대한의진균학회
제20차 학술대회 초록

◐ 일 시 : 2013년 6월 1일(토)

◐ 장 소 : 서울 건국대병원 대강당

주최 : 대한의진균학회
대한피부과학회 피부진균연구회

대한의진균학회 20년 회고

명지병원 피부과 노 병 인

전 총무이사 및 제5대 회장. 현 고문

1994년 3월 9일 서울교육문화회관에서 창립총회 및 학술대회를 개최하였고, 금일 20차 학술대회를 맞게 되었습니다. 대한피부과학회의 거성이시며, 의진균을 전공하신 경북의대 고 서순봉 교수님이 은퇴하시며 대한의진균학회의 필요성을 이야기하시어 1993년 발기대회를 거친 후 창립준비위원회 일을 한지는 20년이 흐른 셈입니다. 마침 오스트레일리아의 아델라이드에서 ISHAM 학회 전이라 초청연자로 NIH의 권경주 박사 (June Kwon-Chung), NCI의 Thomas J. Walsh 및 일본 도쿄의 Hideoki Ogawa 교수를 특강 연자로 초청을 하게 되었습니다. 계속하여 ISHAM 및 동남아의 저명한 의진균학자들을 특강 연자로 초청하였습니다.

1997년 7월 12일 Symposium을 개최하여 dermatophyte와 Candida 증, 기회감염 및 항진균제 등을 주제로 하여 매 2년에 1회 개최하였습니다.

1998년 11월 4일 Workshop을 개최하여 주로 피부과 전공의들의 교육에 필요한 dermatophyte 및 Candida의 동정에 관한 내용으로 2년에 1회 개최하였습니다.

대한의진균학회지 (Korean Journal of Medical Mycology)는 1996년 12월 제1권 제1호를 창간한 후 격월간에서 년 4회 발행으로 우리나라에서는 유일한 의진균학의 잡지가 되었으며 전 세계 mycology society 및 abstract를 발간하는 Database 등으로 약 150부를 우송하고 있습니다.

2008년 10월 4일 Asian Dermatological Congress 중엔 제4차 APSMM (Asia-Pacific Society for Medical Mycology) Meeting을 개최하게 되었으며, 2011년 5월 24일에는 22nd WCD (World Congress for Dermatology) 2011 Seoul 중에 Ancillary Mycology Symposium을 개최하게 되었습니다.

◈ 대한의진균학회 제20차 학술대회 진행계획표 ◈

시 간	내 용
	주제 : 20 years of mycology in Asia
08 : 30 ~ 09 : 00	등 록
09 : 00 ~ 09 : 10	개회식 회장 : 유희준 교수 (한양의대) 인사말 노병인 교수 (관동의대)
09 : 10 ~ 09 : 30	수혜자 보고 (안규중 교수 / 건국의대 피부과)
09 : 30 ~ 10 : 00	국내연자 특강 1 (이동건 교수 / 가톨릭의대 서울성모병원 감염내과)
10 : 00 ~ 10 : 20	Coffee break
10 : 20 ~ 11 : 00	해외 초청연자 특강 1 (Ruoyu Li / Peking University First Hospital, China)
11 : 00 ~ 11 : 30	국내연자 특강 2 (최종수 교수 / 영남의대 피부과)
11 : 30 ~ 12 : 10	해외 초청연자 특강 2 (Daniel Kett / Dept. of Medicine, U of Miami, USA)
12 : 10 ~ 13 : 30	기념촬영, 평의원회 및 중식
13 : 40 ~ 14 : 10	국내연자 특강 3 (신종희 교수 / 전남대 진단검사의학과)
14 : 10 ~ 14 : 50	해외 초청연자 특강 3 (Hiroji Chibana / Chiba University, Japan)
14 : 50 ~ 15 : 10	Coffee break
15 : 10 ~ 15 : 50	해외 초청연자 특강 4 (Masako Kawasaki / Kanazawa Medical University, Japan)
15 : 50 ~ 16 : 50	일반연제
16 : 50 ~ 17 : 10	폐회식 및 총회

▶ 학술대회 진행 시 유의 사항

1. 연제 발표자는 미리 10분 전에 앞줄에 대기하여 주시기 바랍니다.
2. 일반 연제는 원저인 경우 발표 7분, 임상증례는 발표 5분입니다.
3. 연제를 발표 1시간 전에 접수하여 주십시오.

◈ 대한의진균학회 제20차 학술대회 연제 순서 ◈

▣ **수혜자 보고** 09 : 10 - 09 : 30

제 목 : Application of Long-pulse Nd-Yag 1,064 nm Laser to Onychomycosis

연 자 : Kyu Joong Ahn (Konkuk University, Korea)

좌 장 : **원영호 교수 (전남의대)**

▣ **국내연자 특강 1** 09 : 30 - 10 : 00

제 목 : Invasive Fungal Infections after Hematopoietic Stem Cell Transplantation: Epidemiology, Diagnosis and Management

연 자 : Dong-Gun Lee (Catholic University, Korea)

좌 장 : **우준희 교수 (울산의대)**

◐ 10 : 00 ~ 10 : 20 Coffee Break ◑

▣ **해외 초청연자 특강 1** 10 : 20 - 11 : 00

제 목 : Progress in Susceptibility to Mucocutaneous Fungal Infections

연 자 : Ruo-yu Li (Peking University First Hospital, China)

좌 장 : **노병인 교수 (관동의대)**

▣ **국내연자 특강 2** 11 : 00 - 11 : 30

제 목 : *Trichophyton mentagrophytes* Complex Isolated from Human Skin in Korean

연 자 : Jong Soo Choi (Yeungnam University, Korea)

좌 장 : **안규중 교수 (건국의대)**

▣ **해외 초청연자 특강 2** 11 : 30 - 12 : 10

제 목 : Optimal Treatment of Candidemia and Invasive Candidiasis

연 자 : Daniel H. Kett (Department of Medicine, University of Miami, USA)

좌 장 : **유희준 교수 (한양의대)**

◐ 12 : 10 ~ 13 : 30 기념촬영, 평의원회 및 증식 ◑

▣ **국내연자 특강 3** 13 : 40 - 14 : 10

제 목 : *Candida haemulonii* and Closely Related Species in Korea: Identification, Antifungal Susceptibility, Molecular Epidemiology and Clinical Features

연 자 : Jong Hee Shin (Chonnam National University, Korea)

좌 장 : **서무규 교수 (동국의대)**

▣ **해외 초청연자 특강 3** 14 : 10 - 14 : 50

제 목 : Research Project for Understanding the Pathogenicity and the Parasitism of *Candida glabrata*

연 자 : Hiroji Chibana (Chiba University, Japan)

좌 장 : **문기찬 교수 (울산의대)**

◐ 14 : 50 ~ 15 : 10 Coffee Break ◑

▣ **해외 초청연자 특강 4** 15 : 10 - 15 : 50

제 목 : What is *Trichophyton mentagrophytes*?

