, Jin-Soo Kang</b>
14:00-14:20	Algorithmic guideline for management of pattern hair loss in Asian <b>Won-Soo Lee</b> ( <i>Yonsei Wonju University</i> )
14:20-14:40	Update of female pattern hair loss <b>Oh Sang Kwon</b> ( <i>Seoul National University</i> )
14:40-15:00	Coffee break

<b>Session 5</b>	<b>Hair Transplantation</b> (Korean speaking session) Chairs: <b>Hong Jig Kim, Si Yong Kim</b>
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15:25-15:50	Checkpoints for each hair transplantation step <b>Byung Cheol Park</b> ( <i>Dankook University</i> )
15:50-16:15	Hairline design for male pattern hair loss <b>Sung Joo Hwang</b> ( <i>Dr. Hwang's Hair Clinic</i> )
16:15-16:40	Weighting in androgenetic alopecia type VI-VII <b>In Gang Jang</b> ( <i>SkinLine Clinic</i> )
16:45-17:15	Panel discussion

## [ Satellite ]

	<b>Rumination on Diagnosis and Treatment Options</b> (Korean speaking session) Chairs: <b>Jang Kyu Park, Woo-Young Sim</b>
15:00-15:15	Treatments of alopecia areata <b>Byung In Ro</b> ( <i>Kwandong University</i> )
15:15-15:30	Diagnosis and treatment options : Pattern hair loss <b>Woo-Young Sim</b> ( <i>Kyunghee University</i> )
15:30-15:45	Trichotillomania <b>Chull Wan Ihm</b> ( <i>Chonbuk University</i> )
15:45-16:00	Follisopic diagnosis of pattern hair loss <b>Jin-Soo Kang</b> ( <i>Kangskin Clinic</i> )

## 제9차 대한모발학회 학술대회

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<sup>1</sup>Department of Dermatology, Seoul National University Hospital, Seoul, Korea,  
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<sup>1</sup>Department of Dermatology and Institute of Hair and Cosmetic Medicine, Yonsei University  
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# SESSION 1

**Free Communication**  
(English speaking session)



The Korean Hair Research Society

## **Alopecia areata in the elderly: A 10 years' retrospective study**

**Kyung Hea Park, Yoon Hyuk Choi, Han Jin Jung, Hyun Jung Lim,  
Weon Ju Lee, Seok-Jong Lee, Do Won Kim**

Department of Dermatology, Kyungpook National University School of Medicine

Alopecia areata (AA) is a well-known immune-mediated form of hair loss that usually occurs in the young adults. AA in the elderly is relatively rare, therefore, little data have been reported. We performed a 10 years' retrospective study of AA in the elderly who visited our dermatologic clinic from January 2002 to December 2011 for better understanding of AA in the elderly. Among 1761 patients who were newly diagnosed as AA, 61 patients (3.5%) were older than 60 years of age at first visit. The oldest patient was 90 years old and the mean age was 71. A clinical review of medical records and subsequent telephone interviews were performed by dermatologists. The age of onset, duration of disease, family history, past history, emotional stress before onset, AA type and severity, ophiasis, nail changes, gray hair, coexisting systemic and/or dermatologic diseases, current status of physical/mental conditions, therapeutic responses and clinical courses were observed. We also compared the characteristics of AA in the elderly with those in general population using review of published literature.

## Hairline preference among various layers of Korean population

**Inho Park<sup>1</sup>, Chan Yi Bang<sup>2</sup>, Min Ji Kang<sup>2</sup>, Jong Hyuk Moon<sup>2</sup>,  
Bo Hee Yang<sup>2</sup>, Ji Won Byun<sup>2</sup>, Hee Jin Song<sup>2</sup>,  
Jeong Hyun Shin<sup>2</sup>, Gwang Seong Choi<sup>2</sup>**

<sup>1</sup>ilove Hair Center, <sup>2</sup>Department of Dermatology, Inha University School of Medicine

When planning hair transplantation, degree of alopecia as well as esthetic preference should be considered for hairline design. There are various methods and criteria for hairline design. However, the techniques introduced in previous reports are subjective and ethnic and racial differences result in different hairline preference, making it difficult to apply to various races. The aim of this study was to determine hairline preference among four different hairline shapes in Korean population. We investigated the preference of height of hairline because hair transplantation to a round type hairline is commonly done in female patients in Korea and determination of height of hairline is very important. Also, we investigated whether hairline preference is affected by sex, age, education, social status, location, marital status and history of hair transplantation. A total of 609 raters were asked to evaluate and rate the hairline profile through online questionnaire using 8 photographs showing different hairlines. M-type hairline was selected as the most preferred hairline whereas round type hairline was selected the least. In contrast, round type hairline was selected as the most preferred hairline in group with history of hair transplantation. As well as history of hair transplantation, several factors such as sex, age, education, social status, location and marital status also affected the hairline preference.

## **Characteristic aging features in Korean women's hair**

**Su-na Kim<sup>1</sup>, Ahreum Kim<sup>1</sup>, Soo-yeon Lee<sup>2</sup>, Won-Seok Park<sup>1</sup>**

<sup>1</sup>Advanced Hair Research Lab, Amorepacific R&D Center, Yong-in, South Korea

<sup>2</sup>Dermapro/Skin Research Center, Seoul, South Korea

There have been few studies of the characteristic features of hair with aging in Korean women. We investigated the changes of various features of Korean women's hair with 150 Korean women in 5 age groups. Hair density and hair diameter were analyzed by phototrichogram, and the tensile strength of hair shaft was measured with rheometer. Hair graying severity was observed by investigators and the hair color was measured using chromameter. Hair luster was evaluated with the maximum brightness (L) value of the luster ring under the fixed light source. The mineral, amino acids and steroidal hormones compositions of hair shaft were analyzed by conventional method. The hair loss parameter (hair density, diameter and tensile strength) and hair luster decline with age significantly from 50s. The hair brightness (L) value increases with aging significantly in 60s due to hair graying ratio growth. In the hair mineral analysis, calcium and magnesium decrease with aging while potassium and phosphorus increase with age-dependent manner. In case of amino acids in hair shaft, there are no significant changes in each group. The contents of steroid hormone precursors (cholesterol, pregnenolone, desmosterol and lanosterol) increase significantly with age in all groups, but there are no correlation between the steroidal hormones level and age. These results show that intrinsic aging cause changes in various hair and scalp features of Korean women.



## Ultrastructural localization and maturation of integral hair lipid in human hair follicle

**Long-Quan Pi<sup>1</sup>, Sungjoo Tommy Hwang<sup>2</sup>, Won-Soo Lee<sup>1</sup>**

<sup>1</sup>Department of Dermatology and Institute of Hair and Cosmetic Medicine, Yonsei University Wonju College of Medicine, <sup>2</sup>Dr. Hwang's Hair-Hair Clinic

Integral hair lipid (IHL) plays an important role in all compartments of hair and skin substructures and also in involvement of hair development and function. In this study, we described the ultrastructural localization and maturation of IHL in human hair follicle. Electron microscopy was performed to observe the ultrastructure of the hair lipid. Hair follicles were cut and observed longitudinally along the hair axis. For revealing IHL with electron microscopy, Lee's fixative, composed of OsO<sub>4</sub> and RuO<sub>4</sub> was designed and used. Ultrastructure of anagen hair follicle at the level where Henle layers are keratinizing, showed the intercellular lipid layer (IL) and lamellar structure (LS). Ultrastructure of anagen hair follicle at the level where the inner root sheath (IRS) is completely keratinized showed multiple LS and lamellar granules (LG). Multitudes of LS and IL are observed between the keratinized cells in IRS. The IHL in the hair follicle may be regarded as hair barrier to be similar to the epidermal lipid layer functioning as skin barrier.

## **Identification of a novel U2HR mutation in a Korean woman with Marie Unna Hereditary Hypotrichosis**

**Ki-Hun Song, Jin Park, Seok-Kweon Yun, Han-Uk Kim**

Department of Dermatology, Chonbuk National University Medical School

Marie-Unna hereditary hypotrichosis(MUHH) is a rare autosomal dominant hair loss disorder with progressive alopecia. Recently, researchers have identified mutations in U2HR, an upstream regulator of the Hr gene, as genetically responsible for MUHH. So far, 16 mutations in U2HR gene have been identified as far as we know. We report a novel heterozygous missense mutation within U2HR of the Hr gene was identified in a Korean woman with MUHH. A 24-year-old woman presented with progressive hair loss. Since puberty, she showed decreased hair density and coarse hair texture on vertex and occipital scalp. Her eyebrows, eyelashes, and pubic hairs were scanty. But there are no other ectodermal abnormalities or psychological impairments. On her pedigree, at least 6 people of her family members, including her father, had similar symptoms. Light microscopy and scanning electron microscope revealed increased hair shaft diameter, longitudinal grooves and irregular hair shaft twists which are characteristics of MUHH. Sequencing of the upstream ORF U2HR in the 5' UTR of the hairless gene resulted in the identification of a novel heterozygous missense mutation (c.80C>T) that has not been yet reported worldwide.

## The effects of sortilin on human hair growth

**Xing-Hai Jin<sup>1</sup>, Long-Quan Pi<sup>1</sup>, Sungjoo Tommy Hwang<sup>2</sup>, Won-Soo Lee<sup>1</sup>**

<sup>1</sup>Department of Dermatology and Institute of Hair and Cosmetic Medicine, Yonsei University Wonju College of Medicine, <sup>2</sup>Dr. Hwang's Hair-Hair Clinic

The pro-nerve growth factor (proNGF) and its apoptosis-promoting low-affinity receptor (p75NTR) regulate apoptosis process in human hair follicle. Sortilin is well known as a required component for transmitting proNGF-dependent death signals via p75NTR. However, the expression and role of sortilin in human hair follicles (HFs) has not yet been clearly shown. The purpose of current study was to investigate the expression and role of sortilin in human HFs. We examined the expression of sortilin in human HFs and its expression change according to the hair cycle. Furthermore, we examined the effects of sortilin on human hair growth. We observed that HFs expressed sortilin at mRNA and protein level. Sortilin immunoreactivity can be detected in the epithelium of human anagen hair follicles. During the transformation from anagen to catagen, sortilin expression appeared to be up-regulated. ProNGF significantly inhibited the human hair growth and promoted apoptosis process in organ cultured human follicles. Moreover, sortilin antagonist inhibited the apoptosis process which induced by proNGF. Altogether, these results indicate that sortilin might be an important regulatory factor for human hair cycle.





## **SESSION 2**

**Hair Stem Cell and Morphogenesis**  
(English speaking session)



The Korean Hair Research Society

## **Coordinated activation of Wnt in epithelial and melanocyte stem cells initiates pigmented hair regeneration**

**Mayumi Ito, Ph.D.**

Department of Dermatology and the Department of Cell Biology,  
New York University School of Medicine, USA

Melanocyte stem cells (McSCs) intimately interact with epithelial stem cells (EpSCs) in the hair follicle bulge. Together, these stem cells undergo activation and differentiation to regenerate pigmented hair. However, the mechanisms behind this coordinated stem cell behavior have not been elucidated. Here, we reveal the presence of a functional interaction between McSCs and EpSCs and identify Wnt signaling as a key pathway governing this communication. EpSCs and McSCs coordinately activate Wnt signaling, at the onset of hair follicle regeneration. Using genetic mouse models that specifically target either EpSCs or McSCs, we show that Wnt activation in McSCs drives their differentiation into pigment-producing melanocytes, while EpSC Wnt signaling not only dictates hair formation, but also regulates McSC proliferation during hair regeneration. Our data define a novel role for Wnt signaling in the regulation of McSCs and also illustrate a mechanism for regeneration of complex organs through heterotypic interactions between stem cells.

