8th Annual Meeting of The Korean Hair Research Society

제8차 대한모발학회 학술대회

- 일시 : 2011년 9월 18일(일) 09:00~17:30
- 장소 : 코엑스 회의실 Hall E(3층)

대 한 모 발 학 회

초대의 글

First, I wish to welcome everyone attending this 8th Korean Hair Research Society Meeting.

I am truly moved that the Korean Hair Research Society now holds its 8th Meeting, before we knew it.

Hair, sometimes called the second skin, is closely related to the quality of life. Accordingly, common people now actively enquire about hair diseases and seek for more effective treatment. This means for us, the medical specialists and the relevant industry, that we have much to do.

Since it first began as the hair research subcommittee of the Korean Dermatological Association, the Korean Hair Research Society was officially founded in July 2004, through expanded reorganization of the hair research subcommittee, which continues to this day. Currently, the Korean Hair Research Society is growing to become a world-level hair research society, ranking with the North American Hair Research Society, European Hair Research Society, and Society for Hair Science Research in Japan. In particular, we feel honored that, due to the support and efforts of all our members and in recognition of our work, the 2014 8th World Congress for Hair Research will be held in Korea and preparations are underway.

At this 8th Korean Hair Research Society Meeting, we have lectures and presentations by professors and medical professionals from various countries around the world, who are renowned in the field of hair research. We express a word of gratitude to those who came a long way to join us here, at the Korean Hair Research Society Meeting, despite their busy schedules - Dr. Gen Yamada from Japan, Dr. Ramon Grimalt from Spain, Dr. Xue Zhang from China, and Dr. Andrew Messenger from the UK.

The executives of the society and I will give our best efforts for the success of the 8th Korean Hair Research Society Meeting, making this our best meeting so far. I ask the members to attend proceedings and share much interest, so that this gathering can be the best opportunity to share precious and significant research results.

Once again, I wish for the tremendous success of the society and the members.

September 2011

Jin Soo Kang

Jin-Soo Kang

President of the Korean Hair Research Society

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일 정 표

Time	Hall E1+E2	Hall E3
09:00		
09:30	**Session 1: Free Communication** (English speaking session) **(09:00-10:10)**	**Session 6: Hair Clinic Workshop** **(09:00-10:10)**
10:00		
10:30	Coffee Break (10:10-10:30) Opening (10:30-10:40)	
11:00	**Session 2: Wnt Signaling, Growth Biology of Hair** (English speaking session) **(10:40-12:20)**	
11:30		
12:00		
12:30	Group Photo (12:20-12:30)	
13:00	Lunch & Exhibitions (12:30-13:50)	KHRS Board Meeting (12:40-13:40)
13:30		
14:00	**Session 3: Female Pattern Hair Loss** (English speaking session) **(13:50-14:40)**	
14:30		
15:00	**Session 4: White hair** **(14:40-15:40)**	**Session 7: Eyelash hypotrichosis** **(14:40-15:40)**
15:30		
16:00	Coffee Break (15:40-16:00)	
16:30	**Session 5: What's New in Hair Loss Treatment?** **(16:00-17:15)**	**Session 8: Hair Research Workshop** **(16:00-17:15)**
17:00		
17:30	Closing and General Assembly (17:15-17:25)	
18:00	Cocktail & Canapes (17:30-18:30) (Hall E4)	
18:30		

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프 로 그 램

Session 1	**Free Communication** (English speaking session) Chairs: **Chull Wan Ihm, Jail Il Youn**
09:00-10:10	Original & Case report
10:10-10:30	Coffee break
10:30-10:40	Opening Address **Jin-Soo Kang** (*President, KHRS*)
	Congratulatory Address **Jai Il Youn** (*President, KDA*)

Session 2	**Wnt Signaling, Growth Biology of Hair** (English speaking session) Chairs: **Byung In Ro, Won-Soo Lee**
10:40-11:05	Roles of growth factor cascades in epithelial formation; an emerging strategy with conditional mutant mouse models **Gen Yamada** (*Wakayama Medical University, Japan*)
11:05-11:30	Wnt/β-catenin activityin the mesenchymal cells of hair follicle in the regulation of trichogenicity **Young Kwan Sung** (*Kyungpook National University*)
11:30-11:55	Congenital atrichia and hypotrichosis **Ramon Grimalt** (*University of Barcelona, Spain*)
11:55-12:20	Genomic basis of congenital generalized hypertrichosis **Xue Zhang** (*Peking Union Medical College, China*)
12:20-12:30	Group Photo
12:30-13:50	Lunch & Exhibitions

Session 3	**Female Pattern Hair Loss** (English speaking session) Chairs: **Hyung Ok Kim, Woo Young Sim**
13:50-14:15	Current and new aspects of female pattern hair loss **Andrew Messenger** (*Royal Hallamshire Hospital, UK*)
14:15-14:40	Importance of estrogen in female pattern hair loss **Won-Soo Lee** (*Yonsei Wonju University*)

Session 4	White Hair	Chairs: **Jin-Soo Kang, Do Won Kim**
14:40-15:00	Melanogenesis and hair	**Kyoung Chan Park** (*Seoul National University*)
15:00-15:20	Mechanism of hair graying	**Young Ho Lee** (*Chungnam National University*)
15:20-15:40	Clinical aspects of hair whitening	**Sung Wook Park** (*Dr Park's Dermatology Clinic*)
15:40-16:00	Coffee break	

Session 5	What's New in Hair Loss Treatment Chairs: **Jang Kyu Park, Hong Jig Kim, Chang Kwun Hong**
16:00-16:15	Immunologic treatment of alopecia areata **Sang Hoon Lee** (*Soonchunhyang University*)
16:15-16:30	Instrumental treatment of pattern hair loss **Chong Hyun Won** (*Ulsan University*)
16:30-16:45	Update of cicatricial alopecia treatment **Sung Bin Cho** (*Yonsei University*)
16:45-17:00	Supplements for hair growth **Bark-Lynn Lew** (*Kyunghee University*)
17:00-17:15	The latest updates on surgical treatment of alopecia **Byung Cheol Park** (*Dankook University*)

Session 6	Hair Clinic Workshop
09:00-09:15	Interview and evaluation of patients with hair loss **Woo Young Sim** (*Kyunghee University*)
09:15-09:30	New standard methods; Phototrichogram with a headband and tapeline **Jin-Soo Kang** (*Kangskin Clinic*)
09:30-09:45	Intralesional injection and topical therapy **Beomjoon Kim** (*Chungang University*)
09:45-10:00	Scalp biopsy and histopathology **Moon Bum Kim** (*Pusan National University*)
10:00-10:10	Q & A

Session 7	Eyelash hypotrichosis	Chairs: **Yang Che Kim, Ee Seok Lim**
14:40-15:00	Should we leave eyelash management to the role of cosmetics? **Ha Seong Lim** (*I'mZain Dermatology Clinic*)	
15:00-15:20	Understanding of eyelash hypotrichosis and latest clinical update **Won-Soo Lee** (*Yonsei Wonju University*)	
15:20-15:40	Panel discussion **Oh Sang Kwon, Won-Soo Lee, Ha Seong Lim**	

Session 8	Hair Research Workshop
16:00-16:15	Protocol design and clinical trial for hair research **Won-Soo Lee** (*Yonsei Wonju University*)
16:15-16:30	Hair follicle microdissection and hair follicle cell culture **Oh Sang Kwon** (*Seoul National University*)
16:30-16:45	*In vitro* experimental technique for hair research **Hoon Kang** (*Catholic University*)
16:45-17:00	Animal model for hair loss **Gwang Seong Choi** (*Inha University*)
17:00-17:15	Q & A

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목 차

Session 5 What's New in Hair Loss Treatment

Session 6 Hair Clinic Workshop

Session 7 Eyelash hypotrichosis

Session 8 Hair Research Workshop

Free Communication

[Original & Case report]

[Posters]

SESSION 1

Free Communication

(English speaking session)

The Korean Hair Research Society

The clinical study of androgenetic alopecia in korean males and females

Woo Sun Jang, In Kwon Yeo, In su Kim, Jin Woong Lee, Kui Young Park, Kapsok Li, Beom Joon Kim, Seong Jun Seo, Myeung Nam Kim, Chang Kwun Hong

Department of Dermatology, Chung-Ang University College of Medicine, Seoul, Korea

Background : Androgenetic alopecia (AGA) is characterized by the local and gradual transformation of terminal scalp hair into vellus hair, which has a shorter and thinner shaft. There are no studies that analyze annual changes in age, patterns, family history, and associated disease. Objective : We investigated the severity of hair loss, age of onset, the frequency of family history, and past medical histories in Korean patients with AGA. Methods : A retrospective chart review was performed to identify all patients with AGA referred to the Dermatology Clinic at Chung-Ang University Hospital from January 2006 to December 2010. Results : The age of onset was also gradually decreased from 34.1±10.1 years to 31.6±10.9 years between 2006 and 2010. In female patients, specific annual changes were not observed. Hamilton-Norwood Type IIIv AGA was most common in male patients and Ludwig Type I AGA was most common in female patients at all times between 2006 and 2010. The majority of patients with AGA had a family history of baldness and was most commonly associated with a paternal pattern of inheritance. Seborrheic dermatitis was the most common associated disease in male and female patients. Conclusion : Our results show the possibilities that the average age of onset is decreasing. The period of the present study was only 5 years, which is not sufficient for the precise determination of age of onset of AGA. Clearly, a long-term study is need.

Involvement of calcitonin gene-related peptide in immune privilege of human hair

Long-Quan Pi, Xing-Hai Jin, Han-Nah Hong, Sung-Yul Lee, Yoon-hee Lee, Sungjoo Tommy Hwang[1], Won-Soo Lee

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

The neuropeptide, calcitonin gene-related peptide (CGRP), a 37-amino acid peptide, is one of the most abundant neuropeptides in human and rodent skin and display various immune regulation effects. The purpose of the current study was to identify the functional role of CGRP in the regulation of immune privilege of human hair follicles. First, we used a potent catagen inducer-interferon-γ to make an ectopic MHC class I expression model in cultured human hair follicles, and then, we examined the effects of CGRP on the regulation of ectopic MHC class I expression in cultured human hair follicles using Reverse Transcriptase-Polymerase Chain Reaction(RT-PCR) and immunohistochemical stain technique. As results, INF-γ-induced ectopic HLA-B mRNA expression was suppressed by 10-8 M CGRP in hair follicle organ culture, indicating that CGRP has direct immmunomodulating effects on the hair follicle. In addition, 10-8 M CGRP also suppressed the staining intensity related to the expression of HLA class I and MHC class I-pathway related molecules (β2-microglobulin). β2-microglobulin is critical for proper presentation of self-peptide via MHC I and stabilization of MHC class I. CGRP could be involved in the process of MHC class I suppression in the proximal hair bulb.

Scoring system for evaluation of pattern hair loss by phototrichogram using headband and tapeline

Eui Hyung Lee, Jin-Soo Kang[1], Jeon In Kyung, Hye Sun Lee[2], Zhenlong Zheng, Sung Bin Cho

Department of Dermatology and Cutaneous Biology Research Institute, Yonsei University College of Medicine, [1]Kangskin Clinic, [2]Department of Biostatistics, Yonsei University College of Medicine, Seoul, Korea

Background: A phototrichogram scalp measurement method using a headband and a tapeline was introduced as a non-invasive and economical measuring technique. Objective: To evaluate the reliability and repeatability of the two-point scoring system by phototrichogram using a headband and a tapeline. Methods: The scalp hairs of seven volunteers were measured in triplicate at the 'P' and 'V' points by three dermatologists. To calculate the degree of disease progression, we used a two-point ('P' point and 'V' point) scoring system. Statistical analyses for the evaluation of inter- and intra-investigator reliability and variability were performed. Results: Overall intraclass correlation coefficients (ICCs) of intra-investigator reliability demonstrated ICCs with excellent agreement for all parameters, including the number and thickness of hairs at the 'P' and 'V' points, as well as calculated degree of disease progression. ICCs of inter-investigator reliability demonstrated ICCs with excellent agreement in all parameters, except mean hair thickness at the 'P' point. Overall intra-investigator variability demonstrated coefficients of variation (CVs) ranging from 2.6% to 9.8%, whereas inter-investigator variability demonstrated CVs ranging from 2.9% to 6.3%. Conclusion: We suggest that a two-point scoring system using our method is a non-invasive and economical measurement technique with high reliability and repeatability.