연 자 : Masako Kawasaki (Kanazawa Medical University, Japan)

좌 장 : **최종수 교수 (영남의대)**

▣ **일반 연제 FC-1 ~ FC-5** 15 : 50 - 16 : 50

좌 장 : **김미나 교수 (울산의대)**

FC-1. Localized Skin Infection Caused by *Fusarium oxysporum*

····· Moo Kyu Suh[1], Ji Young Yoo[1], You Bum Song[1], Gyoung Yim Ha[2], Jung Ran Kim[3], Jong Soo Choi[4] / Departments of Dermatology[1], Laboratory Medicine[2] and Pathology[3], College of Medicine, Dongguk University, Gyeongju, Department of Dermatology, College of Medicine, Yeungnam University[4], Daegu, Korea

FC-2. Isolation Rates of Dermatophytes from the Soil Near Dogs and Horses in Daegu

····· Seung Hyun Sohng, Dong Hoon Shin, Jong Soo Choi / Department of Dermatology, College of Medicine, Yeungnam University, Daegu, Korea

FC-3. Tinea Corporis Caused by *Microsporum canis* in a Grandmother and a Granddaughter

..... Bo In Lee, Jun Young Lee, Hyung Ok Kim, Young Min Park /
Department of Dermatology, Seoul St. Mary's Hospital, College of Medicine,
The Catholic University of Korea, Seoul, Korea

FC-4. A Case of Chromoblastomycosis Caused by *Fonsecaea pedrosoi*

..... Jin Hwa Choi / Department of Dermatology, College of Medicine,
Yeungnam University, Daegu, Korea

FC-5. A Case of Kerion Celsi Caused by *Microsporum gypseum*

..... Seung-Min Ha, Dong-Yeob Ko, Su-Young Jeon, Ki-Hoon Song, Ki-Ho Kim /
Department of Dermatology, College of Medicine, Dong-A University

◐ 16 : 50 ~ 17 : 10 **폐회식 및 총회** ◑

해외 초청연자 특강
(Special Lecture)

Progress in Susceptibility to Mucocutaneous Fungal Infections

Ruo-yu Li and Xiaowen Wang

Department of Dermatology and Venereology, Peking University First Hospital, Peking University, Research Center for Medical Mycology, Peking University, Beijing, China

Mucocutaneous fungal diseases represent an important paradigm in immunology, and research in this field is entering an exciting period. Here we focus on the progress in susceptibility to mucocutaneous fungal infections in human subjects.

1. Interaction between pathogens and host immune cells

The first line of defense against invading microbes is provided by the skin and mucosa, which, in addition to serving as physical barriers, contain antimicrobial peptides, such as β-defensins. The second line of defense against *Candida* species is composed of an interplay between the innate and adaptive immune systems. Recognition by immune cells is mediated by dedicated pattern recognition receptors (PRRs), including the Toll-like receptors (TLRs) and C-type lectins expressed in innate cells, mainly monocytes, macrophages, neutrophils and dendritic cells. PRRs recognize microbe-specific pathogen-associated molecular patterns (PAMPs), and trigger several partially overlapping intracellular signaling pathways to orchestrate an efficient and pathogen-specific host immune response. Monocytes, macrophages and neutrophils mostly contribute to the innate immune response through phagocytosis and pathogen killing. In contrast, pathogen engulfment by dendritic cells activates their maturation into professional antigen-presenting cells, which release specific signature cytokines to orchestrate the differentiation of naive T lymphocytes into appropriate T helper subtypes (Th1, Th2, Th17 and Treg), thereby shaping the adaptive response. Among the T helper subtypes, TH 17 cells playing a central role in the defense against fungi in human subjects.

2. Diverse genetic defects causing susceptibility to mucocutaneous fungal infections

Mucocutaneous candidiasis and dermatophyte infections can occur individually or alongside other symptoms in patients with various primary immunodeficiencies (PIDs) with diverse genetic defects. Mutations in *Dectin-1* and *CARD9* impair signal transduction for the induction of TH17 cell-promoting cytokines on fungal recognition. In patients with *STAT3* mutations, these cytokines do not activate sufficient

amounts of STAT3 for induction of the TH17 cell lineage-determining transcription factor RORγt. Gain-of-function *STAT1* mutations shift the cellular response toward TH17 cell-inhibiting cytokines and away from TH17 cell-activating cytokines. In all 4 mutations, the result is a severely reduced proportion of TH17 cells with reduced amounts of the cytokines IL-17 and IL-22, which have potent antifungal activity at mucosal sites. Finally, mutations in IL17F and IL17RA in patients with CMC, as well as neutralizing autoantibodies against IL-17 and IL-22 in patients with APECED, directly impair IL-17 and IL-22 immunity.

There are lots of challenging issues in the field infection-related immunological disorders. Understanding the genetic defects is not an end but a beginning. In the future, with the development of multi-pronged therapeutic approaches for fungal diseases, we can truly translate basic research into clinical practices.

◐ CURRICULUM VITAE ◑

◈ NAME ◈

Ruoyu LI

◈ POSITION TITLE ◈

Professor and director, Department of Dermatology, Peking University First Hospital
Head of Medical Mycology Lab
Vice director, Research Center for Medical Mycology, Peking University
Director, Peking University Skin and STD Center

◈ EDUCATION/TRAINING ◈

1982	Beijing Medical College, M.D.; B.S. Medicine
1986	Beijing Medical University, M.S. Medicine
1987, 1990, 1991 ~ 92	Foreign researcher, Research Center for Pathogenic Fungi And Microbial Toxicoses, Chiba University, Japan
1997. 3 ~ 5	Visiting scholar, Department of Pathology, University of Texas Health Science Center at San Antonio, U.S.A.

◈ PROFESSIONAL EXPERIENCE ◈

1986. 8 ~ 1987. 11	Resident, Department of Dermatology, Peking University First Hospital
1987. 12 ~ 1992. 8	Attending physician, Department of Dermatology, Peking University First Hospital
1992. 9 ~ 1998. 6	Associate professor, Department of Dermatology, Peking University First Hospital
1998. 6 ~ now	Professor, Department of Dermatology, Peking University First Hospital

◈ MEMBERSHIP IN PROFESSIONAL SOCIETY ◈

President, Society of Mycology, Chinese Society of Microbiology
Vice President and president-elect, Chinese Dermatological Association
Vice President, Medical Mycology Society, Chinese Mycological Society
Member and Director of Asia Pacific Society of Medical Mycology
Member of International Society for Human and Animal Mycology
Member of American Society of Microbiology

◈ ACTIVITIES ◈

Deputy editor in Chief: Chinese Journal of Mycology

Member of Editorial Board: 6 Journals

◈ RECENT PUBLICATIONS ◈

Papers: Over 300 papers were published in Chinese and English journals.

Books: Textbook of Dermatology and Venerology, editor in chief. 2004, 1st ed., 2010, 2nd ed.