[ CURRICULUM VITAE ]

**Mayumi Ito, Ph.D.**

Assistant Professor (Tenure Track)

The Ronald O. Perelman Department of Dermatology and the Department of Cell Biology, New York University School of Medicine, USA



**Education :** Nagoya University, Nagoya, Japan

1996 B.S., Department of Molecular Biology, School of Science

1998 M.S., Division of Biological Science, Graduate School of Science

2003 Ph.D, supervised by professor K. Owaribe, Unit of Biosystems, Graduate School of Human Informatics

**Research Training :**

1998-2003 Research Fellow, Kanebo Ltd., Odawara, Japan

2003-2008 Postdoctoral research fellow, Dr. George Cotsarelis Lab, Department of Dermatology, University of Pennsylvania School of Medicine

**Academic Appointments :**

2008-present Assistant Professor, Department of Dermatology, Department of Cell Biology, New York University School of Medicine

2008-present Faculty, Cellular and Molecular Biology Program, Sackler Institute of Biomedical Sciences, New York University's Graduate School of the Arts and Sciences

2008-present Member, The Helen and Martin Kimmel Center for Stem Cell Biology, Skirball Institute for Biomolecular Medicine, New York University School of Medicine

2008-present Member, Stem Cell Biology Translational Research Program, New York University Cancer Institute (NIH designated Cancer Center)

**Awards and Honors :**

2004 Dermatology Foundation, Research Fellowship (USA)

2005 Society of investigative dermatology poster presentation award (USA)

2006 Dermatology of the College of Physicians of Philadelphia, Johnson-Beerman Award (USA)

2006 Heinz Maurer Prize (Germany)

2007 North american hair research society travel award (USA)

2008 International Investigative Dermatology travel award (USA)

2009 Dermatology Foundation, Career development award (USA)  
2010 Ellison Medical foundation, New scholar award (USA)

**Memberships :**

North American hair research society (2010-present)

**Patents :**

Hair follicle neogenesis (University of Pennsylvania)



## **Expression of clock genes is differentially controlled between follicular epithelia and dermal papillae during hair cycles**

**Takashi Matsuzaki, Ph.D.**

Department of Biological Science, Faculty of Life and Environmental Science,  
Shimane University, Japan

We can distinguish various types of hair on our body such as eyebrows, eyelashes, mustaches, beards, pubes, pelage and scalp hair. Each hair has the defined length, thickness and hair cycle depending on the site it grows, suggesting that a precise control mechanism exists and defines those characteristics. The hair cycle progresses synchronously in pelage follicles in young mice along a rostral-caudal axis, then it becomes less synchronized in aged ones. In human follicles, timing of hair cycles usually differs one by one, but we know our scalp hair tends to shed in spring and autumn. Therefore, the control mechanism must complete in an individual follicle, which can be modified by some systemic condition like hormonal levels. We actually noticed that isolated vibrissa follicles hold their hair cycle with similar timing as those in intact ones even when they were grafted in the kidney. Recently, it has been revealed that a variety of biological rhythms are regulated by periodic expression and mutual interactions of a set of clock genes. Thus, we focused on clock genes for understanding the mechanisms controlling the hair cycle.

We used isolated vibrissa follicles rather than pelage follicle-containing skin to exclude the influence of non-follicular tissues on gene expression profiling. Vibrissa follicles were divided into 5 stages in anagen and 3 stages in catagen and were analyzed the expression of clock genes by real-time RT-PCR (Q-PCR) for total RNAs that had been extracted from isolated vibrissa follicles or dermal papillae. Expression patterns of clock genes in whole follicles were classified into 3 categories. 1) *Bmal1*, *Clock* and *Per2* had a peak of expression at proanagen and were down-regulated in catagen; 2) *Cry1* and *ROR* alpha mRNAs increased around midanagen then decreased in catagen; 3) *Rev-Erb* alpha and *Dbp* reached the maximum expression at very early anagen and vastly reduced their expression until early catagen.

In the dermal papillae, most clock genes were down-regulated as anagen progressed. Interestingly, *Rev-Erb* alpha showed an opposite pattern of expression to that in the whole follicles, which had

a peak of expression in early catagen. In addition, hair elongation of anagen hair follicles was suppressed by adding CK1 inhibitor IC261 in organ culture of vibrissa follicles. CK1 is thought to be a kinase that regulates clock genes-feedback loops. Q-PCR revealed that Per2, ROR alpha, Rev-Erb alpha, Hlf and Tef transcripts were diminished in the IC261-treated follicles.

Then, we focused on a nuclear receptor ROR alpha in order to understand control mechanisms that generate rhythms longer than an approximately 24 hours-cycle. We found ROR alpha proteins localized in the nuclei of the dermal papilla cells of vibrissa follicles during anagen. Then their expression faded away from the nuclei. Increased ROR alpha could cease the activity of Rev-Erb alpha, because both nuclear receptors bind to the same element named RORE and competitively inhibit each other.

In conclusion, vibrissa dermal papillae and whole follicles showed different expression patterns for some clock genes. These differences might reflect multiple roles of clock genes in the hair follicle system. The hair cycle progression is likely controlled by clock genes and could be influenced by CK1 activity and extent of nuclear transportation of ROR proteins, but its control mechanisms seem to be more complicated.

[ CURRICULUM VITAE ]

**Takashi Matsuzaki, Ph.D.**

**Education :**

April 1981 - March 1984 Shinshu University, Faculty of Science,  
Department of Biology  
April 1986 - March 1990 The University of Tokyo, Graduate School of  
Science, Department of Zoology  
March 1990 Ph.D., Zoology, The University of Tokyo



**Employment :**

April 1990 - March 1991 Tokyo Metropolitan Institute of Medical Science, Postdoctoral fellow  
April 1991 - March 1993 RIKEN Tsukuba Life Science Center, Postdoctoral fellow  
April 1993 - March 1998 Research Development Corporation of Japan (Japan Science and  
Technology Agency), Yoshizato MorphoMatrix Project, Researcher /  
Research manager  
April 1998 - January 2006 Shimane University, Faculty of Life and Environmental Science,  
Department of Biological Science, Assistant professor  
February 2006 - March 2012 Shimane University, Associate professor  
April 2012 - Shimane University, Professor  
April 2012 - Shimane University, Associate dean (Education and students)

## **Defining the function of genes in differentiation of hair follicle stem cells : toward cure for baldness**

**Joonsung Hwang, Ph.D.**

Korea Research Institute of Bioscience and Biotechnology (KRIBB) /  
World Class Institute (WCI)

The hair repeats its re-growth and loss continuously through three distinct phases known as hair cycle: anagen of proliferative phase, catagen of regressing phase, and telogen of resting phase. Therefore, continuous induction of hair follicle stem cells (HFSCs) is necessary to maintain the certain amount of hair in body. It has been reported that (1) the quiescent HFSCs reside in the bulge region of hair follicle (hf), (2) a few stem cells in the bulge region react to signals from dermal papillae and become new progenitor cells in the hair matrix, and (3) these distinctly proliferative cells in the hair matrix differentiate into the outer root sheet (ORS), inner root sheet (IRS), cuticle, cortex, and medulla to form the new anagen hair shaft during each hair cycle.

In previous study, we examined that Dlx3 is a transcription factor expressed in the hf matrix cells, extending its expression to the IRS, and the hair-forming compartments, including the cortex, medulla and cuticle. Interestingly, nuclear Dlx3 expression persists in bulge cells at the telogen resting stage and the conditional deletion of Dlx3 in the epidermis resulted in complete alopecia, suggesting that Dlx3 function in HFSCs might be necessary for hair regeneration. To further define the role of Dlx3-expressing subset of bulge cells in the reinitiation of the hair cycle, we are currently characterizing a new mouse line, K15cre;Dlx3<sup>Kin/f</sup> mice. The analysis of Dlx3 function in HFSCs will provide insight into the key mechanism required for HFSCs differentiation and hair regeneration.

## [ CURRICULUM VITAE ]

### **Joosung Hwang, Ph.D.**

Korea Research Institute of Bioscience and Biotechnology (KRIBB)

#### **Research Experience :**

1996. 7 - 1998. 3    Researcher, Research Institute for Life Sciences, Hanyang University, Korea  
1998. 4 - 2001. 3    Research Assistant, National Institute of Bioscience and Human Technology, Agency of Industrial Science and Technology, MITI, Japan  
2001. 4 - 2003. 8    JSPS Fellow, Japan Society for the Promotion of Science, National Institute of Advanced Industrial Science and Technology (AIST), METI, Japan  
2003. 9 - 2008. 8    Visiting Fellow, Developmental Skin Biology Unit, NIAMS, NIH, DHHS, USA  
2008. 9 - 2011. 3    Research Fellow, Developmental Skin Biology Section, National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS), National Institutes of Health (NIH), Department of Health & Human Services (DHHS), USA  
2011. 3 - present    Investigator, World Class Institute (WCI), Korean Research Institute of Bioscience and Biotechnology (KRIBB), Korea

#### **Education :**

- 1994                    B.S., Hanyang University, Korea  
1996                    M.S., Hanyang University, Korea  
2001                    Ph.D, University of Tsukuba, Japan

#### **Professional Membership :**

- The Society for Investigative Dermatology (SID)  
American Society for Developmental Biology (ASDB)  
The American Society for Biochemistry and Molecular Biology (ASBMB)  
The Korean Society for Investigative Dermatology (KSID)  
The Korean Society for Skin Barrier Research (KSSBR)  
The Korean Society Hair Research Society (KHRS)  
Korean-American Scientists and Engineers Association (KSEA)  
NIH-Korean Scientists Association (NIH-KSA)

#### **Honors and Awards :**

- Albert M. Kligman Travel Fellowship (2009) The Society for Investigative Dermatology (SID), USA  
NIH Fellows Award for Research Excellence (2009) NIH, USA  
Outstanding Poster Award in NIAMS Intramural Retreat (2009) NIH/NIAMS, USA  
Honorable Mention Poster Award in NIAMS Intramural Retreat (2007, 2006) NIH/NIAMS, USA  
Japan Society for the Promotion of Science (JSPS) Postdoctoral Fellowship (2001-2003) JSPS, Japan  
Yoenyama Doctor Course Scholarship (2000) Rotary Yoenyama Memorial Foundation, Japan





## **SESSION 3**

**Educational Lecture**  
(English speaking session)



The Korean Hair Research Society

## **Alopecia areata: Biomarkers and clinical trials, quest for a safe and effective therapy**

**Maria Hordinsky, M.D.**

University of Minnesota Department of Dermatology, Minneapolis, Minnesota, USA

There is currently no cure for alopecia areata, an autoimmune disease. Although many therapies are available there is no universally proven therapy that induces and sustains remission. In the United States there is no therapy approved by the Food and Drug Administration for alopecia areata so treatments are considered “off label” . Current treatment choices are frequently based on disease extent, duration, and age of the patient and include a variety of topical, intralesional and systemic agents.

New drug treatment opportunities based on the results of genome-wide association studies which implicate T-cell and NK-cell activation pathways are now leading to new approaches in future clinical trials of alopecia areata. Special attention is being given to the UL 16-binding protein (ULBP3) gene cluster on chromosome 6q25 as these genes make the NKG2D-activating ligand or signal which can trigger the NKG2D receptor, initiating an autoimmune response. A greater expression of ULBP3 has also been found in hair follicles in scalp biopsy specimens from patients with active disease. Future treatment approaches for alopecia areata are now being categorized into three broad categories and include studying drugs that block natural killer cell innate immunity, halt activated T cells or modify the inflammatory cytokine network. Multiple drugs are currently being used or are being evaluated for other autoimmune diseases. Several of these have the theoretical potential to be very effective in treating alopecia areata. Examples of potential therapies to test in clinical trials include Anti CD25, Anti-CTLA-4, Jak 1/2 inhibitor, Anti-NKG2D, Syk inhibitor, Anti-IL-15, Anti-IL-6, Anti-Interferon-gamma, Anti IL-1 and Anti-IL-17. The risk/benefit ratio of this approach will need to be carefully evaluated as both adults and children enter clinical trials.