Transfollicular delivery of nile red and sodium fluorescein in hairy and hairless mouse skin

Min Young Kang, Hye Mi Park, Moonkyu Kim, Jung Chul Kim, Insook Han

Department of Immunology, School of Medicine, Kyungpook National University, Daegu, Korea

We have examined the transdermal and transfollicular delivery of two fluorescent dyes in dorsal skin of hairy and hairless mice: hydrophobic nile red (NR) and hydrophilic sodium fluorescein (SF) dye. Since NR is a highly hydrophobic, it penetrated the skin efficiently through the dominant transfollicular pathway. In 40 minutes after topical application of 1% nile red, it was found in dermis through the follicular route. Instead, transdermal delivery of NR was rarely observed even in hairy mice. On the other hand, since SF is a highly hydrophilic ionic molecule, it is not easy to deliver into skin or hair follicles in its aqueous solution. In order to enhance the penetration, different solvent or iontophoretic movement was introduced. The application of ethanol increased the transdermal delivery better than the transfollicular route. In contrast, iontophoresis with (-) polarity enhanced significantly higher transfollicular delivery rather than the transdermal one. It was highly depending on the iontophoretic conditions such as electric currents, application time, dye concentration, and kinds of solution. Iontophoretic enhancement of sodium fluorescein was significantly (1.5~2.5 times) increased in hairy mice skin than in the hairless mice skin. All these results demonstrated that the iontophoresis of sodium fluorescein as well as topical application of nile red occurred dominantly through the transfollicular route.

Cytokine profile associated with development of alopecia areata in skin graft induced C3H/HeJ mouse – Preliminary Study

Hee Jin Song, Bo Hee Yang, Hyo Jin Kim, Jeong Hyun Shin, Gwang Seong Choi

Department of Dermatology, Inha University School of Medicine, Korea

Alopecia areata (AA) -like hair loss in C3H/HeJ mice provides an excellent model for human AA disease research. Previous studies using full thickness skin graft have proved that incidence of AA in C3H/HeJ mouse can be increased. AA is a disease of the hair follicles with multifactorial etiology. Several cytokines are considered to be related with AA. But there have been no previous study which compared cytokine levels before and after the hair loss in the same individualof C3H/HeJ mouse because it is difficult to obtain enough blood in the living C3H/HeJ mouse. The skin of C3H/HeJ mouse with extensive hair loss was grafted to 6.5 week-old C3H/HeJ mouse and 7 AA mice were obtained. Blood samples were collected from the tail before the skin graft (week 6) and after the hair loss (week 12.5). We have compared and analyzed levels of several cytokines (GM-CSF, IFN-r, IGF-1, IL-10, IL-12p40p70, IL-12p70, IL-13, IL-17, IL-1α, IL-1β, IL-2, IL-4, IL-5, SCF and TNF-α) using Quantibody® Arrays before and after the hair loss. After the hair loss, blood levels of IL-10, IL-12p40p70, IL-12p70, IL-17, IL-1α, IL-1β, IL-4, IL-5 and SCF were decreased but levels of GM-CSF, IFN-r, IGF-1, IL-13, IL-2 and TNF-α were increased. Among them, decreased in IL-1α and IL-4 levels were statistically significant. This study has investigated blood levels of several cytokines before and after the skin graft in C3H/HeJ mice using only small amount of blood sample through Quantibody® Arrays. We expect that this study can be a pilot research for large study that can find out the immunologic causes or prognostic factors of alopecia areata.

Gene expressional characteristics of primary cicatricial alopecia: preliminary study

Hee Dam Jung, Kwan Ho Jung, Ju Hyun Lee, Jung Eun Kim, Young Min Park, Hyung Ok Kim, Hoon Kang

Department of Dermatology, College of Medicine, The Catholic University of Korea Hair NBioDE Institute, Seoul, Korea

Even the most experienced clinicians have difficulty in diagnosing primary cicatricial alopecia. The purpose of this study is to obtain the empirical molecular evidences supporting the hypothesis and characteristics that each primary cicatricial alopecia is distinct disease. We enrolled total 10 patients (3 patients with lichenplanopilaris, 3 with pseudopelade of Brocq, 2 with frontal fibrosing alopecia, 2 with central cetrifugal cicatricial alopecia). 2 biopsy specimens were obtained from each patient. We conducted DNA extraction, microarray analysis and quantitative RT-PCR. In the clustering analysis, LPP and PPB revealed a similarity. And FFA and CCCA showed a similarity. The result of categorization analysis about gene function showed the statistically significant difference in inflammatory resoponse. The genes showed the biggest difference were matrix metalloproteinase 11, apolipoprotein L2 and tumor necrosis factor superfamily member 13b. Immunohistochemical stain of MMP11 between LPP and CCCA showed differences in positive areas. From the result, types of primary cicatricial alopecia can be regarded as biologically distinct disease. The genes that we have identified might potentially be useful as markers of the respective diagnosis. Moreover, this data may help to reveal the disease mechanisms involved. This study is preliminary study. More recruitment of patient and further analysis of the different gene expressions are needed.

Erosive pustular dermatosis of the scalp with bone resorption

Eun Hwa Lim, Myung Im, Young Joon Seo, Jeung Hoon Lee, Young Lee

Department of Dermatology, Chungnam National University Hospital, Daejeon, Korea

A 70-year-old man presented with a 20-year history of erosions and pustules on the scalp vertex (Panel A). Physical examination revealed erosions and cutaneous atrophy, which had resulted in scarring alopecia. The superficial arterial pulse was detected by palpation. The patient had suffered flame burns on the scalp vertex 50 years previously, but had no history of brain surgery. A skull radiograph revealed a bony defect in the parietal bone (Panel B), which was confirmed by a CT scan of the brain (Panel C). Histopathological examination revealed nonspecific, atrophic epidermis and a dense dermal infiltrate consisting of mixed inflammatory cells. On the basis of the clinical, histologic, and radiologic findings, the patient was diagnosed with erosive pustular dermatosis of the scalp. The parietal bone resorption was concluded to have been caused by chronic inflammation in the overlying scalp skin, which is in close contact with the skull. The patient was treated with topical 0.1% tacrolimus ointment, and his skin lesion is showing gradual improvement.

Folliculitis decalvans: Response to intralesional injection of steroid with oral isotretinoin

In Su Kim, In Young Oh, Mi Kyung Park, Jin Woong Lee, Kui Young Park, Kapsok Li, Beom Joon Kim, Seong Jun Seo, Myeung Nam Kim, Chang Kwun Hong

Department of Dermatology, Chung-Ang University College of Medicine, Seoul, Korea

Folliculitis decalvans is a chronic purulent folliculitis resulting in follicular atrophy and permanent hair loss. Due to unclear etiology, it is difficult to treat folliculitis decalvans. A wide variety of topical and systemic agents have been tried previously, with varied results. We report 27-year-old male presenting with relapsing pruritic, pustular outbreaks on the scalp, which led to areas of permanent baldness. Before visiting our hospital, he was misdiagnosed as tinea capitis, and had taken itraconazole 200mg a day for 6 months, but with no clinical improvement. In our hospital, histopathologic exam confirmed the diagnosis of folliculitis decalvans, microbial culture and PAS stains for fungi were negative. Intralesional injections were performed with triamcinolone acetonide at a concentration of 5 mg/mL every two weeks. Oral isotretinoin was prescribed concurrently 10mg twice daily. After 16 weeks, inflammatory lesions on the scalp were markedly decreased, and at the same time clinical symptoms such as itching or pain were much improved. We think that the combination of intralesional steroid injection and oral retinoid may be an effective therapy for the conservative management of folliculitis decalvans.

Localized hair thinning due to hair shaft weakness

Ki Hun Song, Su Ran Hwang, Yong Sun Cho, Jong Sun Lee, Jin Park

Department of Dermatology, Chonbuk National University Medical School, Korea

A 37-year-old female who was admitted in hospital due to hemorrhagic cellulitis on her left leg showed incomplete hair loss patch on her vertex area mimicking trichotillomania. Beside the present cellulitis, the patient was treated with hemodialysis for chronic renal failure for the past 3 years. Close observation of the alopecic area revealed many broken hair shafts. Biopsy study showed normal scalp tissue. Hemoglobin and iron level were decreased to 8.8g/dl and 23ug/dl(normal value: 49-151ug/dl) each. The average diameter of the epilated hairs were 75㎛(88.5㎛ in normal Korean female). The hair shaft fragility was measured by dynamometer, which shows degree of pulling force upon hair shaft by deformation of a spring. The hairs of affected area broke at the average of 0.35N whereas normal control hairs broke at 0.7N. With those findings it was apparent that the alopecic patch was due to impaired hair shaft, which may be related to iron deficiency of the patient undergoing hemodialysis.

Oral quinolones as an alternative therapy in dissecting cellulitis with hepatic failure patient

Jin Mo Park, Sung Hwan Hwang[1], Jeong Hoon Park, Jae Kyung Ko

Department of Dermatology, Inje University Haeundae Paik Hospital, [1]Busan Paik Hospital, Busan, Korea

Dissecting cellulitis (DC) is a chronic inflammatory disease of scalp resulting in scarring alopecia. Although the pathogenesis of DC is still unknown, multitude treatments were introduced. Nowadays, long term and high dosage of systemic retinoids are considered as a first treatment of choice. As oral retinoids are primarily metabolized by liver, taking oral retinoids in hepatic failure patient have limitations. We report the successful use of oral quinolones in the treatment of DC patient with hepatic failure. A 49-year-old Korean female presented with an 8 year history of recurrent painful erythematous nodules, plaques, and intermittent purulent drainage with hair loss. On examination, diffuse erythematous scaly plaque with dilated hair follicle was located on the mid-scalp area to vertex area. Skin biopsy findings were consistent with the diagnosis of DC. From the blood test, AST/ALT level was elevated to 124/275. Oral ciprofloxacin was administrated for 2 months and the skin lesion showed moderate improvement. Fluoroquinolones have anti-inflammatory effect and inhibit granuloma formation. Since fluoroquinolones are mainly excreted by kidneys with low hepatotoxicity, it can be another choice of treatment in hepatic failure patients. This is the first report of oral quinolones medication in Korean DC patient. Herein, we suggest oral quinolones as an additional therapeutic option in DC with hepatic failure.

A case of pseudopelade of brocq

In Kwon Yeo, In Pyeong Son, Dong Ha Kim, Juhee Park, Kui Young Park, Kapsok Li, Beom Joon Kim, Seong Jun Seo, Myeung Nam Kim, Chang Kwun Hong

Department of Dermatology, Chung-Ang University College of Medicine, Seoul, Korea

Pseudopelade of Brocq is an acquired progressive cicatricial alopecia. It is characterized by multiple, small, discrete, flesh-toned or white alopecic patches with little clinical inflammation. The patches are sometimes atrophic, producing an appearance often referred to "footprints in the snow". Symptoms are typically absent. Topical corticosteroid, intralesional triamcinolone acetonide, prednisone, and hydroxychloroquine may be tried but are not often effective. A 38-year-old man was referred for the evaluation of several irregularly shaped erythematous bald patches with atrophy on the scalp. He complained of pruritis, stinging and scalp tenderness. Intralesional injections with triamcinolone acetonide (10mg/ml) were performed every 4 weeks and topical corticosteroid was applied twice a day. After 12 months, erythematous lesions on the scalp as well as clinical symptoms were markedly decreased.

Woolly hair treated with topical minoxidil and tretinoin combined with oral vitamin D analogue

Sun Young Choi, Hyun Kyu Kim, Woo Sun Jang, Juhee Park, Kui Young Park, Kapsok Li, Beom Joon Kim, Seong Jun Seo, Myeung Nam Kim, Chang Kwun Hong

Department of Dermatology, Chung-Ang University College of Medicine, Seoul, Korea

Woolly hair is a disorder with structural defects of the hair shafts. Curled and fine hairs are characteristic findings at birth or soon after birth. Woolly hair is found frequently in most blacks, but is unusual in individuals of non-negroid origin. On light microscopy, hair shaft is oval with significantly reduced diameter. On scanning electron microscopy, hair shows damaged cuticles with cuticular splintering. It is widely known that there is no effective treatment for woolly hair. We report two cases of woolly hair on a 4-year-old girl and 6-year-old girl. They presented with tightly-curled, fine, short and brownish hair on the entire scalp with diffuse hair loss since birth. They treated with minoxidil 3% topical gel, tretinoin 0.025% topical solution, Pantogar®, and oral vitamin D analogue and there were clinical improvements during 8-month and 7-month follow up periods, respectively. Hair length, thickness and density were improved.