Medical Mycology-Guide to Laboratory Examination, Deputy editor in Chief. 2005.

◈ RESEARCH INTEREST ◈

The pathogenesis of *Aspergillus* infection;

Non-culture diagnostic methods for fungal infection;

Antifungal resistance

Host-fungus interation

Grants:

New mechanisms of *Aspergillus fumigatus* Hog1-MAPK pathway in the stress response and its role in pathogenesis (Key project, Natural Science Foundation China, 1,900,000, 2010. 1-2014. 12, PI).

The development and application of new diagnostic methods of fungal infection. Key project of Ministry of Health (2,910,000 RMB, 2008-2010, PI).

The molecular mechanisms of *Penicillium marneffei* against the host oxidative pressure. Natural Science Foundation of Beijing (120,000 RMB, 2007-2009, PI).

Two-component signaling in Candiasis and aspergillosis NIH Fogarty International Research Collaboration Award (RO3 TW 005926-01A1, 96,000 $, 2004-2007 Co-PI).

Set up of the early and specific diagnosis and efficacy application system of fungal infections. Key project of Ministry of Health (1800,000 RMB, 2005-2007, PI).

Multiple Gene Genealogical Analyses of *Candida albicans* NSFC overseas young scholar grant program (40,0000 RMB, 2007-2009, cooperator).

Studies on Gene Expression of *Penicillium marneffei* pathogenic yeast phase. Project of Ministry of Education (60,000 RMB, 2006-2008, PI).

Awards:

"Studies on the pathogenic fungi of chrommycosis" Awards of Science and Technology Advances, Ministry of Health, 1995.

"Excellent Middle and Young Age Doctor Awards", Chinese Medical Association-Janssen, 1998.

"Basic and Clinical Research on Antifungal Therapy" 2001, Beijing Municipal Awards of Science and Technology Advances.

"University Excellent Teacher Awards", Ministry of Education, 2002.

"Studies and Application on the Molecular Biology Features of Pathogenic Fungi" China Medical Science and Technology Awards, 2005.

"Expression of virulence-related genes detected *Aspergillus fumigatus* in vitro and in vivo with competitive RT-PCR", the best paper in volume 160 of Mycopathologia Journal, 2006.

MEMO

Optimal Treatment of Candidemia and Invasive Candidiasis

Daniel H. Kett

Department of Medicine, University of Miami, USA

Candida species represent the fourth most common cause of bloodstream infections. Compounding the management challenge of invasive fungal infections is the shift of non-*albicans* species of *Candida* becoming increasingly associated with invasive candidiasis. Until recently, *Candida albicans* was by far the prominent species. However, predominance toward non-*albicans Candida* species, including *Candida glabrata* and *Candida krusei* with their reduced susceptibility to several commonly used antifungal agents, has been seen in several countries around the world.

Invasive candidiasis is the predominant fungal infection in the ICU setting. Early initiation of appropriate antifungal therapy is essential for reducing morbidity and mortality. Recent evidence-based guidelines provide insight into the diagnosis, treatment, and prevention of the different forms of invasive fungal infections. The Infectious Diseases Society of America guidelines for the management of candidiasis have drawn attention to several important points, including emphasis on fluconazole and echinocandins as the recommended choices for proven and suspected invasive disease and a de-emphasis on amphotericin B and its formulations. The IDSA guidelines recommend an echinocandin as initial therapy in patients with moderately severe to severely ill infections. The concept of "stepdown therapy" is also strongly encouraged to prevent resistance and reduce cost.

Challenges certainly remain for the management of invasive candidiasis, but implementing preventative strategies in high-risk patients, the continued development of new noninvasive diagnostic tests, and the extension of our therapeutic armamentarium may allow us to manage *Candida* infections more effectively.

◐ CURRICULUM VITAE ◑

University of Miami School of Medicine

Name: Daniel H. Kett, M.D.

◈ HIGHER EDUCATION ◈

College:	University of Florida
	B.S. in Chemistry (1981)
Medical School:	University of Miami School of Medicine
	M.D. in (1985)

Certification/Licensures

1987	Florida State License (#ME0051707)
1988	DEA License (# upon request)
1988	National Board of Medical Examiners
1988	Diplomate American Board of Internal Medicine (#119669)
1988	Advanced Trauma Life Support - Provider
1990	Advanced Cardiac Life Support - Instructor
1991	Diplomate in Critical Care Medicine (#119669)
2002	Recertification - Diplomate in Critical Care Medicine (#119669)

◈ EXPERIENCE ◈

Academic

June 1, 2007 ~ Present	Professor of Clinical Medicine University of Miami Miller School of Medicine
June 1, 1997 ~ May 31, 2007	Associate Professor of Clinical Medicine University of Miami Miller School of Medicine
July 1990 ~ May 31, 1997	Assistant Professor of Clinical Medicine University of Miami School of Medicine
January 1990 ~ June 1990	Voluntary Clinical Instructor University of Miami School of Medicine
September 2009 ~ Present	Vice-Chair, Intuitional Review Board, Committee C University of Miami Miller School of Medicine
September 2007 ~ September 2009	Member, Intuitional Review Board, Committee C University of Miami Miller School of Medicine

◈ Publication ◈

1. Incidence of nephrotoxicity and association with vancomycin use in intensive care unit patients with

pneumonia: retrospective analysis of the IMPACT-HAP Database.
Cano EL, Haque NZ, Welch VL, Cely CM, Peyrani P, Scerpella EG, Ford KD, Zervos MJ, Ramirez JA, Kett DH. Improving Medicine through Pathway Assessment of Critical Therapy of Hospital-Acquired Pneumonia (IMPACT-HAP) Study Group. Clin Ther. 2012 Jan;34(1):149-157. doi: 10.1016/j.clinthera.2011.12.013.