[ CURRICULUM VITAE ]

**Maria K. Hordinsky, M.D.**

**Education :**

Forest School, London E17

University of Newcastle-upon-Tyne 1968-1973



**Education/Training :**

1972 B.S., Fordham University, Bronx, New York, University of North Dakota, Grand Forks, N.D., Biology

1976 M.D., Fordham University, Bronx, New York, University of North Dakota, Grand Forks, N.D., M.D.

**Positions and Honors :**

1976-1977 Intern, Henry Ford Hospital, Detroit, Michigan

1977-1980 University of Minnesota Medical School: Resident in Dermatology

1980-1981 University of Minnesota Medical School: NIH Post-Doctoral Fellow

1981-1982 University of Minnesota Medical School: Dermatology Foundation Fellowship

1982-1984 University of Minnesota Medical School: NIH National Research Service Award

1984-1986 University of Minnesota Medical School: Instructor, Dept. of Dermatology

1986-1991 University of Minnesota Medical School: Assistant Professor, tenure track, Dermatology

1991-1999 University of Minnesota Medical School: Associate Professor with tenure, Dermatology

2000-2001 University of Minnesota Medical School: Professor, Dermatology, Interim Chair

2002-Present University of Minnesota Medical School: Professor and Chair, Department of Dermatology

**Other Experience and Professional Memberships :**

2005-Present Member, Scientific Advisory Board, Cicatricial Alopecia Research Foundation

2006-Present Representative, Association of Professors of Dermatology to the Council of Academic Societies of the AAMC

2006-2012 Member, Dermatology Residency Review (RRC) Committee

2007-2011 Member, Board of Directors, American Dermatologic Association

2010-Present Chair, Scientific Advisory Board, National Alopecia Areata Foundation

- 2009-Present Member, Education Committee, American Dermatologic Society
- 2010-Present Chair, National Alopecia Areata Foundation Scientific Advisory Board
- 2010-2012 President Elect, Association of Professors of Dermatology
- 2011-Present Secretary-Treasurer, North American Hair Research Society
- 2011-Present Member, University of Minnesota Women's Faculty Cabinet, Representative from the Academic Health Center



## **SESSION 4**

**Updates of Pattern Hair Loss**  
(Korean speaking session)



The Korean Hair Research Society

## **Algorithmic guideline for management of pattern hair loss in Asian**

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

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

Pattern hair loss (PHL) or androgenetic alopecia (AGA) is a common disorder in both Asian men and women. There are several guidelines for the treatment of PHL which are suitable for Caucasian patients; however, each of these has some limitations. Furthermore, in comparison with Caucasian patients, Asian patients with PHL have different types of hair loss and family histories which may alter the treatment response. There is currently no published PHL guideline for Asian patients. Therefore, we developed an algorithmic guideline, based on the Basic and Specific (BASP) classification, for the treatment of AGA especially in Asian patients. This treatment guideline may be useful for dermatologists in their approach to treating Asian patients with PHL in clinical practice. Ideally, clinicians should try to utilise this guideline consistently in their practice to monitor treatment response with the goal of enhancing successful outcomes. This will help boost patients' confidence and self-esteem, thus improving patients' compliance with the prescribed treatments.

[ 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)
- 1989-1992 Flight Surgeon, Air Force, Republic of Korea
- 1986-1992 Yonsei University Graduate School of Medicine, Seoul, Korea (PhD)
- 1992-2011 Research fellow, Instructor, Assistant, Associate, and Full 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 :**

- 2003-present Director, Institute of Hair and Cosmetic Medicine, Yonsei University Wonju College of Medicine, Wonju, Korea
- 2012-present Chairman, Department of Dermatology, Yonsei University Wonju College of Medicine, Wonju, Korea
- 1993-present European Hair Research Society, Active Member
- 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 50 international invited lectures and 150 domestic invited lectures

Fourteen academic awards internationally and domestically including

- 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)

## **Update of female pattern hair loss**

**Oh Sang Kwon, M.D.**

Seoul National University College of Medicine

Female pattern hair loss (FPHL) is a common condition in women characterized by a progressive thinning of scalp hair and widening of the central parting. In Korean women, the prevalence of FPHL (Ludwig I or above) at all ages was reported as 5.6% around near half of that in Caucasian females. It increases steadily with advancing age: 7.4% in the sixth decade, 11.7% in the seventh decade and 24.7% over 70 years. FPHL may be considered as a natural biological process, but it can provoke great anxiety and psychological upset. It is previously known as female androgenetic alopecia (AGA), suggesting that it is the female equivalent of male AGA. However, the role of androgens in female hair loss is less clear than in males and it is likely that other non-androgenic mechanisms are also involved, as anti-androgen treatments are generally unsatisfactory for FPHL and there have been several case reports of FPHL in androgen-deficient and androgen-insensitive women. Furthermore, the prevalence and severity of FPHL increase with advancing age, which suggests that their pathogenesis would include age-related factors and environmental influence. Medical treatment can help to prevent progression of hair loss and promote modest regrowth of hair but is probably not able to reverse follicular miniaturization. In this review, we will re-evaluate our concepts of FPHL and focus on recent advances in the treatment options.

[ CURRICULUM VITAE ]

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

Department of Dermatology, Seoul National University Hospital

**Education :**

- 2002.8-2005.2 Graduate School, Seoul National University, Seoul, Korea (Ph.D.)
- 1997.3-1999.2 Graduate School, Seoul National University, Seoul, Korea (M.S.)
- 1988.3-1994.2 College of Medicine, Seoul National University, Seoul, Korea (M.D.)

**Postgraduate Training & Academic Appointment :**

- 2010.4-present Associate Professor, Department of Department of Dermatology, Seoul National University College of Medicine, Seoul, Korea
- 2007.7-2009.7 Visiting Scholar, Department of Dermatology, University of Pennsylvania, Philadelphia PA, USA.
- 2005.3-2010.3 Assistant Professor, Department of Dermatology, Seoul National University College of Medicine, Seoul, Korea
- 2003.4-2005.2 Clinical Instructor, Department of Dermatology, Seoul National University Hospital, Seoul, Korea
- 2003.3-2003.4 Visiting Fellowship, Elective Course for Dermatological Surgery, Department of Dermatology, Oregon Health Science University, Portland OR, USA.
- 2002.5-2003.2 Research Fellowship, Department of Dermatology, Seoul National University College of Medicine, Seoul, Korea
- 1995.3-1999.2 Resident, Department of Dermatology, Seoul National University Hospital, Seoul, Korea

**Research Interests :**

Hair diseases, Regenerative medicine, Pigmentary disorder

**Memberships and Committees :**

- 2011.12-present Organizing Committee for 8<sup>th</sup> World Congress for Hair Research in 2014, Congress Secretary
- 2010.5-present Korean Hair Research Society (KHRS), Board director for Publication and Information
- 2011.4-present Korean Society of Investigative Dermatology (KSID), Board director for Publication
- 2010.7-present Korean Society for Pigment Cell Research (KSPCR), Treasurer, board member of directors
- 2011.11-present Annals of Dermatology, Assistant Editor
- Since 1999 Korean Dermatological Association, member
- Since 2002 Society for Investigative Dermatology (USA), member
- Since 2010 American Academy of Dermatology (USA), member







## **SESSION 5**

**Hair Transplantation**  
(Korean speaking session)



The Korean Hair Research Society

## Basic concept of hairtransplantation

오킴스 피부과

조 항 래

모발이식수술은 20여년 전부터 급격히 발전되어왔고, 오늘날 새로운 급격한 변화를 보이고 있다. 모발이식수술은 두피모발, 눈썹, 속눈썹, 음모의 부분 또는 전체적인 소실을 개선시키는 수술이지만, 여기에서는 두피모발에 대해서만 언급해 보고자 한다.

모발이식의 Basic concept, 즉 기본적인 개념이라는 것은 여러 가지 측면에서 고려해 볼수 있지만, 가장 근본이 되는 개념은 “첫인상의 일반성”을 증가시키기 위함이라 할 수 있다.

사람은 사회적 또는 개인적 활동을 통해 처음 만나는 사람을 접하면서, “첫인상(facial attraction)”을 머릿속에 기억하게 된다. 사람이 첫인상을 인지하는 시간은 불과 5분이 넘지 않는다고 하며, 그 첫인상은 계속해서 머릿 속에 기억된다.

사람이 상대방의 첫인상을 느낄 때에는 얼굴의 내측에 주로 자리잡고 있는 눈, 코, 입 만을 인식하지 않고, 내측의 구조물과 함께, 외측의 윤곽을 구성하는 모발, 귀, 턱라인을 함께 인식하는 것으로 알려져 있다.

즉, 어떤 사람의 첫인상은 “턱이 사각이다, 얼굴이 길다, 이마가 넓다, 이마가 좁다, 대머리다, 술이 적다” 등등의 외측 윤곽에 의한 첫인상과, “눈이 초롱초롱하더라, 코가 오뎅하더라, 입술이 얇더라” 등등의 내측 윤곽에 의한 첫인상이 함께 공존하는 것이다.

현대에는 매우 발달된 미용성형의학이 존재하고, 더 섬세하고 더 완벽한 아름다움을 만들어내기 위해 부단한 연구와 개발을 하고 있다. 이렇게 미용성형의학이 무한대 적인 팽창을 하고 있는 것은 사람은 누구나 아름다움을 추구하고, 상대방으로부터 더욱 매력적인 첫인상으로 기억되고 싶은 욕망과 본능이 있기 때문이다.

첫인상이 더욱 매력적으로 발산되기 위해서는 각각의 눈, 코, 입, 턱, 두피모발 등의 “각각의 일반성”과 이들이 서로 조합된 “얼굴의 일반성(facial averageness)”이 높아야 한다. 이 말은 누가봐도 일반적으로 예쁜 오뎅한 코, 도톰한 입술, 서글서글한 눈을 가지고 있어야 하고, 누가봐도 가름한 턱선을 가지고 있고, 이러한 것들이 균형있게 조합된 경우에 매력적인 첫인상을 가졌다고 말할 수 있다는 것이다.

이러한 첫 인상 중에서 두피모발은 얼굴의 외측 윤곽에 의한 첫인상을 만들어내는데, 가장 중요한 구조물이라 할 수 있다. 두피모발의 높은 일반성은 얼굴의 양쪽과 위쪽 테두리를 결정하는 얼굴의 틀(facial frame)을 갖추고 있는 형태라 할 수 있다.

얼굴의 틀을 제대로 갖추지 못한 두피모발은 외측 윤곽에 의한 첫인상이 얼굴의 일반성을 높이지 못하고, 따라서, 아무리 일반성이 높은 내측 구조물들을 가졌다 하더라도, 전체적인 조합에 의해

이뤄지는 첫인상은 매력적이 못할 것이다. 따라서, 많은 사람들이 첫인상을 매력적이게 하는, 외측 구조물의 윤곽에 관심이 많아지게 되었다.

이러한 관점에서, 외측 구조물 중에 하부 구조물인 턱선을 가름하게 하기위해, 사각턱 교정수술과 사각턱 교정 보톡스 시술에 많은 관심이 있어왔고, 최근에는 양악수술에 폭발적 관심이 증가되었다.

외측 구조물 중에 얼굴의 틀을 구성하는 상부 구조물인 두피모발에도 최근에 관심이 늘어나, 탈모치료에 관심이 많아졌고, 따라서 탈모치료의 한 분야인 모발이식에도 급격한 관심이 늘어나고 있는 실정이다.

얼굴의 틀을 구성하는 두피모발이 가장 높은 일반성을 나타내기 위해서는, 술이 많아야 하겠고, 자연스러운 헤어라인을 가져야 하며, 가지런히 정돈된 머릿결을 나타내야 한다.

따라서, 모발이식수술도 높은 모발밀도를 재현하며, 자연스러운 헤어라인과 가지런한 머릿결을 재건하는 것이 수술성공의 관건이라 할 수 있다. 중요한 관건을 한가지 더 추가한다면, 유전성 탈모는 진행형 탈모이므로, 모발이식수술을 통해 얻어진 새로운 얼굴의 틀이 세월이 지나도 계속해서 높은 일반성을 유지하도록 재건하는 것이라 할 수 있다.

첫째로 높은 모발밀도를 재현하기위해서는 많은 모발을 공여부에서 얻는 것이 필수적이라 할 수 있다. 그리고, 뒤통수의 일반성은 흉터가 없는 것이 일반성이므로, 이러한 일반성을 유지하기 위해서, 흉터를 최소한으로 남기면서 이식모를 얻는 것이 필요하다. 따라서 최대한의 이식모를 얻으면서, 최소한의 흉터를 남기는 방법들이 개발되고 있으며, trichophytic suture, FUE 등이 이러한 관점에서 개발된 방법이다. 그리고, 밀도를 높게 이식하는 것도 중요한데 dense packing 방법이 이식모의 밀도를 최대한 높게 심는 방법이다.

