

Klinik Mikrobiyoloji'de Bu Yıl Makaleler -2- “*Klinik mikoloji*”

Dr.Çağrı Ergin
Pamukkale Üniversitesi / Denizli



Clinical, mycological and histological aspects of white onychomycosis

Gabriela Moreno-Coutiño,¹ Sonia Toussaint-Caire² and Roberto Arenas³

¹*Mycology Section, Dermatology Division, General Hospital 'Dr. Manuel Gea González', Tlalpan, Mexico City, Mexico,* ²*Dermatopathology Section, Dermatology Division, General Hospital 'Dr. Manuel Gea González', Tlalpan, Mexico City, Mexico and* ³*Chair Mycology Section, Dermatology Division, General Hospital 'Dr. Manuel Gea González', Tlalpan, Mexico City, Mexico*

[Clinical, mycological and histological aspects of white onychomycosis.](#)

Moreno-Coutiño G, Toussaint-Caire S, Arenas R.

Mycoses. 2010 Mar 1;53(2):144-7. Epub 2009 Mar 7.

PMID: 19389073 [PubMed - indexed for MEDLINE]



Clinical, mycological and histological aspects of white onychomycosis

Gabriela Moreno-Coutiño,¹ Sonia Toussaint-Caire² and Roberto Arenas³

¹Mycology Section, Dermatology Division, General Hospital 'Dr. Manuel Gea González', Tlalpan, Mexico City, Mexico, ²Dermatopathology Section, Dermatology Division, General Hospital 'Dr. Manuel Gea González', Tlalpan, Mexico City, Mexico and ³Chair Mycology Section, Dermatology Division, General Hospital 'Dr. Manuel Gea González', Tlalpan, Mexico City, Mexico

- ▶ Fungal lökonişi – Onikomikozun beyaz değışimleri
 - ▶ Süperfisiyal beyaz onikomikoz
 - ▶ Nadir, ayak parmakları ile sınırlı
 - ▶ HIV (+) – el parmaklarında da, *T.rubrum*
 - ▶ Proksimal beyaz subungual onikomikoz
 - ▶ Lökonişial bant, hızlı
 - Distrofi (*T.rubrum*, *T.schoenleinii*, *E.floccosum*)
 - ▶ Lenfatik yayılım, endojen reaktivasyon, oto/re-infeksiyon
- ▶ *T.mentagrophytes*
 - ▶ *A.terreus*, *F.oxysporum*, *Acremonium sp.*

Clinical, mycological and histological aspects of white onychomycosis

Gabriela Moreno-Coutiño,¹ Sonia Toussaint-Caire² and Roberto Arenas³

¹Mycology Section, Dermatology Division, General Hospital 'Dr. Manuel Gea González', Tlalpan, Mexico City, Mexico, ²Dermatopathology Section, Dermatology Division, General Hospital 'Dr. Manuel Gea González', Tlalpan, Mexico City, Mexico and ³Chair Mycology Section, Dermatology Division, General Hospital 'Dr. Manuel Gea González', Tlalpan, Mexico City, Mexico

- ▶ **Amaç:** KOH , kültür, histopatoloji karşılaştırması
- ▶ **Yöntem:** 10 fungal lökonişi hastası
 - ▶ 6 ay içinde antifungal kullanmamış
 - ▶ Tırnak kazıma, “punch” biyopsi
 - ▶ KOH bakımı, SDA ve Mycosel agar ekimi
 - ▶ LPM ile maya – CHROM Agar ekimi
 - ▶ Biyopsi --- PAS ve H-E boyama

Clinical, mycological and histological aspects of white onychomycosis

Gabriela Moreno-Coutiño,¹ Sonia Toussaint-Caire² and Roberto Arenas³¹Mycology Section, Dermatology Division, General Hospital 'Dr. Manuel Gea González', Tlalpan, Mexico City, Mexico, ²Dermatopathology Section, Dermatology Division, General Hospital 'Dr. Manuel Gea González', Tlalpan, Mexico City, Mexico and ³Chair Mycology Section, Dermatology Division, General Hospital 'Dr. Manuel Gea González', Tlalpan, Mexico City, Mexico

7 erkek, 3 bayan 10 hasta
17-66 yaş arası (ort: 33.9)
6'sı HIV (+) – 4'ü HAART altında
1'i SLE, 1'i HT, 2'si sağlıklı
Tüm hastalarda en az 2 parmak tutulumu
Ortalama 4.7 parmakta tutulum +
%66.6'sında ayak parmakları
Başlangıç ortanca: 7.9

Clinical, mycological and histological aspects of white onychomycosis

Gabriela Moreno-Coutiño,¹ Sonia Toussaint-Caire² and Roberto Arenas³¹Mycology Section, Dermatology Division, General Hospital 'Dr. Manuel Gea González', Tlalpan, Mexico City, Mexico, ²Dermatopathology Section, Dermatology Division, General Hospital 'Dr. Manuel Gea González', Tlalpan, Mexico City, Mexico and ³Chair Mycology Section, Dermatology Division, General Hospital 'Dr. Manuel Gea González', Tlalpan, Mexico City, Mexico**Table 2** Mycological and histological data

Patient	KOH	Culture	H&E	PAS	% affected site
1	+	→ <i>Trichophyton rubrum</i>	Hyphae	Hyphae	100
2	+	→ <i>Candida krusei</i>	Pseudo hyphae	Pseudo hyphae	75 ventral portion
3	+	negative	Hyphae	Hyphae	25 ventral proximal portion
4	+	→ <i>T. rubrum</i>	Hyphae and spores	Hyphae and spores	100
5	–	Negative	Parakeratosis, spongiosis	Negative	0
6	+	Negative	Hyphae	Hyphae	75 ventral portion
7	–	Negative	Spores	Spores	50 dorsal portion
8	+	Negative	Hyphae and spores	Hyphae and spores	50 ventral portion
9	+	Negative	Hyphae and spores	Hyphae and spores	100
10	+	→ <i>T. rubrum</i>	Hyphae and spores	Hyphae and spores	50 ventral portion