2. Anidulafungin compared with fluconazole in severely ill patients with candidemia and other forms of invasive candidiasis: support for the 2009 IDSA treatment guidelines for candidiasis.
Kett DH, Shorr AF, Reboli AC, Reisman AL, Biswas P, Schlamm HT. Crit Care. 2011;15(5):R253. doi: 10.1186/cc10514. Epub 2011 Oct 25.
3. Anidulafungin compared with fluconazole for treatment of candidemia and other forms of invasive candidiasis caused by *Candida albicans*: a multivariate analysis of factors associated with improved outcome.
Reboli AC, Shorr AF, Rotstein C, Pappas PG, Kett DH, Schlamm HT, Reisman AL, Biswas P, Walsh TJ. BMC Infect Dis. 2011 Sep 30;11:261. doi: 10.1186/1471-2334-11-261.
4. Severity of disease and clinical outcomes in patients with hospital-acquired pneumonia due to methicillin-resistant *Staphylococcus aureus* strains not influenced by the presence of the Panton-Valentine leukocidin gene.
Peyrani P, Allen M, Wiemken TL, Haque NZ, Zervos MJ, Ford KD, Scerpella EG, Mangino JE, Kett DH, Ramirez JA. IMPACT-HAP Study Group. Clin Infect Dis. 2011 Oct;53(8):766-771. doi: 10.1093/cid/cir541. Epub 2011 Aug 31.
5. Resource utilization and cost of treatment with anidulafungin or fluconazole for candidaemia and other forms of invasive candidiasis: focus on critically ill patients.
Reboli AC, Rotstein C, Kett DH, Maschio M, Cartier S, Chambers R, Tarallo M. Pharmacoeconomics. 2011 Aug;29(8):705-717. doi: 10.2165/11584810-000000000-00000.
6. *Candida* prophylaxis and therapy in the ICU.
Echeverria PM, Kett DH, Azoulay E. Semin Respir Crit Care Med. 2011 Apr;32(2):159-173. doi: 10.1055/s-0031-1275528. Epub 2011 Apr 19. Review.
7. Development and implementation of a performance improvement project in adult intensive care units: overview of the Improving Medicine Through Pathway Assessment of Critical Therapy in Hospital-Acquired Pneumonia (IMPACT-HAP) study.
Mangino JE, Peyrani P, Ford KD, Kett DH, Zervos MJ, Welch VL, Scerpella EG, Ramirez JA. IMPACT-HAP Study Group. Crit Care. 2011;15(1):R38. doi: 10.1186/cc9988. Epub 2011 Jan 25.
8. Implementation of guidelines for management of possible multidrug-resistant pneumonia in intensive care: an observational, multicentre cohort study.
Kett DH, Cano E, Quartin AA, Mangino JE, Zervos MJ, Peyrani P, Cely CM, Ford KD, Scerpella EG, Ramirez JA. Improving Medicine through Pathway Assessment of Critical Therapy of Hospital-Acquired Pneumonia (IMPACT-HAP) Investigators. Lancet Infect Dis. 2011 Mar;11(3):181-189. doi: 10.1016/S1473-3099(10)70314-5. Epub 2011 Jan 20.

9. *Candida* bloodstream infections in intensive care units: analysis of the extended prevalence of infection in intensive care unit study.
Kett DH, Azoulay E, Echeverria PM, Vincent JL. Extended Prevalence of Infection in ICU Study (EPIC II) Group of Investigators. Crit Care Med. 2011 Apr;39(4):665-670. doi: 10.1097/CCM.0b013e318206c1ca.
10. Relationship of vancomycin minimum inhibitory concentration to mortality in patients with methicillin-resistant *Staphylococcus aureus* hospital-acquired, ventilator-associated, or health-care-associated pneumonia.
Haque NZ, Zuniga LC, Peyrani P, Reyes K, Lamerato L, Moore CL, Patel S, Allen M, Peterson E, Wiemken T, Cano E, Mangino JE, Kett DH, Ramirez JA, Zervos MJ. Improving Medicine through Pathway Assessment of Critical Therapy of Hospital-Acquired Pneumonia (IMPACT-HAP) Investigators. Chest. 2010 Dec;138(6):1356-1362. doi: 10.1378/chest.09-2453. Epub 2010 Jun 17.
11. Anidulafungin in the treatment of patients with invasive candidiasis.
Kett DH, Cubillos GF. Int J Antimicrob Agents. 2008 Nov;32 Suppl 2:S99-S102. doi: 10.1016/S0924-8579(08)70008-6. Review.

Related citations

12. Anidulafungin versus fluconazole for invasive candidiasis.
Reboli AC, Rotstein C, Pappas PG, Chapman SW, Kett DH, Kumar D, Betts R, Wible M, Goldstein BP, Schranz J, Krause DS, Walsh TJ. Anidulafungin Study Group. N Engl J Med. 2007 Jun 14;356(24):2472-2482.
13. Clinical research in the lay press: irresponsible journalism raises a huge dose of doubt.
Anaissie EJ, Segal BH, Graybill JR, Arndt C, Perfect JR, Kleinberg M, Pappas P, Benjamin D, Rubin R, Aberg JA, Adderson EE, Adler-Shohet FC, Akan H, Akova M, Almyroudis NG, Alexander BD, Andes D, Arrieta A, Baddley JW, Barron MA, Belzberg H, Boucher HW, Boyce TG, Casadevall A, Chandrasekar PH, Cleary JD, Cordonnier C, Cornely OA, Cuenca-Estrella M, Daly JS, Daoura N, Denning DW, dePauw B, de Repentigny L, Dignani MC, Dismukes WE, Donnelly JP, Donowitz GR, Dupont B, Drusano G, Ellis M, Espinel-Ingroff A, Fishman JA, Fleming R, Forrest G, Ghannoum M, Goldman M, Grazziutti M, Greene JN, Greenberg RN, Gubbins PO, Hadley S, Herbrecht R, Hiemenz JW, Hope W, Hospenthal DR, Husain S, Ito JI, Jacobson RM, Johnson M, Keating MR, Kett DH, Knapp K, Kontoyiannis DP, Krcmery VC, Larsen R, Laverdiere M, Ljungman P, Lortholary O, Maertens J, Marriott D, Mattiuzzi G, McGinnis MR, Morris M, Nucci M, Odds FC, Pankey GA, Patterson T, Pfaller M, Razonable RR, Reboli AC, Rinaldi MG, Roberts GD, Rodriguez Tudela JL, Rotstein C, Ruhnke M, Schuster M, Shoham S, Sia IG, Siebel N, Silviera F, Singh N, Sobel J, Solomkin JS, Sorrell TC, Steinbach WJ, Temesgen Z, Tortorano A, Vartivarian S, VerWeij P, Viscoli C, Viviani MA, Walker RC, Wheat JL, Wiley J, Williamson P, Wingard JR, Yu VL, Zaoutis T. Clin Infect Dis. 2006 Oct 15;43(8):1031-1039. Epub 2006 Sep 13. No abstract available. Erratum in: Clin Infect Dis. 2007 Mar 15;44(6):894.

14. Levels of endothelial and platelet microparticles and their interactions with leukocytes negatively correlate with organ dysfunction and predict mortality in severe sepsis.
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MEMO

Research Project for Understanding the Pathogenicity and the Parasitism of *Candida glabrata*

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Opportunistic fungal infections are associated with high mortality in hosts with an immunocompromised status due to HIV infection, organ and bone marrow transplants, and heavy chemotherapeutic treatments. With the completion of genome sequences of the major fungal pathogens, knowledge gained from study of a specific fungus can immediately be applied to other fungal studies, using genomics information as a platform. Of several dozen fungal species causing diseases in humans, *Candida glabrata* is the most amenable species for molecular biological approaches. *C. glabrata* is resident on skin and mucosa in normal human body, and causes infection of skin, nail, oral, esophagus, kidney, liver, lung and etc. including almost all organs in which mycoses occur. For these reasons we think this fungus is a good model for basic studies of pathogenic fungi. As a molecular genetic resource for the study of pathogenic fungi, a project of phenotypic analyses of the whole genes of *C. glabrata*, which is called the phenome project, has been undertaken, with the first goal of systematically constructing a single gene mutant collection. Essential genes for fungal growth will have a regulatable repression promoter inserted at the 5' side and all dispensable will be deleted from the genome. Using the collection, we will screen the mutants in which the parasitism and the pathogenicity are different from their parental strain to understand which genes play a role in the process. The results can lead to another important aim of this project, which is prioritization of drug targets amongst the genome *C. glabrata* genes as a prelude to developing new antifungal drugs.