공여부에서 얻은 이식모들이 이식 후에 높은 생착율을 나타내는 것도 모발밀도를 높게 하는데 중요하므로, 이식 후에 이식모들의 성장에 도움을 주는 모낭주위주사, 저출력레이저치료 등등 다양한 치료법들도 개발되고 있다.

자연스러운 헤어라인 재건법, 가지런한 머릿결 재건법에 대한 다양한 시술법들도 계속해서 논의되고 있고, 다양한 방법들이 제시되고 있는데, slit 방법, implanter 방법들이 여기에 속한다고 할 수 있다.

지금까지 설명한 것들은 전적으로 환자의 입장에서 환자의 얼굴의 일반성을 높이기 위한 방법들로, 시술을 하는 의사나 수술팀 입장에서 보면 매우 노동적이고 단순반복의 과정이 있는데, 특히 FUE 방법이나 slit 방법으로 이식을 하는 과정이라 할 수 있다. 최근에는 이 과정을 기계화 하는 방법들이 개발되고 있는데, 이것은 어떻게 보면, 의사의 입장에서 더욱 효율적인 수술을 완수하기 위한 방법이라 할 수 있다.

하지만, 모발이식수술 전 과정이라는 것이, 2차원 또는 3차원적인 공간에 그림을 그리는 것이 아니라, 시간이라는 개념을 포함한 4차원적 공간에 예술의 경지에서 수술을 하는 과정이라 할 수 있으므로, 수술 전 과정이 기계화되기는 힘들 것으로 생각되며, 기계의 효율성과 의사의 예술성이 조화를 이루는 수술법이 미래에는 개발될 것으로 생각된다.

이번 발표에서는 위에서 설명한 대로, 얼굴의 일반성 (facial averageness)를 극대화 하는 개념에서의 모발이식수술에 관해 이야기 해보고자 한다.

[ CURRICULUM VITAE ]

**조항래**

**학력 및 경력 :**

대한피부과학회(Korean Dermatologic Association) 회원  
대한피부과의사회(Association of Korean Dermatologist) 이사  
대한미용피부외과학회(Korean Cosmetic Dermatologic Surgery Society) 이사  
대한모발학회(Korean Hair Research Society) 이사  
대한모발이식학회(Korean Society of Hair Restoration Surgery) 홍보이사  
아시아모발이식학회(Asian Association of Hair Restoration Surgeons) 회원  
세계모발이식학회(International Society of Hair Restoration Surgery) 회원  
미국 Mt. Sinai 대학병원 미용피부외과학교실 international fellowship (Manhattan) 국제전임의  
캐나다 Dr. Walter P. Unger 모발이식병원 visiting fellowship (Toronto) 국제전임의

## Checkpoints for each hair transplantation step

단국대학교 의과대학 피부과학교실

박 병 철

모발이식술 자체는 크게 공여부의 선택과 두피 모발 채취, 수여부의 헤어라인 디자인과 모발의 이식으로 구성되나, 모발이식술을 의료 현장에서 시행하기 수술실의 셋팅, 환자와의 상담, 모발이식 수술, 수술 후 관리의 단계로 구분하여 접근할 수 있다.

### 1. 수술실의 셋팅 단계

- 1) 장소 : 안락하고, 채광이 잘되는 외래 수술실에서 셋팅한다.
- 2) 조명 : 무영등이나, 수술실 전체에 형광 램프나, LED 램프를 다량으로 설치할 수 있다.
- 3) 수술 침대 : 전동침대를 사용하고, 시술자가 발로 쉽게 높낮이를 조절할 수 있는 것을 선택하며, 일반 수술침대보다는 폭이 넓은 것을 선택한다.
- 4) 식모기와 모낭 분리사의 선택 : 식모기는 리드앰, 인큐랩, 한스, KNU 식모기 등이 있으며, 각각의 장단점이 있다. 모낭 분리사는 상주 직원을 채용하거나, 외주 할 수 있는데, 모낭분리의 정도 관리가 잘 되도록 의사가 자주 점검한다.

### 2. 환자와의 상담

수술의 결과에 대해서 환자의 기대와 의사의 목표에 대해서 충분한 대화가 이루어져서, 합리적인 수술의 결과에 대해 서로 합의하는 것이 가장 중요하다.

### 3. 모발이식 수술

- 1) 공여부의 선택 : 환자의 상태, 시술자의 기호에 따라 측면(측두부 및 후두부 일부) 선택 혹은 중앙(후두부 중심) 부위를 선택한다.
- 2) 이식모의 양의 결정 : 공여부의 cm 당 모발양을 사전에 측정하고, 본인의 수술 능력, 환자의 탈모 상태, 두피의 조건 등을 신중히 고려하여 결정한다.
- 3) 공여부 두피 절개 : 공여부 마취는 신경과 혈관의 주행경로를 고려하여 후두부 아래쪽부터 먼저 시행하며, 통증이 최소화 되도록 노력한다. 절개는 기존 모발의 방향을 따라 시행하며, 주변 모발이 보존되도록 한다. 두피의 박리는 지방층 사이를 박리 한다.  
봉합은 환자에 따라 two layer suture, single layer suture, trichophytic suture 를 선택적으로 시행한다.
- 4) 이식모의 보관 : 수술이 6시간 이내에 이루어 진다면, 4도씨 생리식염수나, 하트만 용액에 보관

하여도 무관한다.

- 5) 수여부의 모발 이식 : 수여부 마취는 신경의 주행 경로를 고려하여, 전도부 앞쪽 헤어 라인을 따라 먼저 시행한다. 헤어라인이나 이식할 부위에 대해 사전에 색연필 등으로 그림을 두피에 그려서 이식모의 분포 정도를 미리 계획한다. 모발이식은 기존 모발의 방향을 고려하여 모낭이 삽입하도록 하되, 환자의 원하는 헤어스타일에 따라서 약간의 변형을 둘 수 있다. 항상 두피표면과 모낭의 삽입 각도가 예각이 되도록 유지한다. 이식모의 밀도는 상황에 따라 다르게 되며 대략적으로  $\text{cm}^2$  당 20~25 모낭이 되도록 한다면, 수술의 결과가 미용적으로 용납되는 수준이다. 이식의 힘의 벡터 방향을 고려하여, 모발이식의 진행방향은 뒤에서 앞쪽으로, 왼쪽에서 오른쪽으로 진행한다. 이식모는 앞쪽 헤어라인은 단일모로 이식하며, 기타 부위는 단일모와 복합모를 적절히 배치하여 자연스러움을 만든다.

#### 4. 수술 후 관리

- 1) 수술 직후 : 희석된  $\text{H}_2\text{O}_2$  용액으로 수여부의 피딱지 등을 제거하여 청결하게 한다. 후두부에 붕대를 하루 정도 감아주면 지혈과 봉합부위를 보호할 수 있다. 수술 당일 진통제 외에 자기 전에 안정제를 복용하도록 하면 여러 가지 장점이 있다. 갑작스런 자세 변화는 피하도록 하며, 가능하면 대중 교통을 이용하여 퇴원하도록 유도한다.
- 2) 수술 초기 관리 및 후기 관리에 대해서는 충분한 설명과, 주의 사항에 대해 인쇄물을 작성하여 환자가 참고 및 숙지하도록 하여, 적절한 관리가 이루어지도록 한다.

### [ CURRICULUM VITAE ]

#### 박병철

##### 학력 및 경력 :

경북대학교 의과대학 및 동대학원  
경북대학교병원 피부과/모발센터 전공의  
아주대학교병원 피부과학교실 임상강사  
(현)단국대학교 의과대학 피부과학교실 조교수  
대한모발학회 교육부이사  
대한모발이식학회 학술부이사

## 남성형 탈모증 환자의 헤어라인 디자인

황성주 털털한 피부과 의원

황 성 주

사람의 얼굴이 천차만별인 것처럼 헤어라인 역시 개인차가 크므로 환자 개인별 특성을 종합적으로 검토한 후 결정해야 한다. 연자는 헤어라인 디자인 시 검토해야 할 특성에 대해 살펴보고 실례를 소개하고자 한다.

### 1. 나이

사춘기 이전에는 헤어라인의 양쪽 모서리가 둥글지만, 나이가 들면서 차츰 위로 올라가거나 약간씩 M자가 되는 경향을 보인다. 또한 중년 이후에는 이마가 약간 높거나 M자 모양의 헤어라인이 자연스럽게 보이는 경우가 많다. 간혹 20대 환자들이 남성형 탈모증이 진행되기 전의 낮은 헤어라인을 만들어 줄 것을 요청하지만 한번 이식한 모발은 영구적으로 탈모가 되지 않으므로, 젊은 나이에 어울리게 헤어라인을 만들 경우 중년이 되어서는 나이에 비해 상대적으로 낮은 헤어라인이 되는 까닭에 부자연스럽게 보일 수도 있다. 따라서 젊은 환자들에게는 이런 과정을 잘 설명해서 환자의 요구대로 따르지 말고 중년에서도 어울릴 수 있는 헤어라인으로 설득하는 것이 필요하다. 40대 이상의 중년층은 약간 높은 헤어라인을 쉽게 받아 들이는 편이다.

### 2. 얼굴형태 및 이마 모양

한국인의 머리모양은 서양인과는 다르다. 서양인들은 주로 타원형의 두상을, 한국인은 둥근 형태의 두상을 갖고 있다. 서양 남성들은 대개 헤어라인 가장자리가 움푹 들어가거나 중간이 약간 뾰족한 헤어라인을 선호하는 반면, 한국 남성들은 서양인보다 더 넓고 완만한 곡선의 평평한 헤어라인을 선호하는 편이다.

### 3. 탈모 면적

남성형 탈모증은 지속적으로 탈모가 진행된다는 점과 공여부 모발의 숫자가 제한적이라는 점을 감안할 때 정상적인 높이보다는 약간 높게 헤어라인을 만들어 주면 정수리 방향으로도 좀 더 많은 이식모를 확보할 수가 있다. 따라서 탈모가 심한 경우라면 적절한 범위 내에서 가급적 헤어라인을 높게 권하는 것이 필요하다.

### 4. 공여부 밀도 및 이식할 모발의 숫자

공여부에서 채취할 수 있는 모발수가 적은 경우라면 넓은 범위의 탈모 부위를 가리기가 쉽지

않으므로 가급적 헤어라인을 높게 만들어 이식면적을 줄여주는 것이 현명한 방법이다.

#### 5. 기존 헤어라인의 모양

나이가 들면 조금 높은 헤어라인이 오히려 자연스럽다. 따라서 기존의 헤어라인보다 1~2cm 위로 헤어라인을 재건하는 것이 일반적이다. 그러나 적당한 높이의 헤어라인을 제안하더라도 기존 헤어라인이 매우 낮았던 환자들은 과거에 비해 높다며 좀 더 내리기를 원하는 반면, 기존 헤어라인이 높았던 환자들은 조금 더 위로 올려줄 것을 요구하는 경향이 있다. 일부 환자에서는 남성형 탈모증이 진행됨에 따라 측두부 앞쪽 탈모(temporal peak hair loss)가 동반되는 경우도 있는데, 측두부 앞쪽 탈모 부위를 교정하게 되면 측두부 탈모가 진행이 될 경우 이식된 모발이 섬(island)처럼 남게 되는 현상이 생길 수 있으므로 주의해야 한다.

#### 6. 환자의 요구

헤어라인 디자인을 결정하는 과정에 환자의 요구를 참고는 하되 의사의 의학적 지식과 경험을 바탕으로 최종 결정을 해야 한다. 지나칠 정도로 어색한 헤어라인을 고집하는 경우에는 신체추형 질환(Body Dysmorphic Disorder)를 의심해 볼 필요도 있다.

### [ CURRICULUM VITAE ]

#### 황성주

##### 학력 및 경력 :

황성주 털털한 피부과의원 원장  
경북대학교 의과대학 졸업, 의학박사  
아시아모발이식학회(AAHS) 회장  
세계모발이식학회 상임이사(Board of Governor, ISHRS)  
대한모발이식학회 (KSHRS) 총무이사  
대한모발학회 이사  
미국모발이식학회 상임이사(Board of Director, ABHS) 역임  
2006년 세계모발이식학회(ISHRS) Platinum Follicle Award 수상  
미국모발이식 교과서



## Weighting in androgenetic alopecia type VI-VII

In Gang Jang, M.D.