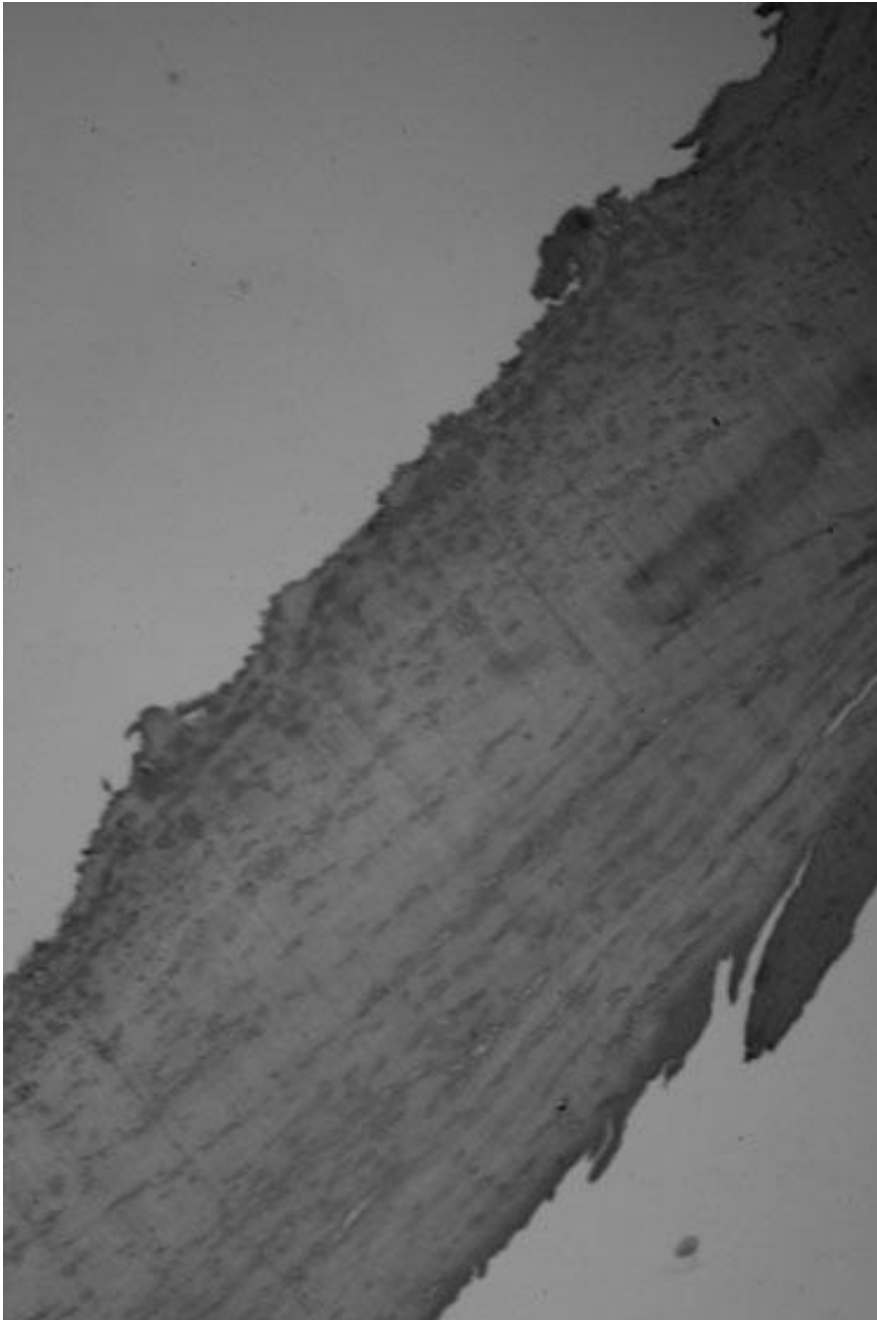
PAS, Periodic Acid Schiff; H&E, haematoxylin–eosin.

- ▶ İmmünsüprese hastalarda fungal izolasyon %44
- ▶ Etkenler sağlıklı kişilerle aynı

Clinical, mycological and histological aspects of white onychomycosis

Gabriela Moreno-Coutiño,¹ Sonia Toussaint-Caire² and Roberto Arenas³¹Mycology Section, Dermatology Division, General Hospital 'Dr. Manuel Gea González', Tlalpan, Mexico City, Mexico, ²Dermatopathology Section, Dermatology Division, General Hospital 'Dr. Manuel Gea González', Tlalpan, Mexico City, Mexico and ³Chair Mycology Section, Dermatology Division, General Hospital 'Dr. Manuel Gea González', Tlalpan, Mexico City, Mexico

- ▶ Direk inceleme; akılcı, hızlı, ucuz
- ▶ Biyopsi “altın” ?
 - ▶ İnvazif
 - ▶ Onikodistrofi riski
- ▶ Doku boyası ile klinik %100
- ▶ Bu çalışma immünsüpresyonda tırnak yatağındaki fungal invazyonu ortaya koymaktadır.



Yeni endikasyonlar / İlaç araştırmaları

January 2010

Notes

Biol. Pharm. Bull. 33(1) 125—127 (2010)

125

***In Vitro* Activities of Azole Antifungal Agents against *Propionibacterium acnes* Isolated from Patients with Acne Vulgaris**

Takashi SUGITA,^{*,a} Mayumi MIYAMOTO,^b Ryoji TSUBOI,^b Kazuhiko TAKATORI,^c Reiko IKEDA,^a and Akemi NISHIKAWA^d

^aDepartment of Microbiology, Meiji Pharmaceutical University; ^bDepartment of Immunobiology, Meiji Pharmaceutical University; ^cDepartment of Organic Chemistry, Meiji Pharmaceutical University; Kiyose, Tokyo 204–8588, Japan; and

^dDepartment of Dermatology, Tokyo Medical University; Tokyo 160–0023, Japan.

Received July 10, 2009; accepted October 26, 2009; published online October 27, 2009

[In vitro activities of azole antifungal agents against *Propionibacterium acnes* isolated from patients with acne vulgaris.](#)

Sugita T, Miyamoto M, Tsuboi R, Takatori K, Ikeda R, Nishikawa A.
Biol Pharm Bull. 2010 Jan;33(1):125-7.

In Vitro Activities of Azole Antifungal Agents against *Propionibacterium acnes* Isolated from Patients with Acne Vulgaris

Takashi SUGITA,^{a,*} Mayumi MIYAMOTO,^b Ryoji TSUBOI,^b Kazuhiko TAKATORI,^c Reiko IKEDA,^a and Akemi NISHIKAWA^d

^aDepartment of Microbiology, Meiji Pharmaceutical University; ^bDepartment of Immunobiology, Meiji Pharmaceutical University; ^cDepartment of Organic Chemistry, Meiji Pharmaceutical University; Kiyose, Tokyo 204–8588, Japan; and

^dDepartment of Dermatology, Tokyo Medical University; Tokyo 160–0023, Japan.