◐ CURRICULUM VITAE ◑

Name : Hiroji CHIBANA

Date of birth : April 27, 1964

Present affiliation: Assoc Prof, Dept of Mol Biol, Medical Mycology Research Center, Chiba Univ.

◈ Edducation ◈

Apr 1985 ~ Mar 1989	B.Sc. Dept of Biol, Univ of the Ryukyus, Okinawa, Japan
Apr 1989 ~ Mar 1991	M.Sc. Dept of Biol, Univ of the Ryukyus, Okinawa, Japan
Apr 1991 ~ Mar 1995	Ph.D. Dept of Medical Science, Nagoya University, Nagoya, Japan

◈ Emoloyment ◈

Apr 1995 ~ Feb 2001	PostDoc. Dept of Genetics and Cell Bol. Univ of Minnesota, MN, USA
Mar 2001 ~ present Assoc	Prof, Medical Mycology Research Center in Chiba University, Chiba, Japan

◈ Other Experience and Professional Membership ◈

2004	Contract Lecture of Medical School, Nagoya Univ
2007 ~ present	Lecture of Medical School, Univ of Ryukyus
2008 Nov ~ Dec	Visiting Fellow, Facul Dentistry, Univ of Otago, Dunedin, New Zealand
2008 ~ 2011	Member of Council of the the Japanese Society for Medical Mycology
2012 ~ present	Member of representatives of the Japanese Society for Medical Mycology
2013 ~ present	Editorial Board, Yeast

Award: Encouraging Prize of the Japanese Society for Medical Mycology in 2006

◈ Selected peer-reviewed publications (out of 49 total) ◈

1. Nagi M, Tanabe K, Ueno K, Nakayama H, Aoyama T, Chibana H, Yamagoe S, Umeyama T, Oura T, Ohno H, Kajiwara S, Miyazaki Y. The *Candida glabrata* sterol scavenging mechanism, mediated by the ATP-binding cassette transporter Aus1p, is regulated by iron limitation. Mol Microbiol 2013 Feb 28.
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MEMO

What is *Trichophyton mentagrophytes*?

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The species definition of *Trichophyton mentagrophytes* was changed in 1999[1]. The new definition is based on a phylogeny reconstructed from sequence comparisons of internal transcribed spacer region of rRNA gene (ITS). The new taxonomy is grounded on not only phylogeny but also Templeton's cohesive species concept[2]. Therefore asexual species are defined as distinctive species despite any phylogenetic relationships.

However, there is no evidence that ITS sequences always present totally exact phylogenetic relationships and that so-called asexual species are truly asexual.

Some mating results using fresh isolates of *Arthroderma simii* and *T. rubrum*, and tester strains of three *Arthroderma* species show that so-called asexual species are not completely asexual. Moreover, phylogenies by sequence comparisons using 4 different genes (ITS, actin gene, DNA topoisomerase 2 gene or glyceraldehyde-3-phosphate dehydrogenase gene) differ according to gene. Easily changing species definitions may cause confusion in the future.

In spite of the trend in the microbiological world to change from "dual nomenclature" to "unified nomenclature", keeping the label "*T. mentagrophytes* in a broad sense" may be very useful and valid for understanding natural fungi more clearly.

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◐ CURRICULUM VITAE ◑

◈ Name ◈

Masako Kawasaki

◈ Position Title ◈

Cooperative Researcher

◈ Education ◈

1973	Kanazawa University, Master of Science
1995	Kanazawa Medical University, Ph.D. (Medicine)

◈ Professional Experience ◈

1975 ~ 1985	Assistant Professor, Sagami Women's College.
1985 ~ 2004	Research Associate, Department of Dermatology, Kanazawa Medical University.
2004 ~ 2009	Lecturer, Department of Dermatology, Kanazawa Medical University.
2009 ~ 2011	Associate Professor, Department of Dermatology, Kanazawa Medical University.
2011 ~ present	Cooperative Researcher, Department of Dermatology, Kanazawa Medical University.

국내연자 특강
(Special Lecture)

국내연자 특강 1
Dong-Gun Lee

국내연자 특강 2
Jong Soo Choi

국내연자 특강 3
Jong Hee Shin

Invasive Fungal Infections after Hematopoietic Stem Cell Transplantation: Epidemiology, Diagnosis and Management

Dong-Gun Lee

Division of Infectious Diseases, Department of Internal Medicine, The Catholic Blood and Marrow Transplantation Center, College of Medicine, The Catholic University of Korea, Seoul, Korea

Hematopoietic stem cell transplantation (HSCT) has improved the outcome of numerous malignant and non-malignant hematologic diseases. However, infectious diseases, especially invasive fungal infections (IFIs) still contribute to the burden of morbidity and mortality significantly after both autologous and allogeneic HSCTs. While *Candida* and *Aspergillus* species are most common pathogens, the incidence of non-albicans *Candida* species and Mucormycosis seems to increase. Recently, computed tomography, galactomannan assay have been incorporated into clinical practices and these method have made the diagnosis of IFIs more frequently. Newer anti-mold agents with good efficacies and lower adverse events are being introduced as prophylaxis and preemptive therapy. All of these considerable changes will improve the survival of HSCT recipients. This review summarizes recent changes of epidemiology and strategies in the diagnosis and management of IFIs in HSCT recipients.