Lineskin Clinic

The number of hair follicles a person gains through a hair implant surgery under the method of incision on the temporal and occipital scalp varies on individual, but on average, the number is around 3000 hairs. For AGA type VI-VII, due to a comparatively large area of hair loss, usually 4000 to 6000 hairs are necessary for the hair implant surgery. Therefore, covering the entire bald area on a hair whirl is hardly operative; instead, the implant focuses on grafting the hair from center of forehead hairline up to the top of the head. For AGA type VI-VII, if possible, the design that increases the probability of an aesthetic improvement is necessary because most cases require fewer number of hair follicles for a large area of hair loss.

Compared to the cases with regular dense implant, “weighting” which increases the density of hair on particular area to give more volume, is more preferred. Weighting is operated after considering the total number of implantable hair, distribution of single hair and follicular units, the density of hair, the direction of hairline, and hairstyle.

### [ CURRICULUM VITAE ]

#### 장인강

##### 학력 및 경력 :

Graduate from College of Medicine, The Catholic University of Korea, Seoul, Korea

Board of Dermatology

Instructor of College of Medicine, The Catholic University of Korea, Seoul, Korea

Director of Lineskin clinic





# Satellite

**Rumination on Diagnosis and  
Treatment Options**  
(Korean speaking session)



The Korean Hair Research Society

## Treatments of alopecia areata

Byung In Ro, M.D.

Department of Dermatology, Myongji Hospital, Kwandong University College of Medicine

Alopecia areata (AA) is difficult to treat because of its chronic, relapsing, inflammatory condition and few treatments have been assessed in randomized controlled trials. Some cases will progress to alopecia totalis (AT) and alopecia universalis (AU). Topical minoxidil promotes hair growth and application must be continued in order to sustain the gain in hair growth. However, mild irritation symptoms and localized hypertrichosis developed in children and women. Contact immunotherapy (DPCP), cryotherapy, and oral or topical psoralen plus ultraviolet A (PUVA) has been treated for extensive AA, it is not widely available. Oral prednisolone can be appropriate for rapidly progressing AA, but there are potential adverse effects including acne, hypertension, cataracts, diabetes mellitus and bodyweight gain. Oral cyclosporine is an immunosuppressant agent that inhibits helper T-cell activation and suppresses IFN- $\gamma$  production. It has been used alone or in conjunction with corticosteroids for AT and AU, but its use is limited by its side effects and high relapse rate. Intralesional corticosteroids represent a common therapy for mild patchy hair loss. Treatment should be stopped if there is no response by 6 months and it may induce skin atrophy. Recently, intralesional injection of systemic growth factors composing hair growth factors should be comfortable and painless for the patient, especially in children.

### [ CURRICULUM VITAE ]

#### 노병인

#### 학력 :

- 1969. 2. 가톨릭의과대학 졸업 - <의학사>
- 1976. 2 가톨릭대학 의학부 대학원 박사 과정 수료 - <의학 박사>

**경력 :**

1969. 4-1974. 3 가톨릭의대 부속 성모병원 피부과 전공의 과정  
 피부과 전문의 자격 취득
1974. 4-1977. 4 육군 군의관(소령 예편)
1977. 6-1978. 6 서울시립강남병원 피부과 과장
1978. 7-2007. 12 중앙대학교 의과대학 피부과학교실 교수
2007. 3-2009. 2 관동의대 피부과 주임교수 및 명지병원 피부과과장
2009. 2 관동대학교 정년 퇴임
2009. 3-현재 관동의대 피부과 초빙 교수

**학회 활동 :**

1981. 10-1989 임이사 대한피부과학회(KDA) 이사 『학술(81-85), 간행(85-87) 및 총무(87-89)』 상  
 임이사 역임
1991. 10 대한피부과학회 제43차 추계학술대회 대회장
1997. 10-1999. 10 대한피부과학회 이사장
2005. 10-2006. 10 대한피부과학회 회장
2008. 6-현재 대한피부과학회 경기서부지부회 회장
2004. 10-2011. 6 제22차 세계피부과학회(WCD 2011년 서울), 조직위원회 명예회장
1998. 11-2006. 11 상동 모발연구분과위원회(KHRS) 위원장-창립회원
2004. 4-2006. 7 대한모발학회(KHRS) 회장, 현재 고문
1989. 11-현재 일본모발과학연구회(SHSR) 평의원-창립 세화인
2003. 11 제11차 SHSR 학술대회 및 한일모발연구 협동, 학술대회 대회장 - 제주
1995. 4-1997. 4 대한피부연구학회 이사장
2003. 3-2005. 3 대한피부연구학회 회장
1994. 3-2000. 6 대한의진균학회(KSMM) 총무이사-창립 회원
2002. 7-2004. 6 대한의진균학회 제5대 회장, 현재 고문
1995. 9-2008. 10 아세아태평양의진균학회(APSMM) 총무-창립회원
2008. 10 제4차 APSMM 학술대회장, 현재 부회장
2006. 10 일본의진균학회(JSMM) 명예회원

**상훈 :**

1969. 2 가톨릭의과대학 졸업식에서 공로상(은메달) 수상
1994. 4 의학신문사 일간보사신문 의사평론가 기장 수상
2002. 6 Belgium Brussels에서 개최된 제9차 EHRS(구라파모발 연구학회) 학술대회에서  
 포스타상 수상
2009. 2 녹조근정훈장 수상

## **Diagnosis and treatment options : Pattern hair loss**

**Woo-Young Sim, M.D., Ph.D.**

Department of Dermatology, Kyunghee University hospital at Gang-dong, Seoul, Korea

Male and female pattern hair loss is the most common hair loss disorder, affecting both men and women. Due to the frequency and the often significant impairment of life perceived by the affected patients, competent advice, diagnosis and treatment is particularly important.

The diagnosis of pattern hair loss in men is usually not difficult. The diagnosis is normally made clinically, but aggravating associated factors and other diseases affecting scalp and hair growth need to be excluded. The hair loss in male pattern hair loss is nonscarring and shows a preservation of the follicular ostia. It is characterized by its special pattern; by a variation in hair shaft diameter; and by the occurrence of miniaturized, vellus-like hairs that sometimes can be seen only with a magnifier or a dermatoscope. Basic qualitative tests, such as the hair pull test, contrast paper, and dermoscopy, can easily be used as a tool during a hair consultation. To monitor AGA in men, standardized overview photos are helpful as a qualitative assessment of the progression of the hair loss and as therapy control. For routine diagnostics, a scalp biopsy is usually not necessary. For accurate therapy monitoring, it is reasonable to use quantitative tests such as trichogram and trichoscan. The diagnosis of pattern hair loss in women is much more difficult to make than in men, both because of less obvious patterns of hair loss than in men and because of the frequency with which other types of hair loss occur. In women, any complaint of diffuse or widespread hair loss should trigger consideration of female pattern hair loss as a potential explanation.

And this lecture will outline the mechanisms of action, side effects, and expected results from each medication that has been approved by the FDA.

[ CURRICULUM VITAE ]

**Woo Young Sim, M.D., Ph.D.**

**Education :**

- 1982 Graduate of College of Medicine, Kyung Hee University
- 1985 Master of Medicine, Kyung Hee University
- 1990 Doctor of Medicine, Kyung Hee University

**Positions Held Since Graduation :**

- 1982-1983 Internship, Kyung Hee University Hospital
- 1983-1986 Residency in Dermatology, Kyung Hee University Hospital
- 1986-1989 Captin, Medical Corps in R.O. Korea Army
- 1989-1990 Clinical fellow, Dept. of Dermatology, Kyung Hee University Hospital
- 1990-1992 Clinical Instructor, Dept. of Dermatology, Kyung Hee University Hospital
- 1993-1997 Assistant Professor, Dept. of Dermatology, Kyung Hee University Hospital
- 1994-1995 Research Fellow, Dept. of Dermatology, University of Sheffield, UK
- 1997-2001 Associate Professor, Dept. of Dermatology, Kyung Hee University Hospital
- 2002-2005 Professor, Dept. of Dermatology, Kyung Hee University Hospital
- 2006- Professor and the Head, Dept. of Dermatology, Kyung Hee University Hospital at Gang-dong

**Certification and Licensure :**

- 1982 Korean Medical License(#23818)
- 1986 Diplomates of Korean Board of Dermatology(#453)

**Medical Society Membership :**

- Korean Hair Research Society: Inspector, and Director
- Korean Dermatological Association: Educational Director
- Korean Society for Investigative Dermatology: Director

## Trichotillomania

전북대학교 의과대학 피부과학교실

### 임 철 완

#### 진단을 위하여 도움되는 사항 :

- 발모벽의 임상도 다양하므로 어떠한 탈모환자나 진찰할 때 발모벽 가능성도 마음속에 두고 감별진단할 필요가 있다.
- 두발 및 두피를 초진할 때는 항상 피부전체를 관찰한다. 발모벽환자는 손톱이 너무 짧거나 피부의 태선화, 색소침착 등을 동반하는 경우가 최소 절반은 넘기 때문이다.
- 모든 탈모환자에서 환자가 가져온 매일 탈락모(Daily hair shed)를 관찰할 때 숫자만 볼 것이 아니고 확대경으로 모근과근위부를 관찰한다. 두툼하고 색소가 짙은 생장기모근이 하나만 보여도 발모벽의 가능성이 크다.
- 두피의 탈모반을 관찰할 때 대조카드(모발 색에 대조가 되는 하얀색 카드)를 이용하여 병변 부위에 남아있는 모발의 원위부를 관찰한다.
- 감탄부모발은 원형탈모증특징이긴 하지만 발모벽에서도 보인다.
- 병리조직상 모연화(trichomalacia)는 발모벽의 특징이기는 하지만 원형탈모증에서도 나타난다.

#### 치료를 위하여 도움되는 사항:

- 어린이 발모벽과 성인의 발모벽은 그 정신병리기전이 다르다.
- 성인의 발모벽은 예후가 극히 불량하나 다행히 피부과진료실에서는 아주 드물다.
- 피부과진료실에서 종종 만나는 어린이 발모벽은 예후가 좋고, 일종의 “버릇”으로 간주하고 버릇고치기를 해주는 것이 가장 좋다.
- 무슨 버릇이든지 그 버릇이 있는 아이는 그 자신 그 버릇을 의식하지 않는다. 이 때 가장 우수한 치료법이 인지행동요법(CBT:cognitive behavioral therapy)이다. 항 정신 약물이나 정신분석 치료 보다 효과가 훨씬 우수하고 피부과 의사가 실시하기에 용이하다.
- 발모벽은 자신의 손이 머리에 올라가서 모발을 만지는 일이 중단되면 치료되는 것이다. 그러므로 자신의 버릇을 깨닫고 인정하도록 다시 말하면 손이 머리에 얼마나 자주 올라가는가를 스스로 모니터링 할 수 있도록 그 횟수를 스스로 기록하여 이 횟수가 줄어 들게 하는 것이 소위 CBT의 self-monitoring이다. 그리고 그 어린아이의 생활이 머리에 손을 댈 수 있는 시간 즉 혼자 앉아서 공부하는 시간보다 친구들과 같이 운동하는 시간이 더 많도록 배려하는 것이 stimulus control이다.



- 발모벽은 중학생 연령 이전에는 예후가 좋으나 성인이 되면 일종의 난치병이 된다. 그러나 환자 부모들은 발모벽 자녀가 결혼 연령이 되면서부터 그때에야 비로소 심각하게 관심을 갖는 경향이 있다.
- 연자는 이상에 기술한 발모벽 환자의 진단과 치료를 실례를 들어 소개하고자 한다.

## [ CURRICULUM VITAE ]

### 임철완

#### 학력 :

전남대학교 의과대학 졸업  
전남대학교 의학 석사  
전남대학교 의학 박사

#### 경력 :

대한 피부과학회 회장 역임  
대한 모발학회 감사  
대한 피부과학회 부회장 역임  
대한 피부과학회 이사 역임  
대한 피부과학회 전북지회 회장 역임  
대한 피부병리분과위원회 위원장  
대한 모발학회 부회장 역임

## Folliscope diagnosis of pattern hair loss

강한피부과

강진수

Androgenic pattern hair loss에서 초기에는 탈모의 유무판단이 어려울 때가 있다.