Ultraviolet radiation alters lipid metabolism in human hair follicles

Long-Quan Pi, Xing-Hai Jin, Han-Nah Hong, Sung-Yul Lee, Yoon-hee Lee, Sungjoo Tommy Hwang[1], Won-Soo Lee

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Increasing evidence suggests that the hair lipid play an essential role in lipid envelope of hair, and also involvement in hair development and function. Sunlight, especially ultraviolet (UV) light irradiated hairs tend to be rough and dry, and usually lose their color and strength. In this study, we investigated the photo-degradation of hair lipid in human hair follicles. Hair follicles were exposed to a single dose of UVB 20mjcm-2(low-dose UVB), or 50mjcm-2(high-dose UVB) as described previously, and lipid metabolism was observed. We observed that UV irradiation decreased the free fatty acid contents, but increased the ceramide and sphigomyelin 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. Our results suggest that hair lipid may play important roles in photoaging of human hair follicle.

Effects of Eupatilin on hair growth *in vivo* and *in vitro*

Xing-Hai Jin, Long-Quan Pi, Kunhoae Kim[1], Jeong-hwan Lee[1], Won-Soo Lee

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[1]Central Research Laboratories of Aekyung industrial Co. Ltd., Daejeon, Korea

The purpose of the current study was to investigate the effects of Eupatilin, a component of Chrysanthemum zawadskii, on hair growth in vivo and in vitro. Eupatilin was applied topically onto the back skin of C57BL/6 mice every day for 40 days. Hair shaft elongation was measured by organ culture model of human scalp hair follicles. Proliferation of human dermal papilla (DP) cells was determined by MTT assay. mRNA expression level of growth factors related to the hair growth was determined by reverse transcription polymerase chain reaction. Moreover, apoptosis of human hair follicle was determined by TUNEL assay. As results, Eupatilin induce the faster conversion of telogen to anagen in vivo, promote proliferation of human DP cells in vitro. In addition, Eupatilin up-regulate VEGF and BCl2 mRNA expression in cultured human DP cells and reduce apoptosis in cultured human hair follicles. Taken together, these results suggest that Eupatilin, a principal component of Chrysanthemum zawadskii, has positive effects on hair growth in human and animals via regulation of growth factors in DP cell and promotion of DP cell proliferation.

Comparison of reliability of the BASP with Norwood-Hamilton classifications in the pattern hair loss

Hannah Hong, Jae Hong Ji, Yoonhee Lee, Hoon Kang[1], Gwang Seong Choi[2], Won-Soo Lee

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[2]Inha University School of Medicine, Incheon, Korea

Pattern hair loss (PHL) can be classified into several subtypes. The Norwood-Hamilton classification is the most commonly used classification worldwide, but it has many limitations. So these limitations brought us the need for a new classification, thus BSAP was introduced to meet this need. The reliability of the BASP and Norwood-Hamilton classifications has not yet been compared. We tried to estimate and compare the reliability of BASP and Norwood-Hamilton classification. Eight dermatologic specialists, 17 dermatologic residents, and 15 general physicians classified PHL in 100 sets of photographs using both the BASP and Norwood-Hamilton classifications. Inter-group reproducibility was evaluated by examining the match rate of the individual data in each group and the match rate between hair specialists and the other examiners. Intra-group repeatability was determined by calculating the match rate between the first and second studies. In inter-group reproducibility, the basic type of the BASP classification had the best agreement, the specific type of the BASP classification had the second highest, and the Norwood-Hamilton classification had the lowest match rate. Intra-group repeatability showed the same patterns. The BASP classification is not only able to distinguish all kinds of hair loss patterns regardless of sex or race, but also has better reproducibility and repeatability compare to the Norwood-Hamilton classification.

Cutaneous neoplasms with overlying scalp alopecia

Hyun Wuk Cha, Kyung Hea Park, Han Jin Jung, Hyun Jung Lim, Yong Hyun Jang, Seok-Jong Lee, Do Won Kim, Weon Ju Lee

Department of Dermatology, Kyungpook National University School of Medicine, Korea

Alopecia can be caused by factors that primarily affect the follicles. Alopecia can also be caused by conditions and factors that secondarily affect the follicles. The causes of secondary alopecia include inflammatory diseases, trauma, infections and infiltration of neoplastic cells. Among them, infiltration of neoplastic cells can destroy hair follicles by inducing perifollicular fibroplasias, attracting inflammatory cells and replacing normal cellular populations. Recently, a few reports on neoplasms causing alopecia have been published in the world, while they are rarely found in the Korean dermatological literature. Therefore, in this study, we investigated clinical and histopathological characteristics of neoplasms causing alopecia. We retrospectively reviewed 442 patients who had visited our clinic with scalp lesions and had been biopsied between January 2005 and December 2010. Among them, 196 had tumorous conditions like malignant tumors and benign tumors. Out of 196, only 33 were accompanied by overlying scalp alopecia. Mean age of the patients with overlying scalp alopecia was 48.2 years and ratio of men to women was 0.74:1. Malignant tumors were 14 cases (42%) and benign tumors 19 cases (58%). Epidermal cysts (7, 21.2%) were the most common neoplasm inducing overlying scalp alopecia, followed by basal cell carcinomas (5, 15.2%) and lipomas (2, 6.1%). We report a summary of cutaneous neoplasms with overlying scalp alopecia.

Comparison of hair shaft damages after chemical treatment in Asian, Caucasian, and African hairs

Yoonhee Lee, Xinghai Jin, Long-quan Pi, Won-Soo Lee

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

The goal of this study was to investigate the differences in serial pattern damage in Asian, Caucasian and African hair after chemical stresses such as straightening and coloring. The chemical stress-induced hair damage was studied in hair from three ethnic group. The hair was divided into control and treatment groups (straightening, coloring and combination of straightening and coloring). Commercial products were used for straightening and coloring treatment. After 24 hours from the final treatment, the hair damage patterns were evaluated using transmission electron microscopy (TEM), lipid TEM and a halogen moisture analyzer. The grades of hair cuticle and cortex damage were evaluated by three dermatologists. In the TEM examination, the Asian hair showed a more resistant cuticle after straightening treatment, and the Caucasian hair cuticle and cortex were relatively susceptible to the coloring treatment. After the combination treatment of straightening and coloring, the African hair was the most resistant to stress. In the lipid TEM examination, no notable differences in cell membrane complex damage among the three groups of hairs were observed. Among the three ethnic groups, Caucasian hair showed the lowest water contents after straightening, coloring and combination treatments. Our data suggests that Caucasian hair is relatively susceptible to and African hair is more resistant to chemical stress, such as straightening and coloring.

Changes of integral hair lipid according to chronological aging

Yoonhee Lee, Xinghai Jin, Long-quan Pi, Hannah Hong, Won-Soo Lee

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

Internal lipids of the hair are composed of ceramides, cholesterol, free fatty acid, cholesterol sulfate, fatty alcohol and phytosphingosine. In this study, we investigated the amount of internal hair lipids contents in different age groups. Hair samples were collected from Korean male volunteers, age from 20s to 80s. To determine the amount of integral lipid, HPTLC and LC-Mass was performed. There were some noticeable differences between age groups. We suggest that differences of lipids contents might be related to the chronological aging.

Clinical study of alopecia areata in children (2007-2011)

김신한, 고재완, 노병인

관동대학교 의과대학 피부과학교실

The purpose of this retrospective study was to evaluate the clinical features of 104 patients with alopecia areata under 14 years old were assessed at the Alopecia Clinic, Department of Dermatology, Myongji Hospital, Kwandong University College of Medicine, four year period from March, 2007 to February, 2011. Following results were obtained. 1. The proportion of pediatric group in total alopecia areata was 22.2% (104/468). Clinically, the alopecia areata were 84 patient (79.9%) followed by those with alopecia universalis (4 patients; 3.8%), alopecia totalis (4 patients; 3.8%), and trichotillomania (12 patients; 12.5%). 2. The ratio of male (44 patients; 42.3%) to female (60 patients; 57.7%) was 1:1.4. 3. Alopecia areata was seen most frequently in the group of primary school students (48 patients; 46.1%) and the duration period was less than six months in most cases (67.3%). 4. Family history of alopecia areata was observed in 22.9% (19/83). 5. Only child and elder child or those who overloading school work, and deficient parent-child relationship including familial discord were the most susceptible group. 6. A single bald patch was the most seen in alopecia areata (52.0%) and the most common associated disease was atopic dermatitis (32.7%). In conclusion, this study shows that the alopecia areata in children was predominantly developed in primary school students, and atopic diathesis is the most common associated disease.

SESSION 2

Wnt Signaling, Growth Biology of Hair

(English speaking session)

The Korean Hair Research Society

Roles of growth factor cascades in epithelial formation; an emerging strategy with conditional mutant mouse models

Gen Yamada, M.S., Ph.D

Wakayama Medical University(WMU), (IMEG, Kumamoto Univ.), Japan

We have been working on the role of several growth factor cascades during organ formation; organogenesis, epithelial development and cancer. Wnt signals have been studied for epithelial development and cancer.

We have found the integrated growth factor cascade playing roles for epithelial development and cell growth control. Putative conserved functions of such cascade for epithelial development and pathological processes like EMT(epithelial mesenchymal transition) will be discussed.

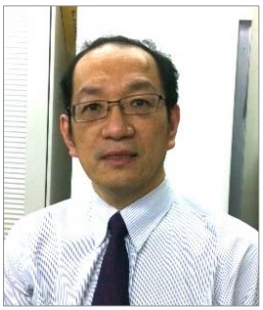
We have also interests to compare the developmental programs for epithelial appendages. They include hairs, glandular structures. Our recent findings will be also discussed.

References

Endocrinology. 2011;152(4):1640-51.
PLoS One. 2011;20;6(1):e16260.
Development. 2009;136:3969-78.
Curr Opin Genet Dev. 2009;19:491-6.
Development. 2009;136:367-72.

[CURRICULUM VITAE]

Gen Yamada, M.S., Ph.D



Institution and Location :

1980 Osaka University/Faculty of Engineering Science, Immunology
1983 Osaka University/Cancer Immunology Branch//Master Course, Faculty of Medicine, M.S, Molecular immuology
1984 Cancer Inst. (Tokyo)/Deptmetnt of Biochemistry
1988 Osaka University/Ph.D. No.825, Ph.D., Molecular biology

Positions and Honors :

Positions and Employment :

1984-1990 Research Associate, Div. Mol. Biol.(Tadatsugu Taniguchi lab), Inst. Mol. Cell. Biol, Osaka University, Osaka, Japan
1990-1994 Posdoc, Dept. Mol. Cell Biol., Max Planck Inst. Biophys Chemie(Peter Gruss lab), Goettingen, Germany
1994-1997 Associate Prof., Dept of Applied Chem. Engineering, Kagoshima University, Kagoshima, Japan
1997-1998 Associate Prof., Res. Ctr for Innovative Cancer Therapy, Medical School, Kurume University, Kurume, Japan
1998-2008 Professor, Center for Animal Resources and Development (CARD)
2008-2009 Executive Advisor to the President of Kumamoto Univ
2009- Professor, The Institute of Molecular Embryology (IMEG) and Professor, Graduate School of Medical and Pharmaceutical Sciences Kumamoto University, Kumamoto, Japan
2011- Professor and Chair, Dept of Dev. Genetics, Wakayama Medical Univ (WMU), Wakayama, Japan

Other Experience and Professional Memberships :

2000-2002 Visiting Professor, Kurume University Medical School, Japan
2001 Visiting Lecturer, Kanazawa University, Japan
2001-2003 Visiting Lecturer, Sojo Univeristy, Japan
2004- Visiting Lecturer, Osaka University, Japan
2005- Visiting Lecturer, Kyoto Prefectural University of Medicine, Japan
2000- Visiting Lecturer, Kurume University Medical School, Japan
2003-2005 External Reviewer for JSPS
Reviewer for NSF, German, EU grant, revieweing for many international journals.

	Committee members for Promotion, tenure positions in many US Universities.
1999-	Board member of Biological Trace Element Research (BTER) (San Diego, CA, Humana press)
1999-	Editor of Cellular and Molecular Biology (CMB association, Paris)
2004-	Board member of Developmental Dynamics
2006-	Board Member of Congenital Anomalies
2009-	Board Member of Protein and Cell

Honors :

1990	Alexander Von Humboldt Fellowship (declined due to HFSP)
1990	Human Frontier Science Program (HFSP) Fellowship
1996	Inamori Foundation Grant Award
1998	Sasagawa Foundation Grant Award
2000	Sasagawa Foundation Grant Award
2010-2011	Kumamoto University special award

Wnt/β-catenin activityin the mesenchymal cells of hair follicle in the regulation of trichogenicity

Young Kwan Sung, Ph.D.