◐ CURRICULUM VITAE ◑

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◈ Education and Degrees ◈

1987 ~ 1993	Graduated from College of Medicine, The Catholic University of Korea (CUK)
1997 ~ 1999	Master of Medical Science, College of Medicine, CUK
1999 ~ 2002	Doctor of Medical Science, College of Medicine, CUK

◈ Medical Licenses ◈

1993	Medical Doctor, College of Medicine, CUK (49754)
1999	Board Certificate of Internal Medicine, Korea
2002	Subspecial Board Certificate of Infectious Diseases

◈ Post-Graduate Training ◈

1993 ~ 1994	Internship, Holy Family Hospital, CUK
1995 ~ 1999	Residency of internal medicine, St. Mary's Hospital, CUK
1999 ~ 2002	Fellowship, Infectious Diseases, St. Mary's Hospital. CUK

◈ Professional Experiences ◈

2002 ~ present	Instructor (2002~2005), Assistant professor (2005~2009) in Internal Medicine, **Currently working as Associate Professor** (2009~) at the Division of Infectious Diseases, Department of Internal Medicine, Seoul St. Mary's Hospital, CUK
2006 ~ 2008	Visiting Scientist at Univ. of Wisconsin - Madison, Department of Medicine

◈ Professional Societies, Membership & Position in Societies ◈

Korean Society for Internal Medicine since 1995, currently as assistant administrator at subspeciality of Infectious Diseases

The Korean Society for Infectious Disease since 1997, currently as director, education & training program

The Korean Society for Chemotherapy since 1998, currently as chief of working group of antifungal agents

The Korean Society of Immucompromised Host on Infection since 2005, currently in charge of general affairs

◈ Recent publications [2008-2013, APR] (only indexed in Pub-Med) ◈

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Kim SH, Kwon JC, Choi SM, **Lee DG**, Park SH, Choi JH, Yoo JH, Cho BS, Eom KS, Kim YJ, Kim HJ, Lee S, Min CK, Cho SG, Lee JW, Min WS. *Escherichia coli* and *Klebsiella pneumoniae* bacteremia in patients with neutropenic fever: factors associated with extended-spectrum-β-lactamase production and its impact on outcome. Ann Hematol 2013;92:533-541

MEMO

Trichophyton mentagrophytes Complex Isolated from Human Skin in Korean

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Abstract

Trichophyton (T.) mentagrophytes is common cause of human dermatophytosis. With mating test and molecular biologic methods, their classification were changed dramatically. They include *T. interdigitale*/*Arthroderma (A.) vanbreuseghemii*, *A. benhamiae*, *T. mentagrophytes sensu stricto*/*A. simii*, and *T. erinacei*. In Korea, *A. benhamiae* was first isolated from the patients with a history of contact with rabbits at 1998, and *T. erinacei* from patient finger bited by hedgehogs at 2008. The imported animals were main source of the new species. *T. interdigitale* includes anthropophilic and zoophilic strains. It is not easy to differentiate between two with colony morphology and genotypes. Clinical characteristics and phylogenetic position were compared among subtypes of *T. interdigitale* isolated from Korean. Pinkish type, powdery type, and downy types were similar in clinical characteristics. Their ITS sequences were identical with that of *T. interdigitale* anthropophilic. Granular type was distinct from other 3 types, and positioned at *T. interdigitale* zoophilic.

◐ CURRICULUM VITAE ◑

Full Name : Jong Soo Choi

Title : Professor

Department : Dermatology

Organization : Yeungnam University, College of Medicine

Country : Korea

Prof. Jong Soo Choi received his M.D. and Ph.D. degree in dermatology at Yonsei University (1988) and had worked as visiting researcher at the CDC, Atlanta, USA (1998) and laboratory of Professors Sybren de. Hoog, CBS fungal biodiversity center, Utrecht, Netherland (2008). Since 1983, He is professor at Department of Dematology, College of Medicine, Yeungnam University, Daegu, Korea. His primary field is medical mycology with research emphasis on classification, epidemiology, and diagnosis of dermatophytosis. He is the chief director of the Korean Society for Medical Mycology 2011-2013.

Candida haemulonii and Closely Related Species in Korea: Identification, Antifungal Susceptibility, Molecular Epidemiology and Clinical Features

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Candida haemulonii, a yeast species that often exhibits antifungal resistance, rarely causes human infections. Since 2004, unusual yeast isolates with phenotypic similarity to *Candida haemulonii* have been recovered from clinical specimens including blood or ear cultures in some university hospitals in Korea. All of these isolates showed some common features, in that they were less susceptible to amphotericin B (AMB) or fluconazole (FLU) than are most other species of *Candida*, and were identified as *C. haemulonii* by the Vitek 2 YST yeast card system (bioMérieux, Marcy l'Etoile, France). Fungemia due to these species are often associated with AMB or FLU therapeutic failure, which emphasizes the importance of accurately identifying this species.

Species identification

As drug resistance is a major problem in the treatment of yeast infections, the isolation and identification of these species in the clinical laboratory is very important. Sequencing of both D1/D2 domain and ITS genes confirmed that these isolates were *C. haemulonii* group I, *C. pseudohaemulonii*, or a proposed new species (*Candida auris*). All of these isolates were genetically closely related, compared to other yeasts in the phylogenetic tree. All were identified as *C. haemulonii* by the Vitek 2 YST yeast card system, which suggests that the VITEK 2 system cannot differentiate *C. haemulonii* and closely related *Candida* species. By the API 20C system, all isolates of *C. auris* were misidentified as *Rhodotorula glutinis*, while isolates of *C. haemulonii* and *C. pseudohaemulonii* were misidentified as *Kodamaea ohmeri*.

Antifungal susceptibilities

The minimum inhibitory concentration (MIC) ranges of fluconazole, itraconazole, and voriconazole for all isolates of *C. haemulonii* and closely-related species were 2~128 μg/ml, 0.125~4 μg/ml, and 0.03~2 μg/ml, respectively. These findings suggest that these three species is innately less susceptible to FLU (MIC,

≥2 μg/ml) than most other species of *Candida*, and that they may display the capacity to develop high-level resistance to FLU, similar to that of *Candida glabrata*. All isolates were susceptible to caspofungin (MIC = 0.125~0.25 μg/mL) and micafungin (MIC = 0.03~0.06 μg/mL). By testing clinical isolates of *C. haemulonii* and closely-related species, we evaluated the ability of five antifungal susceptibility testing methods, including the Etest on Mueller-Hinton agar supplemented with glucose and methylene blue (Etest-MH), Etest on RPMI agar supplemented with glucose (Etest-RPG), Vitek-2 yeast susceptibility test, and the CLSI and EUCAST broth microdilution methods for the detection of AMB resistance in *Candida* isolates. All 20 *C. auris* isolates showed AMB MICs ≤1 μg/ml by all methods. However, of 18 isolates of *C. haemulonii* and *C. pseudohaemulonii*, 18 (100%), 15 (83%), 18 (100%), 10 (56%), and 9 (50%) had an AMB MIC >1 μg/ml by the Etest-MH, Etest-RPG, Vitek-2, CLSI, and EUCAST, respectively. These data suggest that *C. haemulonii* and *C. pseudohaemulonii* are innately resistant to AMB, and that the Etest-MH and Vitek-2 system have the ability to detect AMB resistance in these fungi.

Clinical characteristics of the patients

Fungemia is the most common clinical presentation for *C. haemulonii* and *C. pseudohaemulonii*. All cases of fungemia occurred in patients with severe underlying diseases who had central venous catheters. Most blood isolates from fungemic patients exhibit high-level *in vitro* resistance to AMB or FLU, and are associated with therapeutic failure.