즉 육안적 검사(1배율)상

탈모가 이미 진행되어 확실한 경우는 문제가 없으나,

탈모가 없는 것처럼 보이거나 탈모가 있다고 호소하거나

탈모가 있는 것처럼 보이거나 탈모가 없는 경우

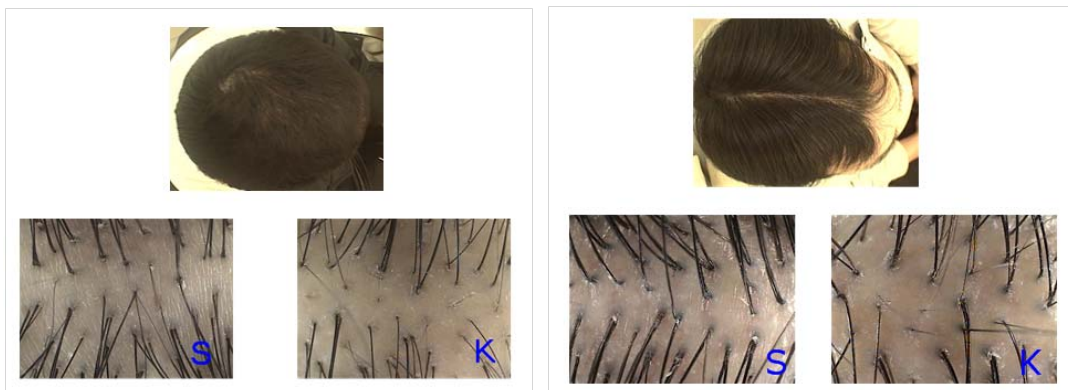
심리적 탈모 염려증 등은 진단에 어려움을 준다.

특히 이마선이 올라가는 초기때는 원래 탈모전 이마선을 알수 없어 환자의 설명에 따를 수 밖에 없다.

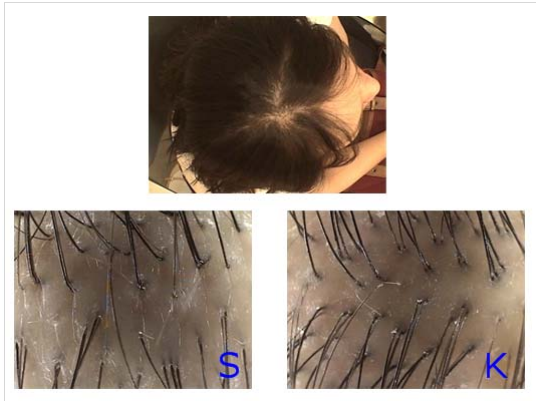
이러한 경우들에서의 해결책으로 Folliscope이 유효하게 사용될 수 있다.

Folliscope으로 확대(40배율)하여 정수리 부위와 후두부 부위를 비교하여 탈모여부 판단하고 이마라인도 형태학적 탈모유형 판단과 함께 Folliscope상 탈모 진행여부를 판단할 수 있다.

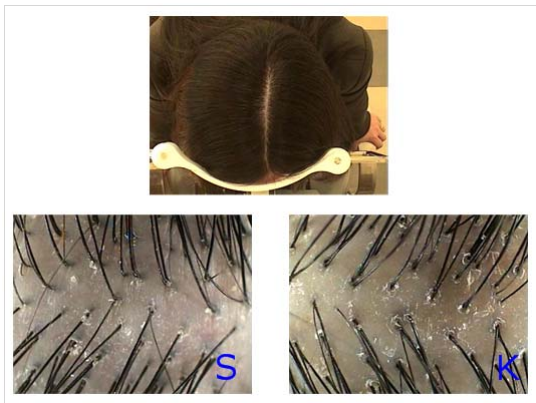
◎ 탈모아닌 것 같은데 탈모인 경우



◎ 탈모 있는 것 같으나 정상인 경우



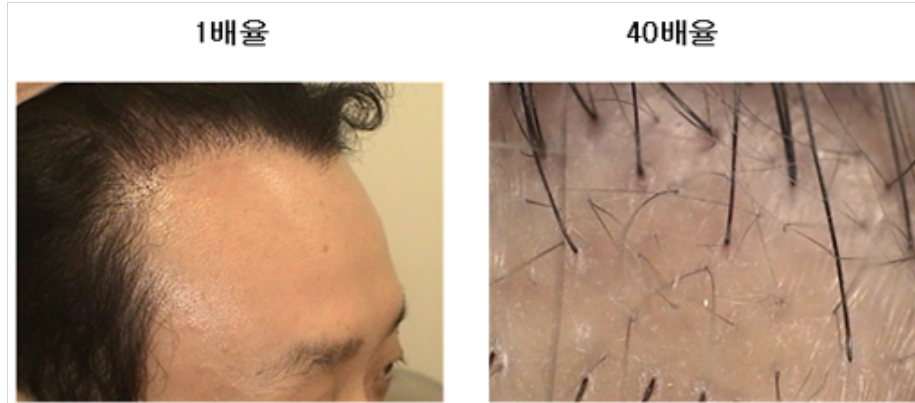
◎ 탈모 있다고 호소하나 정상인 경우



◎ 이마부위 Follicoscope상 탈모판단



© 이마탈모 있는 것 같으나 정상인 경우



[ CURRICULUM VITAE ]

**Jin-Soo Kang, M.D.**

Graduated from Yonsei University College of Medicine

Completed Department of Dermatology of Severance Hospital

Resident of Dermatology, Severance Hospital, Yonsei University

Graduated from Yonsei University Graduate School

Adjunct professor at Yonsei University

Adjunct professor at Soon Chun Hyang University

Adjunct professor at Ajou University

(Former) Director, auditor, and vice chairman of Korean Dermatological Association

(Former) Chairman of Seoul branch of Korean Dermatological Association

(Former) Executive director of the Association of Korean Dermatologists

(Former) Executive director of Korean Society of Cosmetic Dermatology

(Former) Director of the Korean Society of Phlebology

(Former) Chairman of the Korean Society for Aesthetic and Dermatologic Surgery

(Present) Chairman of the Korean Hair Research Society

(Present) Chairman of the Korean Society of Chemical Peeling

Member of American Academy of Dermatology (AAD)

Member of International Society for Dermatologic Surgery



# POSTER



The Korean Hair Research Society

## 각질형세포와 피지선세포 공배양을 통한 지루성 두피 억제 소재 연구

김아름, 김수나, 이현기, 전병배, 박원석

아모레퍼시픽 기술연구원 에스테틱연구팀 모발노화연구실

Seborrheic dermatitis (SD) is the skin disease occurred because of *Malassezia* yeast which grows on the skin and scalp, and this yeast lives on sebum lipid, and their metabolite, free lipid acids are thought to be the main irritant on skin. To find out effective cosmeceutical ingredients to treat SD symptoms, we established novel cell-based in vitro model mimicking SD symptoms. This in vitro model adopted the co-culture system with primary sebocyte & HaCaT keratinocyte. We used *Malassezia globosa* yeast extract, arachidonic acid, linoleic acid and dihydrotestosterone as SD inducers. In the co-culture system with optimized concentrations for SD-inducing cocktail, the production of IL-8 and sebum lipids increased up to 2-fold, and then we screened with commercial essential oils by monitoring IL-8 as a key inflammatory biomarker. Then we found that *Cinnamomum zeylanicum* oil, *Mentha arvensis* oil effectively down-regulated IL-1 $\alpha$ , IL-6, IL-8 cytokines which over-produced by SD-inducing cocktail. Additionally, two essential oils also showed inhibitory effect on sebum lipid synthesis from primary sebocyte and growth inhibitory effect to *Malassezia globosa* yeast (MICs were lower than 0.0625%). Our recent results suggest that *Cinnamomum zeylanicum* oil and *Mentha arvensis* oil could be effective natural herbal remedies to relieve or protect scalp seborrheic dermatitis.

## **Clinical and prognostic factors in early-onset alopecia totalis and alopecia universalis**

**Hyun Hee Cho, Seong Jin Jo, Seung Hwan Paik, Hye Chan Jeon,  
Kyu Han Kim, Hee Chul Eun, Oh Sang Kwon**

Department of Dermatology, Seoul National University College of Medicine

Alopecia totalis (AT) and alopecia universalis (AU), severe forms of alopecia areata (AA), show distinguishable clinical characteristics from those of patch AA. In this study, we investigated the clinical characteristics of AT/AU according to the onset age. Based on the onset age around adolescence (< or  $\geq$  13 years), 108 patients were classified in an early-onset group and the other 179 patients in a late-onset group. We found that more patients in the early-onset group had a family history of AA, nail dystrophy, and history of atopic dermatitis than those in the late-onset group. These clinical differences were more prominent in patients with AU than in those with AT. In addition, significantly more patients with concomitant medical disorders, especially allergic diseases were found in the early-onset group (45.8%) than in the late-onset group (31.2%). All treatment modalities failed to show any association with the present hair condition of patients. In the early-onset group, patients with AU or a family history of AA showed worse prognosis, whereas this trend was not observed in the late-onset group. Systemic evaluations might be needed in early-onset patients due to the higher incidence of comorbid diseases. We hope our results will be helpful in predicting the prognosis of AT/AU patients.

## **Efficacy and safety of Pueraria lobata extract in prevention of hair graying**

**Seong Jin Jo<sup>1</sup>, Seung Hwan Paik<sup>1</sup>, Sun Jae Na<sup>1</sup>, Ji Ying Jin<sup>1,2</sup>,  
Won Seok Park<sup>3</sup>, Soo Na Kim<sup>3</sup>, Oh Sang Kwon<sup>1</sup>**

<sup>1</sup>Department of Dermatology, Seoul National University Hospital, Seoul, Korea,

<sup>2</sup>Department of Dermatology, Yanbian University Hospital, Jilin, China,

<sup>3</sup>Advanced Hair Research Laboratory, AmorePacific R&D Center, Korea

Hair-graying leads to a cosmetic concern and some old people make their hair dyed for aesthetic purposes. However, hair colorants have many adverse effects including skin irritation, allergic reaction, hair-breakage and so on. We performed this randomized, double-blind clinical trial to examine the change of hair graying by APHG-1001, a compound including extracts from Pueraria lobata which activates microphthalmia-associated transcriptional factor, a transcriptional factor associated with melanin synthesis, as well as reduces oxidative stress. A total of 43 female subjects, 40 to 63 years old, were randomized to spray either of APHG-1001 (21 subjects) or placebo (22 subjects) twice a day for 24 weeks. Count of the newly developed gray hair, subject self-assessment and photographic assessment by investigators were used for the evaluation of efficacy. Subject self-assessment and photographic assessment did not show a certain notable difference in efficacy between groups. However, mean count of newly developed gray hair for 24 weeks was 6.3/cm<sup>2</sup> in APHG-1001 group and 11.4/cm<sup>2</sup> in placebo group and the difference was statistically significant (p=0.049). There were no severe adverse events in both groups and the difference between groups was insignificant. In conclusion, this clinical trial showed APHG-1001 containing Pueraria lobata extract could prevent hair graying in phototrichogram analysis without any remarkable adverse event.



## Association between EGF and EGFR gene polymorphisms and susceptibility to alopecia areata in Korean

서동우, 허식<sup>1</sup>, 이은주, 정주호<sup>2</sup>, 유박린, 심우영

경희대학교 의과대학 피부과학교실, <sup>1</sup>인제대학교 의과대학 피부과학교실,  
<sup>2</sup>경희대학교 의과대학 약리학교실

Epidermal growth factor(EGF) is a growth factor that plays an important role in the regulation of cell growth, proliferation, and differentiation by binding to epidermal growth factor receptor(EGFR). The roles of EGF and EGFR on the pathogenesis of alopecia areata(AA) are uncertain. However, several reports suggest the association between EGF signaling and AA. To investigate the significance of EGF and EGFR gene polymorphisms in the susceptibility to AA and understand the pathogenesis of AA. Two hundred thirty-one AA patients and 270 healthy controls were enrolled in this study. Genotype frequency of 5 single nucleotide polymorphisms(SNPs) in EGF gene and 5 SNPs in EGFR gene were studied. The statistical analyses were performed according to onset age, the family history, clinical subtypes of AA, and presence of nail involvement or body hair involvement. One SNP (rs11569017) of EGF gene and one SNP (rs6965469) of EGFR gene showed significant difference between AA patients and controls group. One SNP (rs2237051) of EGF gene showed significant difference between the AA patients with nail involvement and without. One SNP (rs17337023) of EGFR showed a significant difference between the patch type AA and alopecia totalis, and another SNP (rs1050171) showed significant differences according to body hair loss and nail involvement. EGF and EGFR gene polymorphisms might contribute to the increased susceptibility to AA in Korean population. EGF gene polymorphisms could be associated with nail involvement and EGFR gene polymorphisms could be associated with body hair loss and nail involvement.