Received July 10, 2009; accepted October 26, 2009; published online October 27, 2009

- ▶ *P.acnes* ve akne
 - ▶ *P.acnes* varlığında enflasmayon tetiklenir
 - ▶ *P.acnes* kökenleri arasında antibiyotik direnci yaygınlaşmaktadır.
 - ▶ %15.1 klindamisin, %17.1 Eritromisin direnci – Avrupa verisi-
 - ▶ *S.aureus* ve *Corynebacterium* spp
 - ▶ 1980'ler %2 MCZ+%5 BP vs %5 BP
 - ▶ Bir imidazol (Mikonazol) etkin ???
 - ▶ Hücresel K⁺ kaybı – Membran hasarı
- ▶ **Amaç: Geçen süre içinde kullanıma giren azollerin etkisi nasıl?**

***In Vitro* Activities of Azole Antifungal Agents against *Propionibacterium acnes* Isolated from Patients with Acne Vulgaris**

Takashi SUGITA,^{a,*} Mayumi MIYAMOTO,^b Ryoji TSUBOI,^b Kazuhiko TAKATORI,^c Reiko IKEDA,^a and Akemi NISHIKAWA^d

^aDepartment of Microbiology, Meiji Pharmaceutical University; ^bDepartment of Immunobiology, Meiji Pharmaceutical University; ^cDepartment of Organic Chemistry, Meiji Pharmaceutical University; Kiyose, Tokyo 204–8588, Japan; and

^dDepartment of Dermatology, Tokyo Medical University; Tokyo 160–0023, Japan.

Received July 10, 2009; accepted October 26, 2009; published online October 27, 2009

► **Örnek: 32 klinik *P.acnes* izolatu**

- Eritromisin, Klindamisin dirençli
- Penisillin G, Ampisilin, Piperasilin, Sefozopran, Sefmetazol, Latamoksef, İmipenem/silastatin, Minosiklin, Kloramfenikol, Tosufloksasin duyarlı

Mikonazol

Flukonazol

İtrakonazol

Vorikonazol

Ketokonazol

In Vitro Activities of Azole Antifungal Agents against *Propionibacterium acnes* Isolated from Patients with Acne Vulgaris

Takashi SUGITA,^{a,*} Mayumi MIYAMOTO,^b Ryoji TSUBOI,^b Kazuhiko TAKATORI,^c Reiko IKEDA,^a and Akemi NISHIKAWA^d

^aDepartment of Microbiology, Meiji Pharmaceutical University; ^bDepartment of Immunobiology, Meiji Pharmaceutical University; ^cDepartment of Organic Chemistry, Meiji Pharmaceutical University; Kiyose, Tokyo 204–8588, Japan; and

^dDepartment of Dermatology, Tokyo Medical University; Tokyo 160–0023, Japan.

Received July 10, 2009; accepted October 26, 2009; published online October 27, 2009

- ▶ **Duyarlılık Testi: Brusella “broth”**
 - ▶ Hemin ve K₁ vitamini ilaveli
 - ▶ Anaerobik ortamda, 35°C’da, 48 saat, 5 azol

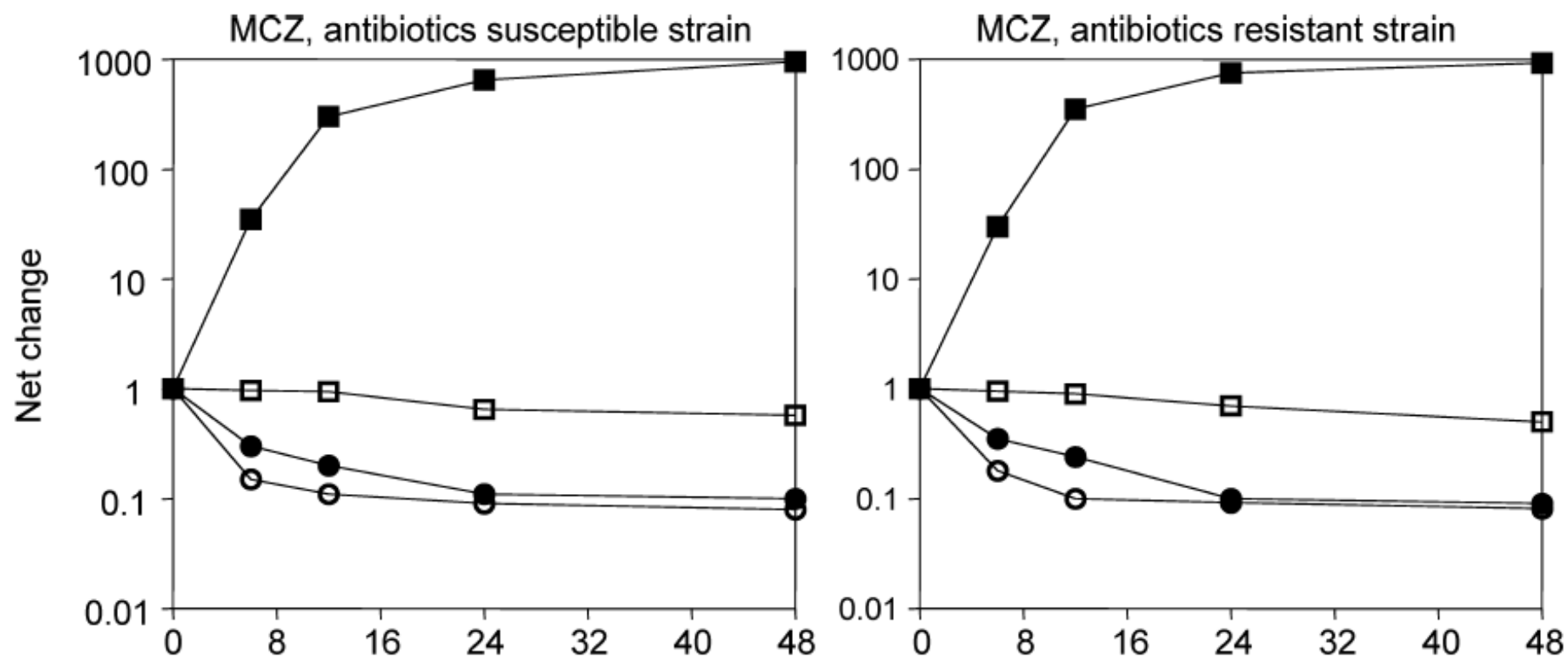
- ▶ **Zaman-Ölüm metodu**
 - ▶ Sıvı besiyerinde 0, 0.5, 2, 8 µg/ml.
 - ▶ Son inokulum ~5x10⁵ CFU/ml
 - ▶ Alt kültür ekimleri: 0, 6, 12, 24, 48. saatlerde