Department of Immunology, School of Medicine, Kyungpook National University

Hair loss often causes significant psychological and social discomforts. Therefore, treatment of hair loss is very important for mental well-being. The neogenesis of the hair follicle through follicular cell implantation for the treatment of hair loss is believed to greatly depend on the ability to reproducibly expand hair-inductive dermal cells in vitro, and, therefore, it is of importance to identify cell culture supplements and/or culture conditions that enable dermal cellsto maintain hair follicle-inducing activity (trichogenicity). Recent studies suggested that the activated state of Wnt/β-catenin signaling reflects the trichogenic activity of follicular dermal papilla cells. In this presentation, I'll show the effects of small interfering (si) RNA-mediated β-catenin knockdown on the trichogenicity of mouse neonatal dermal cells. I'll also show that activation of β-catenin pathway by adding culture supplements increases the ability of cultured mouse neonatal dermal cells and human dermal papilla cells to induce hair follicles in reconstitution assays. I'll finally show that β-catenin signaling pathway is elevated by three dimensional (3D) spheroid culture of human dermal papilla cells that keep trichogenicity. Our data demonstrate that β-catenin activity is crucial for trichogenicity of follicular dermal cells.

[CURRICULUM VITAE]

Young Kwan Sung, Ph.D.

Education :

1988.3-1992.2 Bsc., Kyungpook National University, Korea
1993.2-1996.1 Ph.D., Imperial College, University of London, UK

Research Training :

1996.3-1996.10 Post-doctoral fellow, Cambridge University, UK
1996.11-2001.9 Post-doctoral fellow, The Johns Hopkins University, USA

Professional Experience :

2001.10-2004.4 Research Professor, Biomolecular Engineering Center, Kyungpook National University, Korea
2004.5-2006.2 Assistant Professor, Bio-Medical Research Institute, Kyungpook National University Hospital, Korea.
2006.3-2008.9 Assistant Professor, School of Medicine, Kyungpook National University, Korea
2008.10-present Associate Professor, School of Medicine, Kyungpook National University, Korea

Memberships :

2000 - American Society of Hematology
2001 - Korean Society for Molecular and Cellular Biology
2001 - Korean Society for Biochemistry and Molecular Biology
2011 - Korean Tissue Engineering and Regenerative Medicine Society

Major research interests :

Mechanisms of hair loss and hair growth
Cell therapy for hair loss treatment

Congenital atrichia and hypotrichosis

Ramon Grimalt, M.D.

Department of Dermatology, Hospital Clínic, Villarroel 170, 08036 Barcelona, Spain

Alopecia present from birth includes a broad differential diagnosis and often represents a diagnostic and therapeutic challenge for the involved physician. There have been numerous attempts to classify the conditions characterised by congenital alopecia or hypotrichosis. In 1892, Bonnet proposed the first known classification based on embryological principles. It has been widely used until nowadays and roughly divides congenital hypotrichosis with normal ectodermal structures from the ones with associated teeth and nail defects. Afterwards, Cockayne and Muller attempting a more critical analysis proposed a working classification which allowed the currently named syndromes to be identified, and provided a provisional status for those not yet characterized. In 1981 after the Berlin Congress, Sâlamon proposed a classification for the global problem of hair loss that is considered one of the most useful system for the study of congenital hypotrichosis. In this lecture, I will follow the practical classification based on the clinical observations proposed by Camacho et al. One should be aware however that within each of the groups there is a large clinical spectrum and that these are not grouped on a pathogenetic basis. The classification scheme shown in Table 1 is largely of didactic value. When confronted with a child with hair loss, it is important to first determine whether the hair loss is congenital or was acquired. Afterwards, the clinician should evaluate the clinical manifestation profile, the age at onset and the presence of associated symptoms to properly classify the hair disease. In recent years, the clinical and microscopic features of hereditary hair shaft disorders have been characterized and classified. Furthermore, significant progress has been made in our knowledge of genes that control the normal development and differentiation of hair follicles, and thus the research is to define and classify the hair disorders within a genetic basis. In this lecture, I will discuss several types of genotrichosis and provide a practical classification based on their clinical features.

Table 1. Classification of generalized congenital and hereditary alopecia

1. Genodermatosis with non-scarring hypotrichosis
   1.1 With escheletical alterations
      McKusich disease or condrodisplasia
      Moynahan disease (hypotrichosis, sindactilia, retinitis)
      Trichorhinophalangeal syndromes
      Pierre-Robin syndrome
      Cardio-facial cutaneous syndrome
      Alopecia-contractures-dwaifism(ACD) syndrome with mental retardation
      Oculo-dental-digital syndrome
      Dubowitz syndrome
      Noonan syndrome
      Hallemann-Streiff syndrome
   1.2 With ectodermic alterations
      Ectodermal dysplasias
   1.3 With neuroectodermal alterations
      Tricothiodystrophy
   1.4 With chromosomal alterations
      Down syndrome
      Klinefelter syndrome
      Tumer syndrome
   1.5 With aminoacid metabolism alterations
      Hypotrichosis, hair-shaft defects, hypercysteine hair and glucosuria syndrome
      Citrulinemia
      Hartnup disease
      Homocistinuria
      Fenilcetonuria
      Tirosinemia I and II
   1.6 Other genodermatosis with hyportichosis
      1.6.1 Progeria
         Werner syndrome or pangeria
         Hutchinson-Gilford or childhood progeria
         Variot-Cailleau syndrome or childhood gerodermia
         Other progerias
      1.6.2 Others
         Congenital ichthyosiform eritrodermia
         Netherton syndrome
         Tay syndrome

Rud syndrome
KID syndrome
Rothmund-Thomson disease
Poikilodermia-alopecia-retrognatism-cleft palate syndrome
Zinsser-Cole-Engman disease
Kallin syndrome or epidermolysis bullosa simplex

1.7 Genodermatosis with hypotrichosis and tumors
Rombo syndrome
Bazex-Dupre-Christol's syndrome

1.8 Hereditary simple hypotrichosis

2 Genodermatosis with scarring hypotrichosis

2.1 Darier disease
2.2 Ichthyosis X
2.3 Distrofic epidermolisis bullosa
2.4 Intontinentia pigmenti
2.5 Poliostotic fibrous dysplasia
2.6 Conradi syndrome
2.7 Happle's syndrome

[CURRICULUM VITAE]

Ramon Grimalt, M.D., Ph.D

Ramon Grimalt, MD, PhD (Terrassa, Spain 1965), Licensed in Medicine and Surgery (1989), Specialist in Dermatology (1994) (UNESCO code 320106), Doctor (PhD) in Medicine and Surgery (1995) and Assistant Professor of Dermatology at the University of Barcelona (2000)
His PhD thesis obtained the highest punctuation under the title: "Non Langerhans' cell histiocytosis in children (...) 153 cases"
He has trained in the University of Barcelona (Spain), University of Illinois (USA) and Università degli Studi di Milano (Italy).
He worked as an expert member of the (SCCP) Scientific Committee for Consumer Products at the European Community in Bruxelles (2004-2008)

Teaching activity:

He is Assistant Professor of Dermatology at the University of Barcelona.
Has participated as an invited lecturer in 40 international congresses.
Has participated as an invited lecturer in 25 national congresses.
He has been chairman or co-chairman in 18 internationals congresses.
He has presented his work in 78 international and 86 national congresses.
Other teaching merit: He is peer reviewer of 6 scientific journals, he is Associated Editor of the Medical Journal "Medicina Cutanea Ibero Latina Americana", has organized 8 medical congresses and is member of 18 scientific societies.
He is able to lecture in 5 different languages. English, Spanish, French, Italian and Catalan.

Medical activity:

He works at the Hospital Clínic of Barcelona as a specialist. He also works in private practice.

Research Activity: divided in 4 investigator lines.

1. Cutaneous lymphoma (Università di Milano): 5 scientific papers and 1 scholarship
2. Cosmetics. 4 International congresses. 3 book chapters. 5 National Congresses. 1 scholarship.
3. Histiocytosis:10 publications, and the doctoral thesis.
4. Hair Dysplasia. Scanning Electron Microscopy. 8 papers, 3 book chapters and 2 books.

His 3 main fields of interest are:

1. Pediatric Dermatology. Has more than 60 papers. He has been reelected (8 years) General Secretary of the European Society for Paediatric Dermatology.

2. Tricology. Has written 2 books about hair one of them translated to Chinese. He is member of the Board of the European Hair Research Society.
3. Cosmetics.Has lectured in several congresses about cosmetics. Has written 3 book chapters. He participates in the Grupo Español de Cosmètica y Terapéutica. He will lecture in the next World Congress of Pediatric Dermatology (Rome, July 2004) on Hair Cosmetics in Children.

Publications:

5 booksas author or co-author
22 chapters in a book
1 medical translation from the English to Spanish of a hair cosmetics book
He has been editor of 9 Monograph
Has collaborated in the edition of the "Diccionari Enciclopèdic de Medicina" 1999
Has written 55 articles with impact factor. Total IF: 74,942
Has written 45 articles without IF.
Has 84 abstracts published from congress participation.

Scholarships and awards: Has obtained 10 scholarships and 3 awards

Other: Interest in medical web development. He created the web o f the Department of Dermatology at the UB.
Interest in languages with scientific purposes: He is fluent in English, Spanish, French, Italian and Catalan.

Genomic basis of congenital generalized hypertrichosis

Xue Zhang, M.D., Ph.D.

McKusick-Zhang Center for Genetic Medicine and State Key Laboratory of Medical Molecular Biology, Institute of Basic Medical Sciences, Chinese Academy of Medical Sciences & Peking Union Medical College, Beijing 100005, China

Congenital generalized hypertrichosis(CGH), a condition characterized by excessive hair growth all over the body as compared to the normal of the same age, sex, and race, has attracted a great attention from the scientific community and the general public since the middle ages. It was considered an example of atavism and at one time even thought to be the missing ape-human link required to prove Darwin's theory. It is now believed that most people with CGH have a genetic defect. CGH represents a group of phenotypically and genetically heterogeneous conditions. Nine different genetic syndromes include CGH as a major phenotype. The first genetic locus for human hypertrichosis was identified by traditional linkage analysis in a large Mexican family with X-linked CGH. The Ambras type hypertrichosis universalis congenita has been shown to be associated with complex rearrangements of chromosome 8. We have shown that copy number variations(CNVs) on 17q24 are the underlying defects for congenital generalized hypertrichosis terminalis with or without gingival hyperplasia, an autosomal dominant form of CGH. Recently, we found that X-linked CGH was caused by interchromosomal insertions into a specific Xq27.1 site near SOX3. We ascertained a large Chinese family with an X-linked congenital hypertrichosis syndrome combining CGH, scoliosis, and spina bifida and mapped the disease locus to a 5.6 Mb critical region within the interval defined by the previously reported Mexican family. Through the combination of a high-resolution CNV scan and targeted genomic sequencing, we identified an interchromosomal insertion at Xq27.1 of a genomic fragment on 5q35.3, with one X breakpoint within and the other very close to a human-specific short palindromic sequence located 82 kb downstream of SOX3. In the Mexican family, we found an interchromosomal insertion at the same Xq27.1 site of a genomic fragment on 4q31.2. Notably, both of the two X breakpoints were within the short palindrome. In summary, we and others have found the genomic rearrangements underlying three forms of CGH.

[CURRICULUM VITAE]

Xue Zhang, M.D., Ph.D.