C. auris was isolated from the ears of patients who suffered from chronic otitis media. Although the ear isolates were repeatedly detected from seven patients, histopathological proof of fungal infection was not obtained in any of these patients. Therefore, it is difficult to judge the clinical significance of *Candida* isolates from ear specimens and confirmation generally requires histopathological examination. However, the first three cases of nosocomial fungemia caused by *C. auris* has recently been reported in Korea, which confirms that it is a causative agent of bloodstream infections. All three patients presented persistent fungemia for 10~31 days. One patient developed breakthrough fungemia while receiving FLU therapy, and two patients who received FLU therapy followed by AMB showed therapeutic failure and fatal outcome.

Biofilm formation and genotyping

The exact reason for the emergence of *C. haemulonii* and closely related species in Korea is not completely clear. However, it may be related to selective pressure resulting from fluconazole or amphotericin B therapy, because most of these isolates were reported to have elevated MICs against fluconazole or amphotericin B. In addition, as the recent increase in *Candida* infections has almost paralleled the increase and widespread use of a broad range of medical devices, biofilm formation may be a potential virulence factor for these emerging *Candida* species. Our study showed that all bloodstream isolates of *Candida pseudohaemulonii* can form significant biofilms in glucose-containing medium. PFGE of *Not*I-digested genomic DNA revealed that seven patient isolates of *C. pseudohaemulonii* from two hospitals shared five

patterns, and 15 patient isolates of *Candida auris* from three hospitals shared seven patterns, suggesting that some of these isolates may be related to clonal transmission. Therefore, *Candida* species closely related to *C. haemulonii* is notable because of its resistance to azole antifungal agents and its potential for clonal transmission.

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4. Shin JH, Kim MN, Jang SJ, Ju MY, Kim SH, Shin MG, et al. Detection of amphotericin B resistance in *Candida haemulonii* and closely related species by use of the Etest, Vitek-2 yeast susceptibility system, and CLSI and EUCAST broth microdilution methods. J Clin Microbiol 2012;50:1852-1855

◐ CURRICULUM VITAE ◑

Name: JONG HEE SHIN

◈ Education and Training ◈

1977 ~ 1983	Chonnam National University Medical School, Gwangju
1984 ~ 1985	The Graduate School, Chonnam National University Medical School M.S. Degree
1985 ~ 1988	The Graduate School, Chonnam National University Medical School Ph.D. Degree
1983 ~ 1984	Chonnam National University Hospital, Gwangju Internship
1984 ~ 1987	Chonnam National University Hospital, Gwangju Residency, Clinical Pathology
1994 ~ 1995	CDC (Centers for Disease Control and Prevention), USA. Emory University Hospital, USA Research fellow, Division of Bacterial and Mycotic Diseases

◈ Faculty Appointments ◈

1987 ~ 1992	Gwangu Veterans Hospital, Gwangju Director, Clinical Pathology
1992 ~ 2003	Chonnam National University Medical School, Gwangju Instructor-Assistant Professor, Clinical Pathology
2003 ~ present	Chonnam National University Medical School, Gwangju Professor, Laboratory Medicine
2002 ~ present	Chonnam National University Medical School, Gwangju Chairperson, Laboratory Medicine

◈ Major interest: Antifungal resistance, Candida biofilms, Epidemiology of fungal infections

◈ Society membership ◈

Korean Society of Clinical Microbiology (President, 2013)
Korean Society for Laboratory Medicine (Council member)
Korean Society for Chemotherapy (Council member)
Korean Society for Medical Mycology (Council member)
Korean Society of Infectious Disease (Council member)

American Society for Microbiology (Member)
European Society of Clinical Microbiology and Infectious Diseases (Member)

◈ Journal Publications: Over 150

MEMO

수혜자 보고
(Beneficiary Report)

수혜자 보고

Kyu Joong Ahn

Application of Long-pulse Nd-Yag 1,064 nm Laser to Onychomycosis

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Background

Onychomycosis is relatively more difficult to treat than superficial mycosis, requiring oral treatment. Patient compliance is often low due to long-term treatment. Moreover, there is paucity of studies on effective alternatives to oral antifungal agents despite the fact that use of oral antifungal agents is limited in coadministration of other drugs due to interaction. Currently, a few studies are examining the light based therapy using the long pulse Nd:Yag laser for treatment of onychomycosis but more diverse case studies, a unified protocol, and objective evaluation of treatment method or effectiveness are needed.

Objectives

Examine the applicability and plausibility of the long-pulse Nd-Yag 1,064 nm laser as a treatment of onychomychosis.

Methods

Among patients not on oral or topical antifungal agent therapy for the last 6 months or more, this study examined 18 nails of the 10 patients (5 men, 5 women, age range: 26~75) who were KOH examination and fungus culture positive. In this study, fluence 5 J/cm^2, width 0.3 msec, rate 3.5 Hz, average power 5.4 watts of the 1,064 nm long pulse Nd:Yag laser (ClearSense^{TM}, SCITON) was radiated on the thumb nails and big toe nails receiving 200 shots and the rest of the nails receiving 100 shots with four week intervals between treatments. Treatment effect was evaluated by KOH examination, fungus culture, the ratio of the infected area to the total toe nail area before and after laser radiation.

Results

Among the 18 nails from the 10 patients diagnosed with onychomycosis, one, two, seven, two, four, two nails were irradiated with laser for three, four, five, six, seven and eight times, respectively. KOH positive rates before irradiations was 72.2%, and after the first, second, third, fourth, fifth, sixth, seventh and eighth irradiations were 55.6%, 44.4%, 66.7%, 47.1%, 46.7%, 62.5%, 50.0% and 50.0% respectively. Among the 18 nails, however, 16 nails showed positive to negative conversions in fungus culture by the 6th treatment.

The overall average improvement rate after treatment of 18 nails (that is improved area/infected area before treatment) was 55.5%.

Conclusion

The treatment effect of long-pulse Nd:YAG laser on onychomycosis is not as strong as that of oral antifungal agents which is approximately at 70%, however, in this study, nails showed incremental improvement with increase in number of treatments. More studies on shorter interval between laser treatments and potential improvement of treatment effect from using different parameters are needed.

◐ CURRICULUM VITAE ◑

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MEMO

구연 연제 초록 (Free Communication)
[FC-1 ~ FC-5]

FC-1 Localized Skin Infection Caused by *Fusarium oxysporum*

Moo Kyu Suh[1], Ji Young Yoo[1], You Bum Song[1], Gyoung Yim Ha[2], Jung Ran Kim[3] and Jong Soo Choi[4]

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Fusarium(F.) species are hyalohyphomycetes isolated from plants, soil and air. *Fusarium* species can cause disseminated infections with involvement of multiple organs and numerous skin lesions in immunocompromised patients. And they can also cause local skin infections of trauma site.