In Vitro Activities of Azole Antifungal Agents against *Propionibacterium acnes* Isolated from Patients with Acne Vulgaris

Takashi SUGITA,^{a,*} Mayumi MIYAMOTO,^b Ryoji TSUBOI,^b Kazuhiko TAKATORI,^c Reiko IKEDA,^a and Akemi NISHIKAWA^d

^aDepartment of Microbiology, Meiji Pharmaceutical University; ^bDepartment of Immunobiology, Meiji Pharmaceutical University; ^cDepartment of Organic Chemistry, Meiji Pharmaceutical University; Kiyose, Tokyo 204–8588, Japan; and ^dDepartment of Dermatology, Tokyo Medical University; Tokyo 160–0023, Japan.

Received July 10, 2009; accepted October 26, 2009; published online October 27, 2009



▲ Açık daire: 8 µg/ml; Kapalı daire: 2 µg/ml; Açık kare: 0.5 µg/ml; Kapalı kare: 0 µg/ml

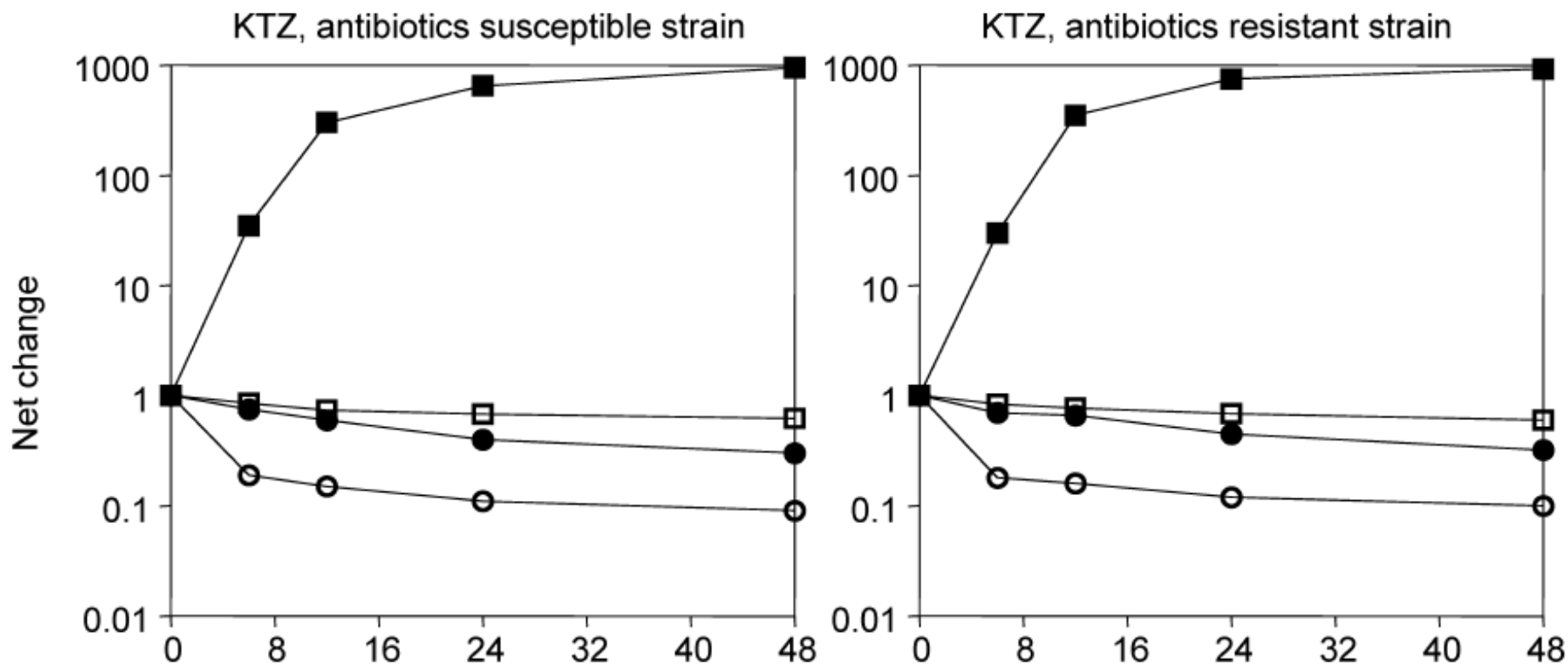
In Vitro Activities of Azole Antifungal Agents against *Propionibacterium acnes* Isolated from Patients with Acne Vulgaris

Takashi SUGITA,^{a,*} Mayumi MIYAMOTO,^b Ryoji TSUBOI,^b Kazuhiko TAKATORI,^c Reiko IKEDA,^a and Akemi NISHIKAWA^d

^aDepartment of Microbiology, Meiji Pharmaceutical University; ^bDepartment of Immunobiology, Meiji Pharmaceutical University; ^cDepartment of Organic Chemistry, Meiji Pharmaceutical University; Kiyose, Tokyo 204–8588, Japan; and

^dDepartment of Dermatology, Tokyo Medical University; Tokyo 160–0023, Japan.