Education :

1981-1986 China Medical University, M.D.
1986-1989 China Medical University, Master in Medical Genetics
1991-1994 China Medical University, Ph.D. in Molecular Biology

Postdoctoral Training :

1996-1997 Postdoctoral Fellow, Department of Genetics, University of Pennsylvania School of Medicine
1997-1998 Postdoctoral Fellow, Massachusetts General Hospital Cancer Center, Harvard Medical School

Academic Appointment :

1989-1992 Associate, Department of Medical Genetics, China Medical University
1992-1993 Research Fellow, National Cancer Center Research Institute, Japan
1994-1998 Professor of Medical Genetics, China Medical University
1998-2000 Visiting Assistant Professor of Oral Pathology, Harvard School of Dental Medicine, Boston, USA
1998-2002 Professor and Chair of Cell Biology, China Medical University, Shenyang
2001- Professor and Chair of Medical Genetics, Chinese Academy of Medical Sciences & Peking Union Medical College
2002- Professor and Director, Research Center for Medical Genomics, China Medical University
2002- Assistant President for International Cooperation, Chinese Academy of Medical Sciences & Peking Union Medical College
2004- Scientific Director, McKusick-Zhang Center for Genetic Medicine, Chinese Academy of Medical Sciences & Peking Union Medical College
2004- Associate Director, State Key Laboratory of Medical Molecular Biology, Chinese Academy of Medical Sciences & Peking Union Medical College
2008-2011 Chang Jiang Scholar of Genetic Medicine, Peking Union Medical College
2009- Vice Dean, Graduate School of Peking Union Medical College

Societies & Journals :

President-elect, Chinese Society of Medical Genetics
Director, Division of Human and Medical Genetics, China Genetics Society
Associate Editor, American Journal of Human Genetics
Associate Editor, Journal of Human Genetics
Editorial Board, Journal of Medical Genetics
Editorial Board, Clinical Genetics

SESSION 3

Female Pattern Hair Loss

(English speaking session)

The Korean Hair Research Society

Current and new aspects of female pattern hair loss

Andrew Messenger, M.D.

Department of Dermatology, Royal Hallamshire Hospital, Sheffield, UK

Female pattern hair loss(FPHL) has long been regarded as the female counterpart of male pattern baldness(MPB). The changes in hair growth – a gradual decline in anagen duration, prolongation of telogen and eventual follicular miniaturization - appear similar in both sexes. However, there is increasing doubt over whether FPHL and MPB share the same aetiology. The perception of hair loss in women is mainly determined by low hair density but hair diameter and probably other physical characteristics of the hair shaft also contribute. Both hair density and mean hair shaft diameter begin to decline in the female population during the fourth decade, well before the typical age of menopause, making oestrogen deficiency an unlikely cause of age-related changes in hair growth. The role of androgens is also uncertain in view of the general lack of response to anti-androgen treatment and the occasional reports of FPHL in androgen-deficient and androgen insensitive women. Twin studies in balding men clearly point to a major genetic influence on MPB and several gene loci associated with MPB have been identified. However, the single published twin study in women tends to discount a genetic basis for hair thinning and suggests that environmental factors play a key role, at least in older women. In view of these various observations we need to re-evaluate our ideas of FPHL. In particular, we should avoid preconceptions based on what is known about the aetiology of male balding.

[CURRICULUM VITAE]

Andrew Guy Messenger, M.D.

Education :

Forest School, London E17
University of Newcastle-upon-Tyne 1968-1973

Present Appointment :

Consultant Dermatologist, Royal Hallamshire Hospital, Sheffield & Honorary Professor (from 1.03.10), University of Sheffield

Previous Appointments :

1973.7.1 - 1974.1.31	House Physician, Gloucester Royal Hospital
1974.2.1 - 1974.7.31	House Surgeon, St Mary's Hospital, Portsmouth
1974.9.1 - 1975.2.28	Casualty Officer, St Mary's Hospital, London
1975.6.1 - 1976.5.31	SHO Dermatology, St John's Hospital for Diseases of the Skin, London
1976.7.1 - 1977.9.30	SHO General Medicine, Cheltenham General Hospital
1977.10.1 - 1978.2.28	Registrar, Mayday Hospital, Croydon General Medicine
1978.3.1 - 1980.6.30	Registrar Dermatology, North Staffs Hospital Centre
1980.3.1 - 1986.12.21	Lecturer Dermatology, University of Sheffield
2002.9.29 - 2002.12.16	Visiting Fellow, Department of Dermatology University of Melbourne

Awards :

Hospital Doctor Dermatology Team of the Year, Michael Cork & Andrew Messenger, Sheffield Children's Hospital, 2001
Consultant Sabbatical Fellowship, British Association of Dermatologists, 2002
Invited International Fellow, American Academy of Dermatology, 2009
Honorary Professorship, University of Sheffield, 2010

Importance of estrogen in female pattern hair loss

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

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

The concept of the female pattern hair loss was used to be accepted as linked meaning of male pattern alopecia so called androgenetic alopecia. The pathogenesis of male pattern hair loss is known as the suppression of follicular growth due to androgen-androgen receptor hyperactivity on the hair follicle. However, because pattern hair lossin women has different clinical manifestation from men and hair loss in women is observed when the relation of androgen is low, female pattern hair loss might be regarded as different disease entity from male pattern hair loss. Although androgen is partially related with the development of female pattern alopecia, therefore, another important pathomechanism might play a role in female pattern hair loss.

In the relationship between estrogen and hair growth, hair growth is observed during pregnancy and lactation period, and telogen hair loss can be seen after delivery. On the contrary, estrogen is shown to inhibit hair growth in animal hair. In human, estrogen is effective for frontal hair loss in male, and it extends anagen and shortens catagenin both male and female. This implicates that there are differences in animal and human hair in terms of estrogen responsibility of hair follicle. Estrogen suppresses DHT formation and promotes conversion of testosterone to estradiol by inhibiting 5α-reductase.

Alfatradiol is an inactive form of 17β estradiol which is a strong estrogen. It has no effect of female hormonal action but has all the other functions of estradiol. Alfatradiol suppresses conversion of testosterone to DHT by inhibiting 5α-reductase and suppresses conversion of androstenedione to testosterone by inhibiting action of 17β-dihydrogenase. Therefore, it reduces production of testosterone and DHT. On the other hand, it promotes conversion of testosterone to estradiol by stimulating aromatase, so that testosterone production is reduced. As a result, DHT production is reduced. It is also known to promote differentiation of hair matrix cells.

[CURRICULUM VITAE]

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

Education & Career :

1979-1985 Yonsei University College of Medicine, Seoul, Korea (MD)
1985-1989 Dermatology 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)
1992-2003 Research fellow, Instructor, Assistant Professor, Associate Professor of Dermatology, Yonsei University Wonju College of Medicine, Korea
1996-1998 Visiting Clinical Assistant Professor, Department of Dermatology, University of Minnesota, Minneapolis, USA

Current Position :

2004-present Professor, Department of Dermatology, Yonsei University Wonju College of Medicine, Wonju, Korea
2003-present Director, Institute of Hair and Cosmetic Medicine, Yonsei University Wonju College of Medicine, Wonju, Korea
1993-present European Hair Research Society, Active Member
1998-present Korean Hair Research Society, Secretary General
2010-present Organizing Chair of the 2014 World Congress for Hair Research

Summary of Academic Activities

More than 170 peer-reviewed scientific publications
More than 120 domestic invited lectures and more than 30 international invited lectures
Thirteen 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)

SESSION 4

White Hair

The Korean Hair Research Society

Melanogenesis and hair

Kyoung-Chan Park, M.D.

Seoul National University College of Medicine, Bundang Seoul National University Hospital

Melanin plays an important role in protecting skin from the ultraviolet light. It also determines the skin color and phenotypic appearances according to the ratio of eumelanin and pheomelanin. Fair skin and red hair is characterized by a low eumelanin to pheomelanin ratio, and has been associated with high risk of skin cancer. However, there is a big difference between epidermal melanogenesis and hair follicular melanogenesis. Compared to epidermal melanogenesis, hair follicular melanogenesis is tightly coupled to hair growth cycle. In the skin, melanocytes will produce melanin by UV irradiation, hormonal stimulation, and inflammation. But in hair, proliferation of melanocytes is essential for the maintenance of hair color according to hair cycles. Hair cycle appears to involve periods of melanocytes proliferation (during early anagen hair), maturation (mild to late anagen) and melanocyte death via apoptosis (during early catagen). Therefore, gray and white hair can be considered as exhaustion of the pigmentary potential of each individual hair follicle. Furthermore, variation of hair color is known to be associated with MC1R polymorphism. But in the skin, proliferation of melanocytes is not essential for the maintenance of skin pigmentation. In addition, microenvironment of epidermal melanocytes is not like those of hair follicular melanocytes. In this presentation, characteristics of epidermal melanogenesis will be discussed.

[CURRICULUM VITAE]

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

Present Position :

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

Education and training

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

Career

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

Memberships

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

Major interests

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

Mechanism of hair graying

Hye In Choi, Young Lee[1], Chang Deok Kim[1], Jeung Hoon Lee[1], Young Ho Lee

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Hair graying is an obvious sign of aging in humans, but its mechanism is largely unknown. To elucidate the mechanism of hair graying, we investigated gene expression related to melanogenesis in human hair, and association between hair graying and hair growth patterns by evaluating expression of the genes or proteins related to hair growth in white (non-pigmented) and black (pigmented) hairs. The key molecules in melanogenesis, microphthalmia-associated transcription factor-M (*MITF-M*), *Sox10, Pax3*, tyrosine related protein-1 (*TRP-1*), and tyrosinase, were absent or greatly reduced in the bulbs of white hair compared to black hair. Melanocyte stem cells (MSCs) or melanocytes express markers for neural crest cells, *Sox10, Pax3*, and *MITF-M*. Keratin (KRT) and keratin-associated protein (KAP) genes in white hair were upregulated at least 2-fold in comparison with black hair in a microarray analysis. Upregulation of selected KRT genes and KAP4 isoform genes in white hair was validated by RT-PCR. Immunoreactivity for KRT6, KRT14/16, and KRT25 was increased in the hair follicle of white hair compared with black hair. Gene expression of fibroblast growth factor 5 (FGF5) was downregulated in white hair compared with black hair. However, gene expression of fibroblast growth factor 7 (FGF7) was upregulated in white hair, compared with black hair.
Taken together, our data suggest that hair graying is caused by defective migration of MSCs into the bulb area of hair, and associated with active hair growth.

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Clinical aspects of hair whitening

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The white color of hair seen when melanin is absent. Hypomelanosis of hair may be result of alteration of melanocye number, alteration in production or in structure of melanosomes, alteration in melanosome melanization, alteration in melanosome transfer, and increased degradation of melanosomes. Hair graying (canities) is a natural age-associated feature. The onset of physiologic graying seems largely hereditary, but the precise cause has not been established

1. Graying of hair (Canities)

Graying of hair is usually a manifestation of the aging process and is due to a progressive reduction in melanocyte function.

Age of onset and progress of canities:

The visual impression of grayness is more obious (seen earlier) in the fair-haired.Normal incidence of hair graying is 34±9.6 years in Caucasians and 43.9±10.3 years in Africans, it has been described that, by 50 years of age, 50% of people have 50% gray hair. In Japanese between 30 and 34 years in men and 35 and 39 years in women. In Korean the age of onset of graying was variable but generally between 35 and 44 years. More than 50 percent of the population over 40 years old had gray hair on the scalp.

Progress of canities is entirely individual.

Graying can be more extensive in dark hair before total whitening is apparent. Graying first appears usually at the temples, and spreads to the vertex and then the remainder of the scalp, affecting the occiput last. Beard and body hair are affected later. Graying often follows a wave that spreads slowly from the crown to the occiput.

Canities may affect individual hair follicles with either gradual loss of pigment over time and over several cycles, gradual loss of pigment along the same hair shaft i.e. within the same anagen phase of a single hair cycle, or the hair fiber may grow in fully depigmented. This is so despite the widely

held view that "gray" hair is a misnomer, i.e. impression of gray is due to an admixture of white and pigmented hair

Gradual dilution of pigment in graying hairs, i.e. the full range of color (normal~ white) can be seen both along individual hairs and from hair to hair

2. Premature graying of hair

Hair is said to gray prematurely if it occurs before the age of 20 in whites, before 25 in Asians and before 30 in Africans.

While premature canities more commonly appear without underlying pathology, presumably inherited in an autosomal dominant manner.

Associated disorders; pernicious anemia, hyper- and hypo-thyroidism, several rare premature ageing syndromes, such as progeria, Werner's syndrome; dystrophia myotonica, Rothmund-Thomson syndrome, "cri du chat" syndrome, Böök's syndrome, Hermansky-Pudlak syndrome, Griscelli-Prunieras syndrome, Ataxia-telangiectasia, Hodgkin lymphoma and idiopathic pulmonary fibrosis.

3. Poliosis

Poliosis is defined as the presence of a localized circumscribed hypomelanosis of hair.

Result from absence or deficiency of melanin in HF of a group of neighboring hairs.