## **Wnt5a attenuates the Wnt/ $\beta$ -catenin signaling in human dermal papilla cells**

**곽미희, 김문규, 김정철, 성영관**

경북대학교 의학전문대학원 면역학교실

The hair follicular dermal papilla (DP) plays a key role in hair growth and cycling by regulating the activity of various cells in the follicle. Recent studies showed that Wnt5a modulates hair growth. Here, we investigated whether Wnt5a acts as an autocrine factor and modulates canonical Wnt/ $\beta$ -catenin signaling in human DP cells. We observed that the Wnt3a-mediated elevation of  $\beta$ -catenin signaling was inhibited by Wnt5a as examined by reporter assay. In addition, Wnt5a siRNA-transfected DP cells and isolated DPs from Wnt5a siRNA-transfected cultured hair follicles showed higher elevation of  $\beta$ -catenin signaling by Wnt3a. Moreover, Wnt5a repressed the expression of Wnt/ $\beta$ -catenin target genes such as Axin2, EP2 and LEF1. Wnt3a-mediated nuclear accumulation of  $\beta$ -catenin was also blocked in the presence of Wnt5a in DP cells. Our data, the first of its kind to the best of our knowledge, demonstrate that Wnt5a acts as an autocrine factor and attenuates canonical Wnt signaling pathway in human DP cells.

## **OVO homologue-like 1, a target gene of Wnt/ $\beta$ -catenin pathway, controls the hair follicle neogenesis**

**Seung Hyun Shin, Moon Kyu Kim, Jung Chul Kim, Young Kwan Sung**

Department of Immunology, School of Medicine, Kyungpook National University

Recent studies demonstrated that Wnt signaling through the  $\beta$ -catenin pathway maintains hair-inducing activity of the dermal cells, suggesting that  $\beta$ -catenin activity of dermal cells is required for hair follicle neogenesis. In this study, we adopted small interfering(si) RNA-mediated gene knockdown approach together with patch assay to examine whether  $\beta$ -catenin signaling in dermal cells are critical for hair follicle neogenesis. As expected, control siRNA-transfected dermal cells induced new hair follicles in vivo. However, we observed significant impairment of hair follicle neogenesis in  $\beta$ -catenin siRNA-transfected dermal cells. These results demonstrate that  $\beta$ -catenin activity of dermal cells is crucial for hair follicle neogenesis and strongly suggest that transcriptional target genes of  $\beta$ -catenin pathway are essential for maintaining tricogenicity of dermal cells. To further explore the transcriptional target genes of Wnt/ $\beta$ -catenin pathway, we performed microarray hybridization analysis and identified a zinc-finger transcription factor, OVO homologue-like 1 (OVOL1). We observed significant impairment of hair follicle neogenesis in OVOL1 siRNA-transfected dermal cells. Altogether, our data demonstrate that OVOL1, a downstream target of Wnt/ $\beta$ -catenin pathway, play an important role in regulating the hair follicle neogenesis.

## 발모벽 69례의 임상조직학적 고찰

김정희, 이은주, 유박린, 심우영

강동경희대학교병원 피부과학교실

발모벽은 습관적으로 혹은 충동적으로 자신의 모발을 반복적으로 비틀거나, 비비거나, 잡아당겨 일어나는 외상성 탈모증의 한 임상형이다. 지금까지 발모벽에 대한 연구는 주로 정신과 혹은 소아과 영역에서 이루어졌으나 원형탈모증, 견인 탈모 등을 포함한 기타의 탈모증과 감별을 요하는 경우가 많고 조기 발견과 치료가 예후에 중요하기 때문에 피부과 의사의 역할이 매우 중요한 질환이다. 저자들은 강동경희대학교병원 피부과에서 최근 10년간 발모벽으로 진단된 69명의 환자를 대상으로 임상 조직학적 고찰을 시행하였다. 진단 당시 연령은 11개월부터 38세까지로 평균나이는 10.6세였고, 그 분포는 초등학생층(7-12세)이 40명(58%)으로 가장 많았다. 남녀 수는 각각 25명과 44명으로 1:1.76의 비율을 보였다. 주로 침범하는 부위는 전두부, 측두부였으며 전체 두피 면적의 25%이상을 침범한 중증 환자는 16명으로 전체환자의 23%를 차지하였다. 타 병원에서 원형탈모증을 포함한 기타의 탈모증으로 진단 받고 치료 하던 중 발모벽으로 진단된 환자는 19명으로 전체의 27.5%를 차지하였다. 정신적 스트레스가 동반된 경우는 21명(30.4%)이었으며, 신경정신과적 질환이 동반된 경우는 2명(2.9%)이었다. 치료는 대부분 환자에서 약물 치료 없이 질병에 대해 설명하고 경과를 추적 관찰하였으며 초등학생층에서는 이러한 증재만으로도 치료가 되는 경우가 많았다. 재발하였거나 중증환자의 경우, 다른 긴장 상황이나 정신병리학적 장애의 동반이 의심되는 경우 정신과 의사와의 상담을 권유하였다.

## Clinical manifestations of early onset female androgenetic alopecia patients

**Sung-yul Lee, Noo Ri Lee, Won-Soo Lee**

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

Androgenetic alopecia (AGA) in female patients is also called as female pattern hair loss. Female pattern hair loss shows thinning of hair thickness and decrease of hair density in the frontal and temporal area, whereas hair density in the occipital area is maintained. Characteristically, hair thinning presents predominantly over the top of the head, which shows similar to “christmas tree”. To evaluate clinical and laboratory manifestations of Korean female AGA patients, we reviewed medical records of female patients who were diagnosed as AGA before 35 years old, at the Department of Dermatology, Yonsei University Wonju Christian Hospital in the last 8 years. Total 230 patients with early onset AGA (diagnosed before 35 years) were reviewed, and we assessed their past medical histories and laboratory results such as hemoglobin, hematocrit, TIBC, ferritin, BUN, Cr, glucose, SGOT/PT, TG, cholesterol, testosterone and DHEA-S. In addition, we analyzed their hair loss pattern with BASP classification. As results, only 0.4% of the patient had a history of DM, and 2.6% had a history of thyroid disease. No patients with other medical histories were detected. Also, average levels of the laboratory findings listed above did not show any abnormal findings. All of the patients showed F type hair loss in BASP classification.

## **Characteristics of juvenile androgenetic alopecia patients**

**Noo Ri Lee, Sung-yul Lee, Won-Soo Lee**

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

Androgenetic alopecia (AGA) is known to be associated with elevated androgenic hormone levels or increased response to the hormones. It is assumed that clinical and laboratory manifestations of juvenile groups may be different from adult groups, because of different response rates to the sex hormones. Herein, we performed a retrospective study to assess clinical and laboratory findings of juvenile group with AGA. We reviewed medical records of patients who were diagnosed as AGA before 19 years old. Total 54 patients with juvenile AGA (diagnosed before 19 years) were reviewed, and we assessed their past medical histories and laboratory results such as hemoglobin, hematocrit, TIBC, ferritin, BUN, Cr, glucose, SGOT/PT, TG, cholesterol, testosterone and DHEA-S. As results, medical histories of juvenile AGA group showed different aspect compared to the adult AGA population, that is, prevalence of suspected lupus erythematosus was high (4%). Patients with other medical histories (hypertension, diabetes mellitus and cardiovascular diseases) were not detected. Sex ratio (Male:Female) was 1.7:1. In the aspects of the degrees of alopecia, only two patients (3.7%) showed moderate to severe degrees (more than degree 2 of M and V types of BASP classification). Also, average levels of the laboratory findings listed above did not show any abnormal findings.

## Medical comorbidities in early onset androgenetic alopecia patients

**Noo Ri Lee, Sung-yul Lee, Won-Soo Lee**

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

Androgenetic alopecia (AGA) is a specific type of hair loss mediated by systemic androgen and genetic factors, and is the most common type of hair loss in both sexes. Epidemiological studies have shown that insulin resistance and coronary artery disease are more frequently observed in men with AGA, and early onset AGA patients (younger than 35 years) were shown to have higher risk for systemic diseases such as insulin resistance and hypercholesterolemia than late onset AGA patients. There have been several reports on the epidemiologic studies of medical co-morbidities in early onset AGA in Caucasians, but few studies on Asians have been reported. We performed a retrospective study with early onset AGA by reviewing 810 medical records of patients diagnosed as AGA before 35 years who visited Yonsei Wonju Christian hospital in the last 10 years. We checked their laboratory findings that represent risk factors of cardiovascular and cerebrovascular diseases, such as fasting glucose level, lipid profiles, and insulin level. Also, we reviewed their medical histories. As results, early onset Korean AGA patients group showed no significant differences compared to non-AGA control group with similar ages in the laboratory findings that indicate cardiovascular and cerebrovascular disease risk. This is notable that ethnic difference is likely to present in relevance of medical comorbidities with early onset AGA patients.

## **Bilateral treatment with anthralin and diphenylcyclopropenone for recalcitrant alopecia areata**

**Won Suk Lim, Do Hun Kim, Sang Yun Jin, Yun Seok Choi,  
Ai Young Lee, Seung Ho Lee**

Department of Dermatology, Dongguk University Ilsan Hospital, College of Medicine, Dongguk University, Goyang, Korea

Various therapeutic agents have been described for the treatment of alopecia areata. The effectiveness of each treatment modality varies according to patients. Therefore, it is essential to find out the most effective treatment method for each alopecia areata patient, especially in case of recalcitrant one. Bilateral treatment strategy, that is, dividing scalp by the mid sagittal suture and treating each side with different remedy can diminish the time necessary to identify an effective therapeutic method for extensive alopecia areata. Synergistic effect might be expected when performing the bilateral treatment with diphenylcyclopropenone(DPCP) immunotherapy and anthralin, although that has not been identified yet. A 47-year-old man was referred for a 7-month history of extensive alopecia areata. He was treated with triamcinolone intralesional injection and oral cyclosporine for 6 months. Complete recovery could not be achieved, so we started DPCP immunotherapy. Hair loss progressed, and there was no treatment response for 6 months. Then, bilateral treatment with DPCP and anthralin 1% ointment was applied. After 3 months, both sides of the scalp showed some terminal hair growth. There was more significant improvement on the right side treated with DPCP 2 months later, so that anthralin was discontinued and DPCP immunotherapy was applied on the whole scalp.



## Induction of hair growth by phytosphingosine-1-phosphate in C3H/HeJ mice model

임윤영, 김형미, 손인평, 최명준<sup>1</sup>, 홍창권, 김범준

중앙대학교 의과대학 피부과학교실, <sup>1</sup>(주)피토스

Sphingosine-1-phosphate (S1P) which is stored in and released from platelet seems to play various roles physiologically. S1P through S1P receptor induces angiogenesis which is one of the major therapeutic strategies of hair growth. Phytosphingosine-1-phosphate (PhS1P), a S1P receptor agonist, has been shown to have angiogenic activity. We investigated the efficacy of PhS1P to hair growth in C3H/HeJ mice. The efficacy was assessed by dermoscope and histologic analysis. And increased expression of Wnt3a, Wnt5a, and mice hair growth-related molecules was observed in PhS1P and cyclic PhS1P group. These findings suggest that PhS1P could be one of treatment options for hair growth.