Received July 10, 2009; accepted October 26, 2009; published online October 27, 2009



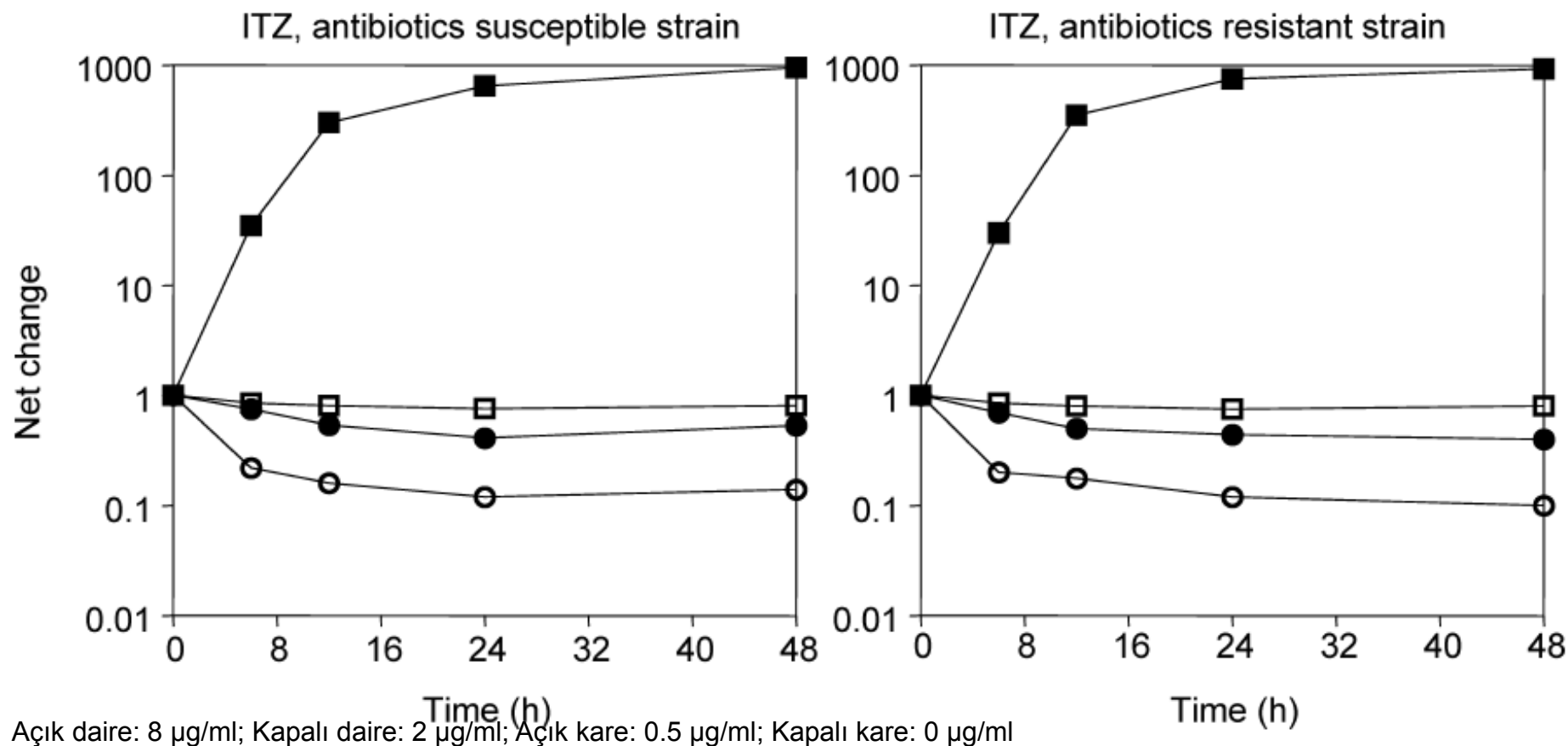
Açık daire: 8 µg/ml; Kapalı daire: 2 µg/ml; Açık kare: 0.5 µg/ml; Kapalı kare: 0 µg/ml

In Vitro Activities of Azole Antifungal Agents against *Propionibacterium acnes* Isolated from Patients with Acne Vulgaris

Takashi SUGITA,^{a,*} Mayumi MIYAMOTO,^b Ryoji TSUBOI,^b Kazuhiko TAKATORI,^c Reiko IKEDA,^a and Akemi NISHIKAWA^d

^aDepartment of Microbiology, Meiji Pharmaceutical University; ^bDepartment of Immunobiology, Meiji Pharmaceutical University; ^cDepartment of Organic Chemistry, Meiji Pharmaceutical University; Kiyose, Tokyo 204–8588, Japan; and ^dDepartment of Dermatology, Tokyo Medical University; Tokyo 160–0023, Japan.

Received July 10, 2009; accepted October 26, 2009; published online October 27, 2009



In Vitro Activities of Azole Antifungal Agents against *Propionibacterium acnes* Isolated from Patients with Acne Vulgaris

Takashi SUGITA,^{a,*} Mayumi MIYAMOTO,^b Ryoji TSUBOI,^b Kazuhiko TAKATORI,^c Reiko IKEDA,^a and Akemi NISHIKAWA^d

^aDepartment of Microbiology, Meiji Pharmaceutical University; ^bDepartment of Immunobiology, Meiji Pharmaceutical University; ^cDepartment of Organic Chemistry, Meiji Pharmaceutical University; Kiyose, Tokyo 204–8588, Japan; and ^dDepartment of Dermatology, Tokyo Medical University; Tokyo 160–0023, Japan.

Received July 10, 2009; accepted October 26, 2009; published online October 27, 2009

Sonuç:

- ▶ *P.acnes* sayısı azalıyor
 - ▶ Enflamasyonun azalması beklenir
- ▶ Sırasıyla mikonazol, ketokonazol ve itrakonazol etkili
 - ▶ 6 saat içinde %80 inhibisyon
- ▶ Flukonazol ve vorikonazol etkisiz
- ▶ Kimyasal yapı ile ilişkili değil?
- ▶ Azol --- Mantarlar $\rightleftharpoons$ Ergosterol biyosentez inhibisyonu
- Gram (+) : ?
- ▶ Antibiyotik direnci artması yeni antibiyotik araştırmalarına hız verecektir.

Patogeneze

International Journal of Medical Microbiology 300 (2010) 265–270



Contents lists available at ScienceDirect

International Journal of Medical Microbiology

journal homepage: www.elsevier.de/ijmm



Characterization of biofilms formed by *Candida parapsilosis*, *C. metapsilosis*, and *C. orthopsilosis*

Ali Abdul Lattif^a, Pranab K. Mukherjee^a, Jyotsna Chandra^a, Kim Swindell^b, Shawn R. Lockhart^{c,1}, Daniel J. Diekema^c, Michael A. Pfaller^c, Mahmoud A. Ghannoum^{a,*}

^a Center for Medical Mycology, Department of Dermatology, University Hospital's Case Medical Center, and Case Western Reserve University, 11100 Euclid Ave., Cleveland, OH 44106-502, USA

^b Pediatric Infectious Diseases, Children's Hospital, Cleveland Clinic, 9500 Euclid Ave., Cleveland, OH, 44195, USA

^c Carver College of Medicine, University of Iowa, Iowa City, IA 52242, USA

[Characterization of biofilms formed by *Candida parapsilosis*, *C. metapsilosis*, and *C. orthopsilosis*.](#)

Lattif AA, Mukherjee PK, Chandra J, Swindell K, Lockhart SR, Diekema DJ, Pfaller MA, Ghannoum MA.