Characterized by a strand of white hair in the frontal scalp of piebaldism (white forelock).

The term poliosis can be used either for scalp hair or for eyelashes, eyebrows, or body hair.

Associated disorders; vitiligo, regrowing alopecia areata, Vogt-Koyanagi-Harada syndrome, Alezzandrini's syndrome, tuberous sclerosis, Von Recklinghausen's multiple neurofibromatosis.

Permanent pigmentary loss - may be induced by herpes zoster

X-irradiation – less intense treatment leads to hypopigmented and, rarely, hyperpigmented hair

Patchy white hair may develop on the beard area after dental treatment

4. Albinism

In Caucasoids the hair is typically yellow-white though it may be cream, yellow, yellowish-red or vibrant red. This range of color parallels those seen in normal blond Caucasoids. In African albinos the hair color is white or yellowish brown.

5. Color changes induced by drugs and other chemicals

- chloroquine – interferes with phaeomelanin synthesis, i.e. it only affects blonde- and red-haired individuals. After 3-4 months treatment, hair may become increasingly silvery or white; it is usually patchy and first affects the temples or eyebrows. Reversible.
- hydroquinone, phenylthiourea – interfere with tyrosine activity causing hypopigmentaion of skin

and hair

- Triparanol (anti-cholesterols), fluorobutyrophenone (anti-psychotics) – cause hypopigmented and sparse hair

6. Canities as a marker for disease

A recent report linking cigarette smoking with premature gray and even hair loss has again raised the specter of graying as a marker for general health status. Whether canities, premature or otherwise, is a predictor/risk marker for disease is controversial. If it exists at all it is more likely to reflect associated genetic effects rather than direct linkage.

A recent study reported that individuals with premature canities were 4 times more likely to develop osteopenia than individuals without canities. A subsequent study found that people who grayed before their 20s has lower bone mineral density compared to those who grayed later. There was also a significant correlation with familial osteoporosis.

Less clear are the purported associations between early onset of gray hair and premature cardiovascular disease or studies showing graying of hair, male baldness and facial wrinkling as additional risk factors for myocardial infarction.

7. Possibilities for the reversal of canities

They are available for repigmentation/repopulation of the epidermis if necessary (e.g. after wounding); induced scalp hair re-pigmentation after radiation therapy for cancer or after inflammatory events e.g. erythrodermic eczema, erosive candidiasis of the scalp.

Temporary hair darkening has been reported after large dose of p-aminobenzoic acid, though it is not clear whether this increased pigmentation was directly related with enhanced hair bulb melanocyte activity.

Darkening of white hair in a patient with Parkinson's disease following the addition of carbidopa and bromocriptine.

Partial, spontaneous reversal of canities may occur during the early stages of canities.

Return of normal hair color from gray are examples of pigmented regrowth following alopecia areata which eventually repigments in many cases. The repigmentation of gray hair in association with Addisonian hypoadrenalism may result from a mechanism similar to that in alopecia areata or vitiligo.

8. Hair dye

In the absence of a natural way to reverse hair graying, hair colorants are the mainstay of recovering lost hair color. The major types of hair colors currently used are: temporary (textile dyes), natural coloring (henna), semipermanent (low molecular weight direct dyes), and permanent (aromatic amines).

Raised the possibility that long-term usage of permanent hair dyes (particularly black dyes) may be associated with a very small increased risk of developing certain cancers.
A small number of users may develop chemical and allergic reactions (commonly due to p-phenylenediamine) and these may result in dermatitis and even hair loss.

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SESSION 5

What's New in Hair Loss Treatment

The Korean Hair Research Society

Immunologic treatment of alopecia areata

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Alopecia areata is a complex genetic, organ specific autoimmune disease, probably mediated by autoreactive T cells. The histopathologic feature of alopecia areata is characterized by a peribulbar infiltrate, comprised predominantly of lymphocytes. This infiltrate is commonly referred to as a "swarm of bees" and is typically seen in patients with active disease. Previous studies using human and animal hair follicles have provided convincing evidence for a cell mediated etiology, with a key role for CD8+ T cells, which may recognize a major histocompatibility complex I-presented autoantigen. Although many therapies are available, there is no universally proven therapy that induces and sustains remission. Treatments include a variety of topical, intra-lesional, and systemic agents. Most of the treatments are immunologic agents (immunosuppresive or immunomodulating). In this lecture, new trends of immunologic treatment of alopecia areata will be reviewed.

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Instrumental treatment of pattern hair loss

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Androgenetic alopecia (AGA) is the most common form of hair loss in men, and female pattern hair loss (FPHL) is the most common form of hair loss in women. Traditional methods of treating hair loss have included minoxidil, finasteride, and surgical transplantation. Currently there are several new and experimental treatments. In addition, low-level light therapy (LLLT) has recently been approved by the United States FDA for the treatment of hair loss. There are several theories and minimal clinical evidence of the safety and efficacy of LLLT, although most agree that it is safe. More in vitro studies are necessary to elucidate the mechanism and effectiveness at the cellular level, and more controlled studies are necessary to assess the role of this new treatment in the general population.

Moreover, Stimulation of hair follicle growth or acceleration of hair cycling in the skin after wounding has been investigated for many years. A laser treatment using recently introduced Fractional photothermolysis allowed rapid repair of laser-induced thermal injury and induced a significant increase of hair density and hair shaft thickness in patients with MPHL and FPHL in pilot clinical trials. Fractional erbium-glass laser may be an alternative treatment for the patients with pattern hair loss, although there is still lack of the exact understating of the mechanism and the consensus on the optimal parameters.

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Update of cicatricial alopecia treatment

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Cicatricial alopecia refers to the scalp and hair disorders presenting visible loss of follicular ostia and destruction of the hair follicle on histopathologic examination. This can result from a primary or secondary process. Several classification schemes for primary cicatricial alopecia exist in the literature. The North American Hair Research Society (NAHRS) issued a consensus opinion on classification of the primary cicatricial alopecias based on age of onset, clinical features, and pathology, among other phenomena. The course of cicatricial alopecia is usually highly variable according to the diagnosis and patients' characteristics. Some kinds of cicatricial alopecia tend to spontaneously stabilize. Therefore, it is unclear whether or not treatment alters its natural history.In the present study, I reviewed recently published reports describing the updated treatment modalities for cicatrical alopecia.

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Interesting scientific fields : Laser therapy, Behçet's disease, hair disorders

Supplements for hair growth

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The quantity and quality of hair growth are associated with the nutritional state of an individual. Normal supply, uptake, and transport of proteins, calories, trace elements, and vitamins are of fundamental importance in tissues with a high biosynthetic activity such as the hair follicle. Because the hair shaft is composed of almost entirely of protein, component of diet is critical for production of normal healthy hair. The rate of mitosis is sensitive to the calorific value of diet, provided mainly by carbohydrates stored as glycogen in the outer root sheath of follicle. Finally, vitamins and trace metals are related to the biosynthetic and energetic metabolism of follicle. In instances of protein and calorie malnutrition, deficiency of biotin, vitamins C, B12, niacin, essential fatty acids, iron, zinc, copper, and selenium, hair growth and pigmentation may be impaired. Since an important commercial interest lies in the nutritional value of various vitamin and amino acid supplements, a question that arises is whether increasing the content of an already adequate diet with specific amino acids, vitamins and/or trace elements may further promote hair growth and quality. And many other products are marketed directly to consumers with claims of regrowing or thickening hair. Your patients may already be using them, and they may ask you about their efficacy. Several of these products are listed in Table IV, with their reported effect on the scalp and/or hair follicle. We do not routinely recommend any of them. Although they may not hurt, we remind our patients that the best evidence lies in treatments described above. Moderation of any product is best, especially given the lack of regulation in the vitamin and supplement industry.

Table IV. Supplements and over the counter products for hair growth

Product	Mechanism of action	Reported efficacy
Saw palmetto *(Serenoa repens)*	Inhibits 5-α reductase conversion of testosterone to DHT in the prostate[179]; helpful in mild to moderate BPH symptoms[180] but not helpful in moderate to severe BPH[181]	One randomized, double-blind, placebo controlled trial demonstrated increased hair growth in 6/10 men with mild to moderate AGA[182]
Biotin (vitamin H or B7)	Can help treat onychoschizia, increasing thickness of nails by 25%[183]	No clinical trials showing efficacy treating hair loss; in vitro studies show no influence of biotin on cultured human follicular keratinocytes[184]
Nioxin scalp therapy and treatments	Claims to "actively remove" excess sebum containing DHT, the most frequent cause of hair loss[185]; does not claim to block DHT	Not approved by the FDA, no clinical trials
Procerin tablets and topical serum	Proprietary blend of herbal, vitamin, and mineral components which "naturally block" DHT levels[186]	Not approved by the FDA, no clinical trials
Tricomin shampoos and treatments (triamino copper nutritional complex)	Targets delivery of copper to the base of the hair follicle[187]	Ex vivo studies support the use of tripeptide–copper complexes to promote the growth of human hair follicles[188,189]; no clinical trials to date
Toppik (camouflage)	Keratin-based fibers which adhere to scalp and existing hairs; helps thicken the appearance of existing hairs and camouflage balding areas on the scalp; no claims to increase hair growth[190]	Well-liked by patients for its easy application while awaiting new hair growth
Wigs and hairpieces	Can cover the entire area of hair loss, with no chemical side effects	Useful when patients desire greater density than can be achieved with medications and/or surgery alone

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Korean Journal of Medical Mycology, Reviewer
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The latest updates on surgical treatment of alopecia

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Surgical correction of alopecia could be classified into 3 categories; 1. Scalp expansion surgery using volumentric or non-volumetric device 2. Scalp reduction surgery with scalp flap 3. Hair transplant surgery. Invasive surgical correction such as scalp expansion surgery or scalp reduction surgery have been less used gradually because they have obvious drawbacks of multi-clinic visiting, disfigurement and long-term procedures comparing with hair transplantation. Therefore we are intended to focus on hair transplantation of the surgical methods in correcting alopecia.

In hair transplantation, follicular unit transplantation has been thought to be standard method since it's introduction in 1990's. The use of follicular unit extraction (FUE) was advocated as an alternative to traditional strip harvesting of the donor tissue in 2000's. A lot of discussion by hair transplant surgeon occurred on the conference or meeting about the advantages or disadvantages of FUE versus strip harvesting and vice versa. Anyway, we need to have a more accurate and balanced view of the two approaches.

Secondary, we are going to taking about the recent trends of the female hairlines correction with hair transplantation, prevention of post-operative edema, recipient area folliculitis after follicular-unit transplantation and follicular bisection, factors affecting the growth and survival of follicular grafts during hair restoration in the section of hair
transplantation technology.

Lastly, we introduced recent interesting case about hair transplantation including application of hair transplantation for therapy-resistant alopecia areata of the eyebrows,
frontal fibrosing alopecia in a man and rare complications of hair transplantation such as necrosis of the donor site after hair restoration with follicular unit extraction, hair loss due to lichen planopilaris after hair transplantation, arteriovenous fistula and atypical fibroxanthoma of the scalp following hair transplantation.

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SESSION 6

Hair Clinic Workshop

The Korean Hair Research Society

Interview and evaluation of patients with hair loss

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Hair loss is a very common condition. Due to the frequency and the often significant impairment of life perceived by the affected patients, competent advice, diagnosis and treatment is particularly important. Hair loss disorders are very various and develops at all age group. So I review the main possible hair loss disorders according to age group. I also outline our approach to the individual patient, emphasizing the pertinent history, physical examination, and appropriate diagnostic testing. This approach usually allows the clinician to make a definitive diagnosis or limited differential diagnosis and to offer the patient therapeutic options.

Patient Interview

It is important to question about detailed hair loss history: onset age, duration, course, previous history, family history, presence of other site hair loss, presence of other associated illness, etc.

Especially, in case of patients with acute hair loss, it is very important to know the presence of triggering events or illness.

In children, congenital disorders including hair shaft defects and trichotillomania must be considered.

Evaluation

Close inspection and examination of entire scalp:

Close inspection of scalp helps to further differentiate between non-scarring and scarring alopecia. Examination of entire scalp is needed for accurate assessment of hair loss extent and detection of alopecia area, which has not been detected by patient. Additionally, it is also important to exam other hair bearing areas and nail apparatus, if alopecia areata is suspicious.

Pull test and microscopic analysis of hair shaft

The hair pull test is practiced on whole entire scalp area, not only at alopecia area. And microscopic analysis of hair shaft helps to detect hair shaft abnormality and to differentiate anagen hair loss and telogen hair loss.