## **Inhibitory effect of tianeptine on catagen induction in alopecia areata-like lesions of mice**

**김형미, 임윤영, 손인평, 박소라<sup>1</sup>, 서성기<sup>1</sup>, 이마세<sup>1</sup>, 김명남, 김범준**

중앙대학교 의과대학 피부과학교실, <sup>1</sup>(주)건일제약

Stress is one of the important triggering factors in alopecia areata. We were to identify inhibitory effect of tianeptine on catagen induction in C57BL/6 mice with ultrasound wave stress-induced alopecia areata-like lesions. The mice were divided into three groups: Oral administration of tianeptine before and after ultrasound wave stress (group 1), oral administration of tianeptine only after ultrasound wave stress (group 2), and control group (group 3). The assessment was made by phototrichogram and dermoscopy. Group 1 mice presented increased hair growth rate and thickness of hair shaft than group 2 and group 3 mice. Tianeptine might play a role in suppressing catagen induction in stress-induced alopecia areata mice model.

## **Prevalence and classification of androgenetic alopecia in cardiovascular in-patients**

**Sung Yul Lee, Hannah Hong, Noo Ri Lee, Won-Soo Lee**

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

Androgenetic alopecia (AGA) is now considered as a risk factor of the medical co-morbidities such as cardiovascular, cerebrovascular and metabolic disease, nowadays. Especially, there are many reports about the association between AGA and cardiovascular disease in Caucasian population. However, there is lack of evidence in Asian population of this association between those two disease. The aim of this study is evaluating the prevalence of AGA in cardiovascular in-patients and classifying type of AGA in these patients. We interviewed cardiovascular disease in-patients who were already diagnosed myocardial infarction and stable/unstable angina by coronary angiography. Then we reviewed the type of AGA with BASP classification approved by KHRS and also, analyzed other laboratory findings including AGA family history of the patients. The mean age of the patients was over the 60s so, almost patients showed somewhat degree of AGA. Therefore, we compared all data obtained from patients with age/sex matched normal control group. There was a tendency that high prevalence of 'V (vertex involved type)' type in cardiovascular disease patients group compared with control group. So, we suggest that the 'V' type is the more risky than other types (M or F) for cardiovascular disease.

## 영아에서 발생한 원형탈모증

노병인, 이상윤, 김신한, 고재완

관동대학교 의과대학 피부과학교실

원형탈모증은 비반흔성 탈모증의 흔한 원인으로 동전 크기의 원형의 탈모반이 있으면서 그 부위의 모발이 소실되는 질환으로 최근에는 자가면역질환의 한 종류로 생각되고 있다. 주로 젊은 성인이나 소아에서 많이 발생하지만, 신생아나 어린 영아에서 발생한 경우는 매우 드문 것으로 알려져 있다. 첫번째 환아는 2개월 된 남아로 16일전부터 두피에 다발성의 원형탈모반이 발생하여 내원하였다. 내원 당시 후두부와 양 측두부에 다발성의 병변이 관찰되었으며, 출산 시 두피에 외상은 없었으나, 1개월 전 타병원에서 패혈증으로 입원치료 받고 퇴원한 병력 있었다. 두번째 환아는 4개월 된 남아로 2개월 전 우측 측두부에서 원형의 탈모반 발생한 후 점차 양 측두부와 후두부에 다발성의 병변이 발생하여 내원하였으며 피부 병변이외의 다른 질환 및 외상의 병력, 가족력 등은 없었다. 신생아 및 영아에서 발생한 원형탈모증의 경우 특히, 후두부에 발생할 경우에는 뒤통수뼈 융기 부위에 지속적인 마찰 및 압력과 관련하여 환상의 형태로 발생하는 경우가 흔하지만, 산류와 관련된 주산기 외상으로 인한 압박성 탈모증과 선천성 모반, 선천 삼각 탈모증, 수막류 및 발달 장애 등과 관련되어 탈모증이 발생할 수도 있기 때문에 주의깊은 관찰이 필요하다. 이에 저자들은 어린 영아에서 발생한 원형탈모증 2예를 드물고 흥미로운 증례로 생각하여 보고한다.

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

**Gyeong-hun Park, Chong-Hyun Won, Ki-young Park<sup>1</sup>, Sang-Min Lee, Sung-Eun Chang, Mi-Woo Lee, Jee-Ho Choi, Kee-Chan Moon, Hong-il Cho<sup>1</sup>**

Department of Dermatology, Asan Medical Center, University of Ulsan College of Medicine, Seoul, Korea,

<sup>1</sup>Asan Institute for Life Sciences, Seoul, Korea

Several recent murine studies showed that ginseng and its bioactive components, saponins, may be beneficial to hair growth promotion. However, the effects on human hair follicles have not yet been elucidated sufficiently. To investigate the effect of red ginseng and its saponins on the hair growth. Methods: We determined the proliferation of HaCaT cells, human outer root sheath cells and human dermal papilla cells (hDPCs) after treatment of red ginseng extract and ginsenoside Rb1 and Rg1 using MTT assay. The effect on cultured human hair follicles was assessed by the hair shaft elongation and proliferation of hair matrix keratinocytes with immunofluorescence staining of Ki67. In addition, we investigated the signal changes of hDPCs and the effect on hair growth in C57BL/6 mice. The red ginseng extract, ginsenoside Rb1 and Rg1 increased the proliferation of hDPCs in MTT assays. In the cultured human hair follicles, both ginsenoside Rb1 and Rg1 upregulated the proliferation of hair matrix keratinocytes, and ginsenoside Rg1 promoted hair shaft elongation. In addition, ginsenoside Rb1 increased the phosphorylation of ERK1/2. The red ginseng extract, ginsenoside Rb1 and Rg1 enhanced the proliferation of hDPCs and both ginsenosides upregulated the proliferation of hair matrix keratinocytes. These results suggest that red ginseng may be beneficial for human hair growth promotion.

## **Ultraviolet radiation alters lipid metabolism in human hair follicle**

**Long-Quan Pi<sup>1</sup>, Xing-Hai Jin<sup>1</sup>, Sungjoo Tommy Hwang<sup>2</sup>, Won-Soo Lee<sup>1</sup>**

<sup>1</sup>Department of Dermatology and Institute of Hair and Cosmetic Medicine, Yonsei University Wonju College of Medicine, <sup>2</sup>Dr. Hwang's Hair-Hair Clinic

Although integral hair lipid (IHL) plays essential roles in hair morphogenesis and formation of lipid envelop of hair cells, their roles on ultraviolet (UV)-induced photoaging in human hair follicle are poorly understood. In this study, we investigated the photo-degradation of IHL in human hair follicle. Organ-cultured human anagen hair follicles were irradiated with UV, and IHL metabolism was studied. We observed that UV irradiation decreased the free fatty acid contents, but increased the ceramide and sphingomyelin contents. The expressions of genes related to lipid synthesis, including acetyl-CoA carboxylase (ACC), fatty acid synthase (FAS), stearoyl-CoA desaturase (SCD), and sterol regulatory element binding proteins (SREBPs) were also markedly decreased. These results suggest that UV radiation alters IHL in human hair follicle and IHL may play important roles in photoaging of human hair follicle.

## Two cases of hair shaft abnormalities associated with hair breakage

**Won Joon Choi, Young Sun Eun, Chul Hwan Bang,  
Jung Eun Kim, Hoon Kang**

Department of Dermatology, St. Paul's hospital, College of Medicine,  
The Catholic University of Korea, Seoul, Korea

Pili torti which means twisted hair is a rare hair abnormality. The hair is characterized by twisting of the hair shaft by its own axis. It shows brittle, easily broken hair and segmental thickening. We report a 33-year-old woman whose hair has been diffusely thin and kinky since birth. Her sister has similar symptoms. She denied any trauma history. Dermoscopy and electron microscope study revealed twisting of hair and different thicknesses of one hair shaft. Histopathologically, there were no hair follicular destruction and inflammatory reactions.

Trichorrhexis nodosa is the most common hair shaft anomaly characterized by the development of node-like swelling, weakening of the shaft and finally develops paintbrush effect on the side of the fracture. It is commonly followed by a chemical or physical traumatic injury. We also report a 4-year-old boy whose hair has been diffusely short and curly with diffuse alopecia since birth. His hair had growth retardation. We found shaft breakages and fractures similar to paintbrush by electron microscope.

Both cases are congenital cases that are rarer than acquired ones. We experienced 2 cases of hair shaft abnormalities with hair breakage diagnosed by dermoscopy and electron microscope.

# 대한모발학회 회칙

## 제 1 장 총 칙

제 1 조 (명칭) 본회는 대한모발학회(The Korean Hair Research Society)라 하며 대한피부과 학회의 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 본 회 목적에 찬동하는 자로 한다.
4. 준회원: 전공의 및 모발 연구에 종사하는 연구원으로 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, 간행정보의 상임 이사와 부이사, 감사 2명 및 3명 이내의 고문을 두며 이사의 정원은 30 명 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. 감사는 본 학회의 재산 상황과 사업과 관련된 사항을 감사하고 이를 총회에 보고한다.  
10. 이사와 부이사는 이사회를 구성하여 본 학회 운영의 주요 사항을 심의 의결한다.

11. 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 이사회 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

## 대한모발학회 임원명단

(2010년 6월 - 2012년 5월)

- 고 문 노병인, 박장규, 임철완
- 회 장 강진수
- 부 회 장 김도원
  
- 총 무 이원수
- 학 술 강 훈
- 교 육 김문범
- 흥 보 민복기
- 재 무 최광성
- 간행정보 권오상
- 총무 부이사 김범준
- 학술 부이사 유박린
- 교육 부이사 박병철
- 재무 부이사 조성빈
- 홍보 부이사 원종현
- 간행정보 부이사 이상훈
- 감 사 심우영, 김정철
  
- 이 사 강광영, 계영철, 김규한, 김기호, 김성진, 김시용, 김양제  
김풍명, 김형욱, 김홍직, 박성욱, 서구일, 신기식, 윤태영  
은희철, 이동운, 이양원, 임이석, 장승호, 조성환, 조항래  
허창훈, 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 제 2대 회장으로 박장규 교수가 선출되어 2기 임원진을 구성하여 학회를 이끌었고, 2008년 5월 25일 제 3대 회장으로 임철완 교수가 선출되어 제 3기 집행부를 구성하여 회무를 담당하였습니다. 현재는 2010년 6월 13일 개최된 제 7차 학술대회에서 강진수 회장이 선출되어 제 4기 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 한국 유치에 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 연재 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) 제 6차 대한모발학회 학술대회
  - 2009년 5월 24일 밀레니엄 힐튼 호텔
  - 모낭의 발생 외 12 강좌 및 일반연제
- 7) 제 7차 대한모발학회 학술대회
  - 2010년 6월 13일 밀레니엄힐튼호텔
  - New insights into hair biology 외 14 강좌 및 일반연제
- 8) 제 8차 대한모발학회 학술대회
  - 2011년 9월 18일 코엑스 회의실 Hall E (3층)
  - Current and new aspects of female pattern hair loss 외 23 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 16 건 발표
- 8) 2011년 8월 27일 대전 유성 호텔아드리아  
Ultraviolet radiation alters lipid metabolism in human hair follicle 외 11 건 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

### ● 전시회사

등급	회사명	연락처
골드	한국MSD	02-6363-0150
	갈더마코리아	02-6717-2043
	현대약품	02-2600-3899
	글락소스미스클라인	02-709-4114
	동화약품	02-2021-9300
실버	토탈헬스포인트	02-553-7895
	메디웨이	02-811-0088
	미라	02-556-6545
	종근당	02-2194-0300
	리드엠	02-599-4929
	반석메디칼	02-931-9931
브론즈	정우의학서적	02-822-1361

### ● 광고회사

No.	회사명	연락처
1	한국MSD(주)	02-6363-0150
2	글락소스미스클라인	02-709-4114
3	현대약품	02-2600-3899
4	보령제약	02-708-8000
5	갈더마코리아(주)	02-6717-2043
6	토탈헬스포인트	02-553-7895
7	라로슈포제	080-344-0088
8	동구제약	02-2688-9611





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발행처 대 한 모 발 학 회

학술대회 사무국  
나림컨벤스  
서울시 영등포구 선유로 27  
대룡오피스텔 613호  
Tel: 02-6671-1373, Fax: 02-6671-1374  
E-mail: narim2007@paran.com