Int J Med Microbiol. 2010 Apr;300(4):265-70. Epub 2009 Nov 22.



ELSEVIER



Characterization of biofilms formed by *Candida parapsilosis*, *C. metapsilosis*, and *C. orthopsilosis*

Ali Abdul Lattif^a, Pranab K. Mukherjee^a, Jyotsna Chandra^a, Kim Swindell^b, Shawn R. Lockhart^{c,1}, Daniel J. Diekema^c, Michael A. Pfaller^c, Mahmoud A. Ghannoum^{a,*}

^a Center for Medical Mycology, Department of Dermatology, University Hospital's Case Medical Center, and Case Western Reserve University, 11100 Euclid Ave., Cleveland, OH 44106-5002, USA

^b Pediatric Infectious Diseases, Children's Hospital, Cleveland Clinic, 9500 Euclid Ave., Cleveland, OH, 44195, USA

^c Carver College of Medicine, University of Iowa, Iowa City, IA 52242, USA

- ▶ *C.parapsilosis* yaygınlığı yüksek
 - ▶ Damariçi uygulamalarda
 - ▶ TPN uygulamalarında
 - ▶ Biyofilm oluşturma yeteneğinde

- ▶ *C.parapsilosis* salgın kökenleri mi biyofilm yeteneği kazanıyor?

- ▶ Biyofilm yapan kökenler mi salgında öne çıkıyor?



ELSEVIER



Characterization of biofilms formed by *Candida parapsilosis*, *C. metapsilosis*, and *C. orthopsilosis*

Ali Abdul Lattif^a, Pranab K. Mukherjee^a, Jyotsna Chandra^a, Kim Swindell^b, Shawn R. Lockhart^{c,1}, Daniel J. Diekema^c, Michael A. Pfaller^c, Mahmoud A. Ghannoum^{a,*}

^a Center for Medical Mycology, Department of Dermatology, University Hospital's Case Medical Center, and Case Western Reserve University, 11100 Euclid Ave., Cleveland, OH 44106-5002, USA

^b Pediatric Infectious Diseases, Children's Hospital, Cleveland Clinic, 9500 Euclid Ave., Cleveland, OH, 44195, USA

^c Carver College of Medicine, University of Iowa, Iowa City, IA 52242, USA

- ▶ *C.parapsilosis* yeniden sınıflandırıldı
 - ▶ *C.parapsilosis*
 - ▶ *C.orthopsilosis*
 - ▶ *C.metapsilosis*
- ▶ Biyofilm yapma yetenekleri farklı
- ▶ Akıl karıştıran veriler var
 - ▶ *C.orthopsilosis* biyofilm yapar mı?



Characterization of biofilms formed by *Candida parapsilosis*, *C. metapsilosis*, and *C. orthopsilosis*

Ali Abdul Lattif^a, Pranab K. Mukherjee^a, Jyotsna Chandra^a, Kim Swindell^b, Shawn R. Lockhart^{c,1}, Daniel J. Diekema^c, Michael A. Pfaller^c, Mahmoud A. Ghannoum^{a,*}

^a Center for Medical Mycology, Department of Dermatology, University Hospital's Case Medical Center, and Case Western Reserve University, 11100 Euclid Ave., Cleveland, OH 44106-502, USA

^b Pediatric Infectious Diseases, Children's Hospital, Cleveland Clinic, 9500 Euclid Ave., Cleveland, OH, 44195, USA

^c Carver College of Medicine, University of Iowa, Iowa City, IA 52242, USA

► Test kökenleri

- *C. parapsilosis* (Malezya ,Güney Afrika, Avusturya, ABD, İsrail, Rusya, Çin, Kolombiya)
- *C. metapsilosis* (Tayvan, İsrail, Arjantin, Polonya, Brezilya, ABD, Çin, Kanada)
- *C. orthopsilosis* (Malezya, Ekvador, Venezuela, Avustralya, Arjantin, ABD, Çek Cumhuriyeti)

► Vitek ve PCR ile yeniden tanımlama



Characterization of biofilms formed by *Candida parapsilosis*, *C. metapsilosis*, and *C. orthopsilosis*

Ali Abdul Lattif^a, Pranab K. Mukherjee^a, Jyotsna Chandra^a, Kim Swindell^b, Shawn R. Lockhart^{c,1}, Daniel J. Diekema^c, Michael A. Pfaller^c, Mahmoud A. Ghannoum^{a,*}

^a Center for Medical Mycology, Department of Dermatology, University Hospital's Case Medical Center, and Case Western Reserve University, 11100 Euclid Ave., Cleveland, OH 44106-502, USA

^b Pediatric Infectious Diseases, Children's Hospital, Cleveland Clinic, 9500 Euclid Ave., Cleveland, OH, 44195, USA

^c Carver College of Medicine, University of Iowa, Iowa City, IA 52242, USA

- ▶ YNB+glukoz (50 mM) – 24 saat, 37°C
- ▶ PBS ile yıkama
- ▶ Silikon elastomer kateter disk üzerinde biyofilm oluşturma
- ▶ XTT indirgemesine bağlı kolorimetrik değerlendirme
- ▶ 6. ve 28. saatlerde SEM
- ▶ Konfokal lazer tarama mikroskopisi
 - ▶ 3-D yapı, kalınlık, morfoloji