Global Photograph:

Photographs are an essential tool in evaluating the overall course of hair volume. Investigator usually takes pictures at regions of interest with vertex, mid-pattern, frontal, and temporal view. A picture

at the most severe and prominent alopecia area is also taken. A stereotactic positioning device is used on which the patient's chin and forehead are fixed, and on which a given camera and flash device are mounted, ensuring that the view, magnification, and lighting are same at consecutive study visits, thus enabling precise follow up of same region of interest.

Trichoscan or Phototrichogram and Histopathologic examination:

These methods will be discussed at other lecture of next speakers.

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New standard methods; Phototrichogram with a headband and tapeline

Jin-Soo Kang, M.D.

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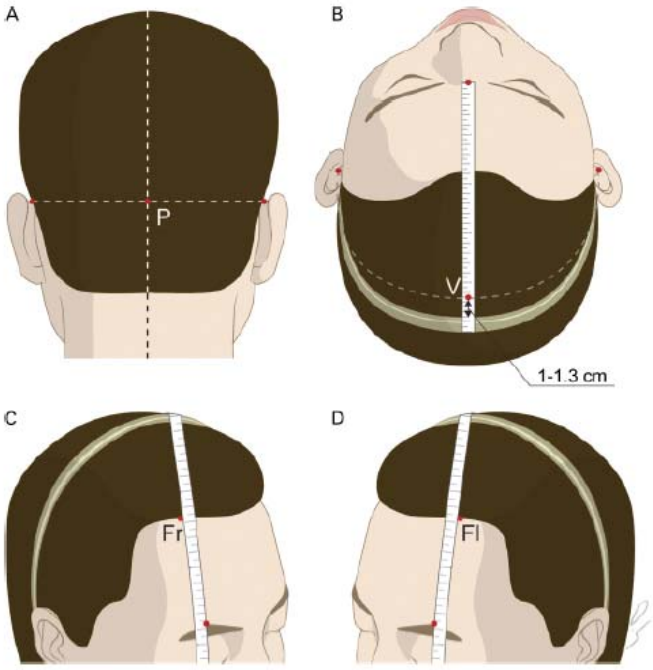
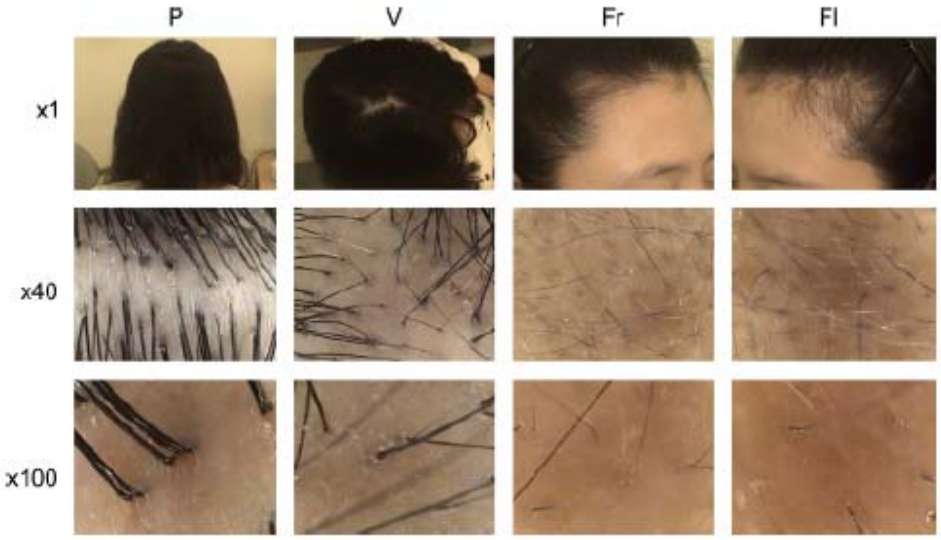
Various measurement methods for human scalp hair have been introduced to meet the needs of clinicians and researchers of hairs. Generally, hair growth and hair loss evaluation methods can be classified as invasive, semi-invasive, and non-invasive. Invasive scalp measuring method is histologic evaluation of scalp biopsy specimens. Horizontal sections of the specimen indicate the number of hair follicles, especially functionally active ones, per unit area as number/cm, but by using this method, it is impossible to histologically compare identical scalp hair follicles before and after the treatment, and the method is limited in its usage at private clinics. Semi-invasive scalp measuring methods include trichogram (hair root analysis) with shedding hairs and unit area trichogram with plucked hairs. Non-invasive methods is calibration of scalp coverage through fixed external references and phototrichogram. For the reproducibility of phototrichogram, extenal fixation devices, such as stereotactic scalp photography demonstrating fixation of the subject on a brow and chin rest, had been reported. But it is impossible to obtain exactly the same points with phototrichogram for re-evaluation.

I introduce new facilitated scalp hair measuring method using phototrichogram with a headband and a tapeline. Our method can provide approximate points by using only a headband and a tapeline without tattoo or shedding hairs or external fixation devices.



Illustrations demonstrating (A) "P," (B) "V," (C) "Fr," and (D) "Fl."



Twelve photos of "P," "V," "Fr," and "Fl" using ×1, ×40, and ×100 magnification.

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Intralesional injection and topical therapy

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Loss of hair is the most common problem of modern societies, which createsmany economical and psychological effects. Recently, a great effort has been made to treat hair loss, in which some of them were successful. One of the most common types of alopecia is baldness or androgenetic alopecia. This kind of alopecia is recognizedby progressive narrowing of hair in the vertex and fronto- temporal area of scalp, in persons with genetic potency. The most recommended treatment for androgenic alopecia is composed of local minoxidil, hormonal therapy such as local and oral anti-androgen or local progesterone containing products. Available medical treatments prevent progression of the disease and reverse miniaturization of hair follicles in most patients with mild to moderate androgenetic alopecia. Alopecia areata is a common form of nonscarring alopecia. It affects males and females equally and has no racial predilection. It usually affects the scalp, but any hair-bearing area can be involved. It presents as patchy hair loss, loss of hair on the entire scalp (alopecia totalis), or the whole body (alopecia universalis). Although many therapeutic options are used by dermatologists, randomized controlled trials assessing treatment modalities are few. Moreover, many reports lack an ideal objective parameter to measure treatment response. The high spontaneous remission rate in patchy alopecia areata makes it even harder to assess treatment efficacy. This session will review the available topical and intralesional agents that are used in the treatments of androgenetic alopecia and alopecia areata. Future success in treating alopecia will require continued research on the hair biology and immunology, the development of new therapeutic approaches and well-advised use of existing drugs.

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Novartis Award, Korean Society for Medical Mycology
Scholarship, The Korean Society for Investigative Dermatology
Excellence Academic Books, The Ministry of Culture and Tourism
Best Paper, Symposium of Korea Information Processing Society
Dr. Paul Janssen Award, Korean Dermatological Association
Travel grant, The American Academy of Dermatology, USA.
Scholarship. The Korean Hair Research Society
International Biographical Center Award, Cambridge, U.K.

Scalp biopsy and histopathology

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

Department of Dermatology, Pusan National University College of Medicine

Scalp biopsy is done on various skin diseases involving the scalp, of which alopecia is one of the most common conditions. Among 3 kinds of biopsy techinique, 4-mm punch biopsy seems to be standard in the scalp biopsy for alopecia. In the scalp biopsy, the conventional vertical sections have the merits in that the whole structure of hair follicle can be found, and the demerits in that quite a few hair follicles can be observed. In contrast to the vertical sections, the transverse sections have the merits in that the density of hair follicles and the ratio of terminal to vellus hair follicles can be determined, and the demerits in that it is not popular to the pathologists and even the most dermatologists. For proper scalp biopsy, dermatologists should be acquainted with the techniques of biopsy and transverse sectioning.

To understand the pathology of various alopecia disorders, it could be very important to know what's the normal in hair follicle pathology. There are some differences in hair density, the ratio of terminal to vellus hair, and etc. between Caucasians and Koreans. As the pathology of various alopecia may be hard to understand, it could be important to be familiar with the characteristic findings of both vertical and transverse sectioning in common alopecia such as patterned hair loss, alopecia areata, and telogen effluvium, and some scarring alopecia.

[CURRICULUM VITAE]

Moon-Bum Kim, M.D. PhD.

Present Status: Associate professor, Department of Dermatology, PNUH

Education :

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

Administrative positions :

1993-1996	Korean Army Doctor

Honors and awards :

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

Memberships :

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

SESSION 7

Eyelash hypotrichosis

The Korean Hair Research Society

Should we leave eyelash management to the role of cosmetics?

Ha Seong Lim, M.D.

I'mZain Dermatology Clinic

Women have long strived to possess long, thick, and dark eyelashes. Prominent eyes and eyelashes are often considered a sign of beauty and can be associated with increased levels of attractiveness, confidence, and well-being. Numerous options may improve the appearance of eyelashes. Mascara aims to temporarily darken, lengthen, and thicken eyelashes using a combination of waxes, pigments, and resins. Artificial eyelashes can be adhered either to the dermal margin or to individual eyelashes. Individuals may even use eyelash transplantations to improve the appearance of their eyelashes. The unique properties of eyelashes (e.g., relatively long telogen and short anagen phases compared with scalp hairs, slow rate of growth, and a lack of influence by androgens) may allow for specific aesthetic interventions to improve the appearance of natural eyelashes. Some over-the-counter (OTC) products may contain prostaglandin analogs that can affect eyelash growth, but neither the safety nor efficacy of these OTC cosmetics has been fully studied. Originally indicated for the reduction of intraocular pressure, the synthetic prostaglandin analog bimatoprost was recently approved for the treatment of hypotrichosis of the eyelashes. In a double-blinded, randomized, vehicle-controlled trial, bimatoprost safely and effectively grew natural eyelashes, making them longer, thicker, and darker. Bimatoprost was generally safe and well tolerated and appears to provide an additional option for individuals looking to improve the appearance of their eyelashes.

[CURRICULUM VITAE]

Ha Seong Lim, M.D.

Education & Career :

Residency in Dermatolgy in Severance Hospital, Yonsei University
Visiting Residency in University of Pennsylavania, Medical School
Graduate from college of Medicine, Yonsei University
Dermatology Specialist
Participant in Allergan “eye Beautification” Round Table at Singapore in 2009

Current Position :

Director of I’mZain Dermatology Clinic

Understanding of eyelash hypotrichosis and latest clinical update

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

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

Eyelash hypotrichosis is a condition indicated by an inadequate amount of eyelashes. Eyelash prominence is one of the key factors comprising facial beauty, feminity and sense of well being and has been described as having an important positive psychological effect.

This condition has been challenging dermatologist who are experts in managing cosmetic patients.

Bimatoprost 0.03% solution, identical to the ophthalmic solution for glaucoma or ocular hypertension treatment, increase eyelash length, thickness and darkness in patients with hypotrichosis of the eyelashes. Bimatoprost is known as prostaglandin F2α analogue. When prostaglandin and prostamide analogs interact with the prostanoid receptors in the hair follicle, this most likely stimulates the resting follicles (telogen phase) to growing follicles (anagen phase). Prostaglandin and prostamide analogs may also prolong the anagen phase of eyelashes, leading to an increase of eyelash length. Bimatoprost is generally safe when applied to the base of the eyelashes at the lid margin with minimum side effects. However, other ocular or systemic side effects associated with ophthalmic prostaglandin and prostamide analogs may occur when instilled on the surface of the eye, and patients must be informed and monitored.

A prospective, open-label experience study to assess the efficacy and safety of bimatoprost 0.03% solution in the augmentation of eyelashes in Korean subjects. Three investigational sites were involved and 60 eligible subjects were enrolled. Duration of study was 16 weeks and additional follow up periods. Efficacy was evaluated by global eyelash assessment, digital image analysis and patient reported outcome. Highly significant improvement was observed following bimatoprost treatment in healthy Korean subjects: length; thickness; intensity of eyelashes. Bimatoprost was well tolerated, with primarily mild & self-limiting adverse events.