We report a case of localized skin infection by *F. oxysporum* in an 63-year-old immunocompetent woman. She presented with multiple, mild pruritic, 1.5×1.5 cm-sized, erythematous papuloplaques on the left cheek followed by cosmetic procedure 4 months ago. Histopathologically, suppurative granulomatous inflammation, fungal elements were observed in dermis. Fungal culture on Sabouraud's dextrose agar showed rapid growing, whitish, cottony colonies at 25℃ for 1 week. According to lactophenol cotton blue staining, numerous fusoid macroconidia were shown. The DNA sequence of internal transcribed spacer (ITS) region of clinical sample identical to that of *F. oxysporum* CID 220 strain (GenBank accession number HQ829117.1). The patient had been treated with itraconazole for 6 months. The skin lesion was improved. There was no recurrence 6 months after treatment.

FC-2 Isolation Rates of Dermatophytes from the Soil Near Dogs and Horses in Daegu

Seung Hyun Sohng, Dong Hoon Shin and Jong Soo Choi

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Background

Soil is the main environment of fungal occurrence and activity. Dermatophytes are present in the soil with variable distribution patterns that depend on different factors.

Objective

This study was performed to identify dermatophytes from the soil near dogs and horses.

Methods

We visited 3 dog shelters and 3 horse riding grounds in Daegu at September 2012 and examined 88 soil samples and 32 animals including 16 dogs and 16 horses. From soil samples, dermatophytes were isolated by the hair baiting technique. By the distance away from the animal cage and the horse-riding track, soil samples were divided into 3 groups consist of near, 10 m and 500 m. And specimens from skin of animals were collected by Mackenzie's brush technique and inoculated directly on Sabouraud dextrose agar. They were identified by the morphological characteristics and rRNA sequencing.

Results

Of the 88 soil samples examined, 35 (39.7%) yielded dermatophytes including *Micriosprorum(M.) gypseum* (34.1%), *Trichphyton(T.) ajelloi* (5.6%). Isolation rate of dermatophytes from soil was observed in 79.3% of near, 40% of 10 m, and 0% of 500 m. Of the 16 samples from dogs and horses examined, 7 (21.8%) yielded positive dermatophyte cultures and, in particular, 37.5% of the dog samples and 6.2% of the horse samples. Dermatophytes isolated from the dogs were identified as *M. canis* 31.2% (5/16), *T. eboreum* 6.2% (1/16).

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Conclusion

In this study, isolation rate of dermatophyte especially *M. gypseum* is higher in the soil closer to the animal cages and the horse-riding tracks. Soil nearby the animals, namely, the environment rich in keratinous

material is conducive for the growth and occurrence of dermatophyte and may be contribute to opportunistic dermatophyte infection to humans. Therefore, to detect transmission route of dermatophyte, we also consider the environment such as soil nearby animal shelter or horse-riding grounds.

FC-3 Tinea Corporis Caused by *Microsporum canis* in a Grandmother and a Granddaughter

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Tinea corporis is a superficial cutaneous infection usually confined to the stratum corneum, which is caused by one of three dermatophyte groups: *Epidermophyton*, *Trichophyton*, *Microsporum* species. *Microsporum canis* is one of the zoophilic dermatophytes which can cause ringworm in cats and dogs and is responsible for 3~30% of tinea coporis and tinea capitis in human. *Microsporum canis* is most likely transmitted by contact with infected animals. But rare cases of person-to-person transmission and a outbreak of tinea corporis among school girls have also been reported. Herein we report a case of tinea corporis caused by *Microsporum canis* in a grandmother and a granddaughter.

A 63-year-old woman presented with burning and pruritic, scaly, erythematous papules and plaques on the post, neck and trunk which had started 2 month ago. Also her 9-year-old granddaughter presented with pruritic, annular, erythematous plaques on chest and back for 7 days. They denied contact with pet or other animals. KOH smear of the scales scraped from the lesions on grandmother's neck and granddaughter's chest showed several hyphaes on microscope. Fungus culture on potato dextrose agar showed growth of colonies with whitish fluffy surface and radial folds, the dorsal surface of the colonies showed golden-brown color which were identified as *Microsporum canis* in both patients. As for the grandduagter the lesions cleared with 7 week application of lanoconazol cream, and the grandmother was treated with systemic itraconazole 200 mg/day for 7 days and subsequent oral prednisolone 10 mg for 14 days, and topical lanoconazol/ amorolfine cream for 7 weeks which resulted in marked improvement of the lesions.

FC-4 A Case of Chromoblastomycosis Caused by *Fonsecaea pedrosoi*

Jin Hwa Choi

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Chromoblastomycosis is chronic subcutaneous mycotic infections caused by dermatiaceous (black) fungi, with commonality of the melanin pigment containing cell wall. Clinically, chromoblastomycosis presents frequently with erythematous plaque or nodular plaque. In Korea, few cases of chromoblastomycosis have been reported until now, among which *F. pedrosoi* is the majority of etiologic agent. A 61-year-old woman who had been diagnosed as chronic inflammatory demyelinating polyneuropathy, 3 years ago, then had been treated with systemic corticosteroid and azathioprine, presented with pruritic, scaly erythematous plaques on the right forearm for 3 years. She had no history of traumatic injury. We performed a biopsy on the lesion. Histological examination showed pseudoepitheliomatous hyperplasia, mixed granulomatous inflammatory cell infiltrates consisting of histiocytes, lymphocytes and multinucleated giant cells with brownish pigmented spores in the dermis. Tissue culture on Sabouraud's dextrose agar at room temperature showed slowly growing, dark brown, velvety colony. DNA was extracted from the cultured colonies and the DNA sequence of the internal transcribed spacer (ITS) region of the clinical sample was match to that of *F. pedrosoi*. The patient was treated with terbinafine and local heat therapy.

FC-5

A Case of Kerion Celsi Caused by *Microsporum gypseum*

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

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Kerion celsi is one of the clinical types of tinea capitis, the inflammatory or suppruative type. It is characterized by a painful, inflamed, crusty mass and is often associated with purulent drainage and regional lymphadenopathy. Kerion celsi is mainly caused by *Mycrosporum canis*, *Trichophyton tonsurans*, *T. rubrum*, *T. mentagrophytes*, and *M. gypseum*. In Korea, *M. canis* is most common.

A 3-year-old Korean girl presented with erythematous tender plaque, multiple pustules with crust, and hairless patches on scalp for 1 month. There was no history of similar complaints in family and keeping pets. On examination of scalp, erythematous plaque associated with hair loss, pus discharge, and crusting were found. Potassium hydroxide digested wet mount showed multiple hyphae and spores on scalp. Fungal culture on Sabouraud's agar grew yellowish to white and powdery colonies with peripheral feathery appearance after 14 days. Lactophenol Cotton blue mount showed Reveal oval shaped macroconidia with thin wall and club-shaped microconidia. The organism was identified as *M. gypseum* using 16S rRNA sequencing. She was treated with griseofulvin (125 mg/day) and topical 2% ketoconazole shampoo for 2 months and the lesions improved consideralbly.

Herein, we report a rare and interesting case of kerion celsi caused by *M. gypseum*.

Key words: Kerion celsi, *Microsporum gypseum*, Scalp

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