ELSEVIER



C. parapsilosis

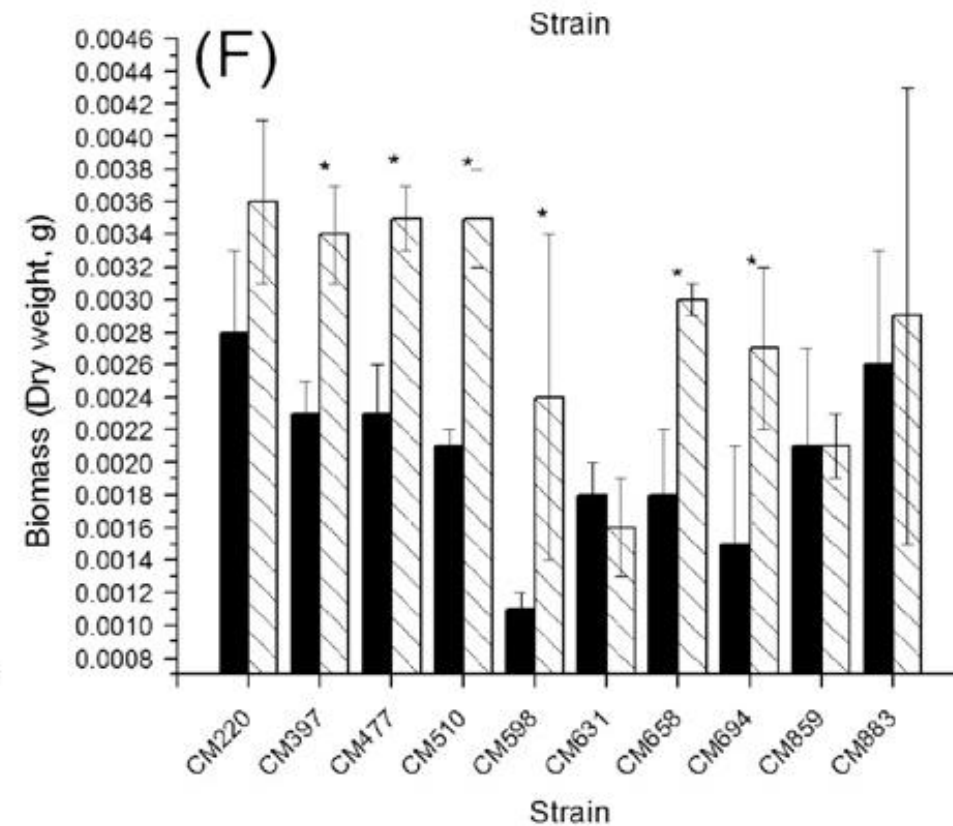
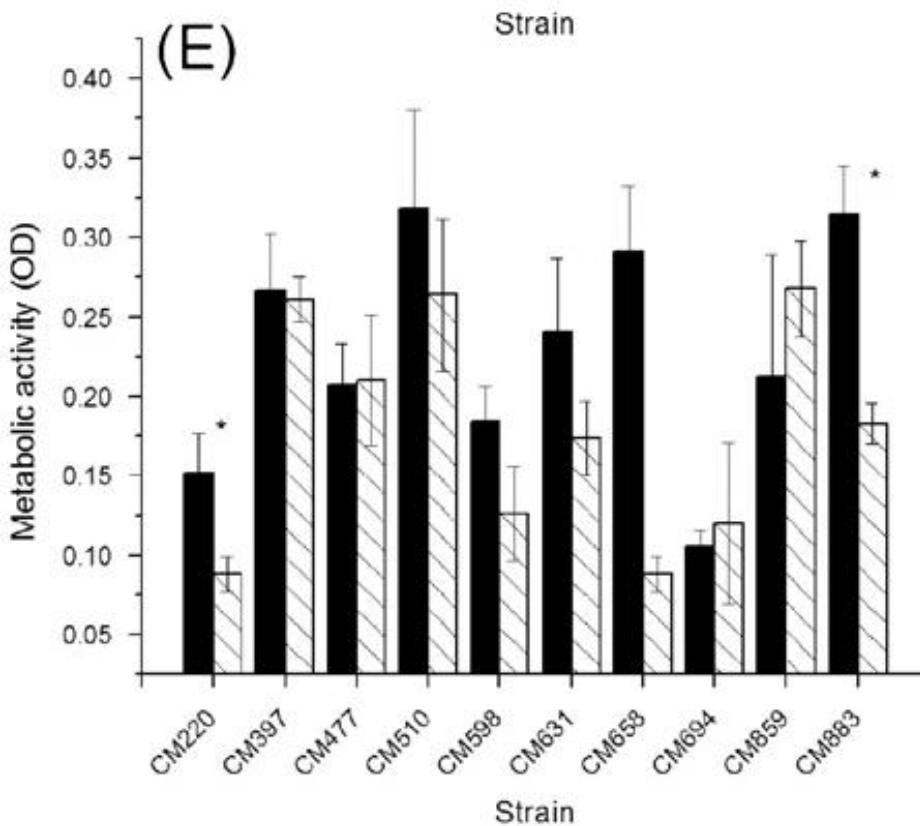
Characterization of biofilms formed by *Candida parapsilosis*, *C. metapsilosis*, and *C. orthopsilosis*

Ali Abdul Lattif^a, Pranab K. Mukherjee^a, Jyotsna Chandra^a, Kim Swindell^b, Shawn R. Lockhart^{c,1}, Daniel J. Diekema^c, Michael A. Pfaller^c, Mahmoud A. Ghannoum^{a,*}

^a Center for Medical Mycology, Department of Dermatology, University Hospital's Case Medical Center, and Case Western Reserve University, 11100 Euclid Ave., Cleveland, OH 44106-5002, USA

^b Pediatric Infectious Diseases, Children's Hospital, Cleveland Clinic, 9500 Euclid Ave., Cleveland, OH, 44195, USA