[CURRICULUM VITAE]

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

Education & Career :

1979-1985 Yonsei University College of Medicine, Seoul, Korea (MD)
1985-1989 Dermatology 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)
1992-2003 Research fellow, Instructor, Assistant Professor, Associate Professor of Dermatology, Yonsei University Wonju College of Medicine, Korea
1996-1998 Visiting Clinical Assistant Professor, Department of Dermatology, University of Minnesota, Minneapolis, USA

Current Position :

2004-present Professor, Department of Dermatology, Yonsei University Wonju College of Medicine, Wonju, Korea
2003-present Director, Institute of Hair and Cosmetic Medicine, Yonsei University Wonju College of Medicine, Wonju, Korea
1993-present European Hair Research Society, Active Member
1998-present Korean Hair Research Society, Secretary General
2010-present Organizing Chair of the 2014 World Congress for Hair Research

Summary of Academic Activities

More than 170 peer-reviewed scientific publications
More than 120 domestic invited lectures and more than 30 international invited lectures
Thirteen 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)

SESSION 8

Hair Research Workshop

The Korean Hair Research Society

Protocol design and clinical trial for hair research

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

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

Protocol design is a first and essential step for the clinical trial. A study protocol is a document that describes the plan for conducting the clinical trial in detail. The study protocol explains the purpose and function of the study as well as the method of the clinical trial. Contents included in the protocol are the reason for the study, the numberof participants, eligibility and exclusion criteria for the subjects, details about the intervention or therapy which the participants will receive (such as frequency and dosage), the features of clinical data and demographic information about the participants that will be gathered, steps for clinical caregivers to carry out, and the study endpoints.

The existence of a study protocol allows researchers who are at multiple locations (in a multicenter trial) to perform the study in exactly the same way, so that their data can be combined as though they were all working together. The protocol also gives the study administrators as well as the local researchers a common reference document for the researchers' duties and responsibilities during the trial.

The efficacy endpoints of clinical trial in hair research are comprised of phototrichogram, investigator assessment and expert panel assessment by global photography, and patient's self assessment. Safety evaluations are comprised of subjective questionnaire and objective evaluation and are different among topical and oral agents.

[CURRICULUM VITAE]

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

Education & Career :

1979-1985 Yonsei University College of Medicine, Seoul, Korea (MD)
1985-1989 Dermatology 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)
1992-2003 Research fellow, Instructor, Assistant Professor, Associate Professor of Dermatology, Yonsei University Wonju College of Medicine, Korea
1996-1998 Visiting Clinical Assistant Professor, Department of Dermatology, University of Minnesota, Minneapolis, USA

Current Position :

2004-present Professor, Department of Dermatology, Yonsei University Wonju College of Medicine, Wonju, Korea
2003-present Director, Institute of Hair and Cosmetic Medicine, Yonsei University Wonju College of Medicine, Wonju, Korea
1993-present European Hair Research Society, Active Member
1998-present Korean Hair Research Society, Secretary General
2010-present Organizing Chair of the 2014 World Congress for Hair Research

Summary of Academic Activities

More than 170 peer-reviewed scientific publications
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Thirteen 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)

Hair follicle microdissection and hair follicle cell culture

Oh Sang Kwon, M.D, Ph.D

Department of Dermatology, Seoul National University Hospital

Mammalian hair follicle is a composite mini-organ with a complex structure and function. It involves several types of cells from different embryonic origins; keratinocytes, melanocytes and specialized fibroblasts such as dermal papilla cells and connective tissue sheath cells. The cells shape the highly organized, multilayered hair follicle which produces the hair, the functional endpoint of it.
A range of *in vitro* models have been developed to investigate the biological and biochemical mechanisms of hair follicles and to explore and evaluate candidates with hair-growth modulating activity. Primacy cultures of various cell types have been established including dermal papilla cells, outer root sheath cells, connective tissue sheath cells and melanocytes. These have allowed the assessment of characteristics of individual cell types with or without manipulation *in vitro* and also enable to investigate their interactions. In parallel, hair follicle organ culture model is one of the most popular *in vitro* techniques which involve more natural cellular interactions between cell types and can produce new hair, while still retaining the ability to be manipulated *in vitro*.
In this course, basic knowledge and techniques will be discussed how to prepare and set up *in vitro* culture system including primacy cell culture of different cell types and hair follicle organ culture.

[CURRICULUM VITAE]

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

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 Prof. 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. (Supervisor: Prof. George Cotsarelis)

2005.3-2010.3 Assistant Prof. Department of Dermatology, Seoul National University College of Medicine, Seoul, Korea

2003.4-2004.2 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. (Supervisor: Prof. Ken Lee)

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, Pediatric dermatology

Memberships and Committees :

2010.5-present Korean Hair Research Society (KHRS), Board director for Publication and Information

2010.7-present Korean Society for Pigment Cell Research (KSPCR), Treasurer, member of board of directors

2011.4-present Korean Society of Investigative Dermatology (KSID), Board director for Publication

Since 2009 Korean Atopic Dermatitis Association, board member

Since 1999 Korean Dermatological Association, member

Since 2002 Society for Investigative Dermatology (USA), member

Since 2010 American Academy of Dermatology (USA), member

Awards :

2010 AmorePacific Research Program for Young Investigators

In vitro experimental technique for hair research

Hoon Kang, M.D, Ph.D

Department of Dermatology, College of Medicine,
The Catholic University of Korea

To develop more powerful therapeutic modalities for hair growth will require new understanding of hair follicle biology. During the last several years, *in vitro* methods have been used increasingly in hair biology study. Most of *in vitro* study of hair mainly focused on genuine hair separation from surrounding tissues and well nourished environment for hair cell cultures.

Hair follicles repeat cyclical growth phases consisting of anagen, catagen, and telogen. Even though hair cycle takes an important part in the hair loss disease, the exact regulatory mechanisms are largely unknown. Understanding of spontaneous and/or accidentally regressing phase is critical for the prevention of hair loss.

The molecules and signals which regulate the hair cycle and hair follicular biology are still not known exactly. Recently, several informative evidences have revealed significant knowledge about possible regulatory factors involving in the of hair follicular biology. They include thyroid hormone, shh, hairless gene, thrombospondin-1, fibroblast growth factor-5 (FGF-5), neurotrophin-4, GDNF and TGF etc.

It is generally accepted that *in vitro* molecular genetic approaches have yielded unexpected insights into hair biology. In this session, I we will discuss recent progress in vitro hair biology study, focusing on the genes controlling the hair cycle.

[CURRICULUM VITAE]

Hoon Kang, M.D., Ph.D.

Education:

1983 - 1989 M.D. degree from College of Medicine, The Catholic University of Korea, Seoul, Korea (1989)

1991 - 1993 Master degree from College of Medicine, The Catholic University of Korea, Graduate School, Seoul, Korea (1993)

1993 - 1999 Ph.D. degree from College of Medicine, The Catholic University of Korea, Graduate School, Seoul, Korea (1998)

Training:

Internship, Kangnam St. Mary's Hospital, The Catholic University of Korea, Seoul, Korea

1991-1995 Dermatology residency, Department of Dermatology, Kangnam St. Mary's Hospital, The Catholic University of Korea, Seoul, Korea

2007.3.-2008.8. Hair Fellowship, Department of Dermatology & Skin Science, University of British Columbia, Vancouver, Canada

Experience:

1996-1998 Grade V of Medical Officer, Department of Dermatology, National Medical Center, Seoul Korea

1998-2001 Instructor, Department of Dermatology, Incheon St. Mary's Hospital, The Catholic University of Korea, Inchon, Korea

2001-2004 Chairman and Faculty Staff, ChoiKang Skin, Hair and Laser Clinic, Seoul, Korea

2004-2007 Assistant Professor, Department of Dermatology, St. Paul's Hospital, The Catholic University of Korea, Seoul, Korea

2007.3.-2008.8. Hair Fellowship, Department of Dermatology & Skin Science, University of British Columbia, Vancouver, Canada

2008-present Associate Professor, Department of Dermatology, St. Paul's Hospital, The Catholic University of Korea, Seoul, Korea

Society Membership:

The Korean Society for Dermatology

The Korean Society for Investigative Dermatology

The Korean Hair Research Society

The Korean Society for Dermatologic Surgery

American Academy of Dermatology, International Fellow (ID#033910)

American Society for Dermatologic Surgery

Honors and Awards :

Graduate Student Scholarship, The Catholic University of Korea, 1994

The Best Facutly Award, The Catholic University of Korea, 2000

Department of Dermatology, The Catholic University of Korea Scholarship, 2004

The Korean Society for Dermatology Award for SID, 2004

Stiefel Korea Award, 2006

Seongui Scholarship, The Catholic University of Korea, 2009

Animal model for hair loss

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

Department of Dermatology, Inha University College of Medicine

Animal models, particularly rodent models, have been used in the research of hair disorders by the many advantages as follows:

- The small size of rodents and their rapid breeding capacity enables large numbers to be used.
- Environmental influence can be regulated and standardized for the duration of a study.
- Specific genes can be studied using transgenic and knockout systems.
- Surgical manipulation can be used.
- Rapid screening of experimental drug treatments in a systematic manner.

1. Animal models for alopecia areata(AA) research

The C3H/HeJ mouse and the DEBR rat are the two extensively characterised and most frequently used models for AA.

a. C3H/HeJ mice

- The onset of AA develops from 4 months of age in females compared with 6 or more months in males, and affects up to 20% of population.
- Lesions first appear on the ventral surface of the mice and are characterized histologically by a perifollicular inflammatory infiltrate of lymphocytes, abnormal expression of HLA-DR, HLA-A,B,C and ICAM-1 by follicular epithelium.
- Response to intralesional steroid injection and to topical immunotherapy is similar to the human.
- AA can be transferred to other C3H/HeJ mice by skin grafting.
- Transfer of AA is dependent upon an intact immune response in the recipient mouse and requires both CD4+ and CD8+ T cells.

b. Dundee experimental bald rat(DEBR) is another well established animal model of a spontaneous hair loss that is similar to AA.

In both models, the progression of AA and pathologic findings of the lesion are similar.

2. Animal models for male pattern hair loss(MPHL)

- The stump-tailed macaque (Macaca arctoides) appears to be a suitable biological model for MPHL, but the expense, danger, and low availability compromise its value.

- Rodent models, both testosterone induced alopecia and various xenograft approaches, show promise for the studies on the growth of hair

3. Animal models for clinical trial of hair growth stimulants

- The C57BL/6 mouse is a particularly useful model for the assessment of the effect of hair growth substances.

[CURRICULUM VITAE]

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

Present Academic & Hospital Appointments :

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

Education :

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

Career :

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

Society :

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

대한모발학회 회칙

제 1 장 총 칙

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

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

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

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

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

제 2 장 회 원

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

제 6 조 (구분) 본회의 회원은 다음과 같이 구분한다.

1. 정회원: 대한피부과학회 정회원 자격자로 본 회 목적에 찬동하는 자로 한다.
2. 명예회원: 모발 관련 진료 및 연구 업적이 탁월하고 본 회 발전에 공헌이 지대한 자로 한다.
3. 연구회원: 생명과학 관련분야에 종사하는 박사학위 소지자이거나 이에 준하는 경력자로 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 이사회의 심의를 거쳐 총회의 인준을 받아야 한다.

제 24 조 본 회칙은 공포일로부터 시행한다.

2004. 7. 1. 제정
2006. 5. 28 개정
2009. 5. 24 개정
2010. 10. 16 개정

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
- **홍 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, 김형옥, 김홍직, 박성욱, 서구일, 신기식, 윤태영
  은희철, 이동윤, 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 연제 발표 등으로 이루어지는 대한모발학회의 꽃이라고 할 수 있습니다. 제 1차 및 제 2차 심포지엄을 거쳐 2006년 제 3차 대회 때부터 정식 학술대회의 면모를 갖추게 되었습니다.

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

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

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

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

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

6) 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

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
Uitraviolet radiation alters lipid metabolism in human air 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
다이아몬드	한국MSD	02-6363-0150
플래티늄	갈더마코리아	02-6717-2043
	현대약품	02-2600-3899
	글락소스미스클라인	02-709-4114
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	더마힐CMS	02-521-4847
	썸텍	02-2025-2502
브론즈	정우의학서적	02-822-1361

광고회사

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1	한국MSD㈜	02-6363-0150
2	갈더마코리아㈜	02-6717-2043
3	한국엘러간	02-3019-4509
4	글락소스미스클라인	02-709-4114
5	현대약품	02-2600-3899
6	동화약품	02-2021-9300
7	토탈헬스포인트	02-553-7895
8	미라	02-556-6545

The Korean Hair Research Society

2011년 제8차 대한모발학회 학 술 대 회

인 쇄 2011년 9월 14일
발 행 2011년 9월 18일

발행처 **대 한 모 발 학 회**

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