^c Carver College of Medicine, University of Iowa, Iowa City, IA 52242, USA



Metabolik aktivite ve Kuru ağırlık

C. parapsilosis

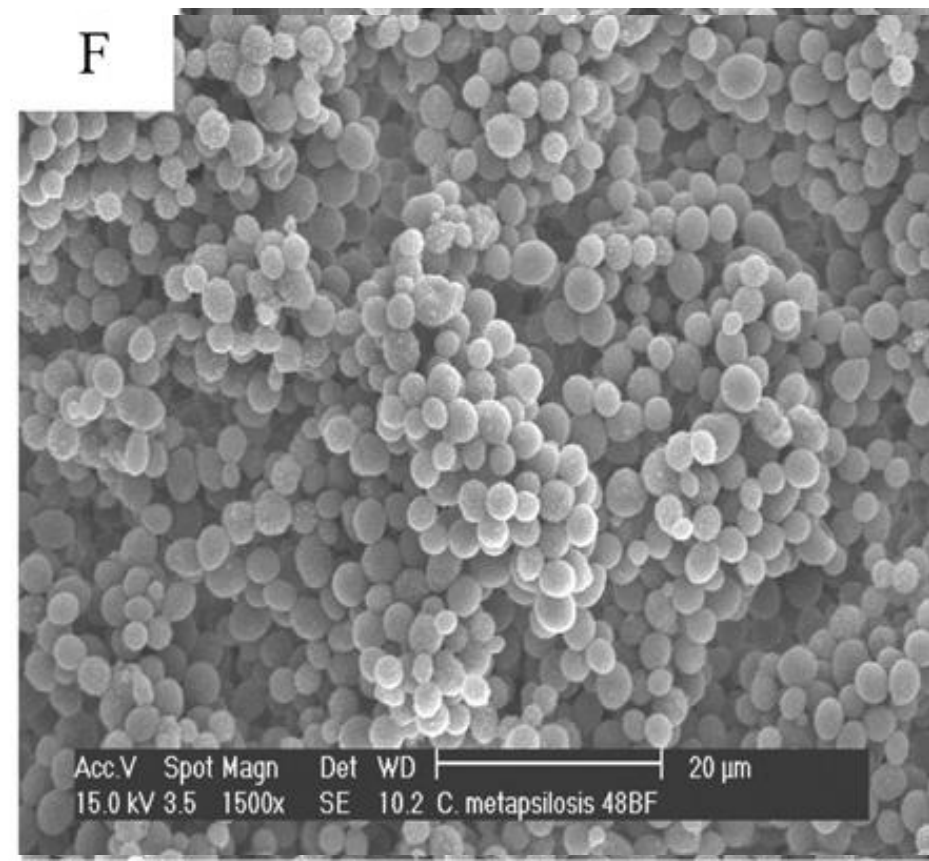
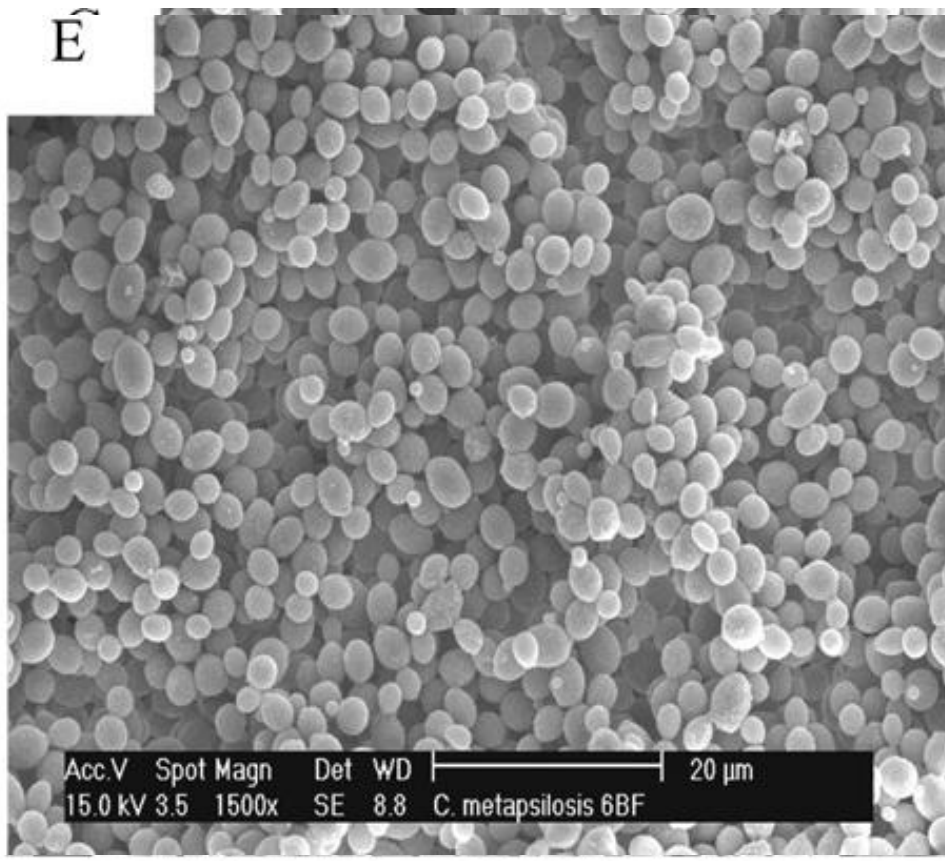
Characterization of biofilms formed by *Candida parapsilosis*, *C. metapsilosis*, and *C. orthopsilosis*

Ali Abdul Lattif^a, Pranab K. Mukherjee^a, Jyotsna Chandra^a, Kim Swindell^b, Shawn R. Lockhart^{c,1}, Daniel J. Diekema^c, Michael A. Pfaller^c, Mahmoud A. Ghannoum^{a,*}

^a Center for Medical Mycology, Department of Dermatology, University Hospital's Case Medical Center, and Case Western Reserve University, 11100 Euclid Ave., Cleveland, OH 44106-5002, USA

^b Pediatric Infectious Diseases, Children's Hospital, Cleveland Clinic, 9500 Euclid Ave., Cleveland, OH, 44195, USA

^c Carver College of Medicine, University of Iowa, Iowa City, IA 52242, USA



Erken ve olgun fazda kateter disk yüzeyi



Characterization of biofilms formed by *Candida parapsilosis*, *C. metapsilosis*, and *C. orthopsilosis*

Ali Abdul Lattif^a, Pranab K. Mukherjee^a, Jyotsna Chandra^a, Kim Swindell^b, Shawn R. Lockhart^{c,1}, Daniel J. Diekema^c, Michael A. Pfaller^c, Mahmoud A. Ghannoum^{a,*}

^a Center for Medical Mycology, Department of Dermatology, University Hospital's Case Medical Center, and Case Western Reserve University, 11100 Euclid Ave., Cleveland, OH 44106-5002, USA

^b Pediatric Infectious Diseases, Children's Hospital, Cleveland Clinic, 9500 Euclid Ave., Cleveland, OH, 44195, USA

^c Carver College of Medicine, University of Iowa, Iowa City, IA 52242, USA

- ▶ Metabolik aktivite için;
 - ▶ *C.metapsilosis* > *C.parapsilosis* ve *C.orthopsilosis*
- ▶ Biyokütle ile farklılık oluşmuyor
- ▶ Aynı kökenlerde kuru ağırlığın zamanla artması;
 - ▶ *C.parapsilosis*
- ▶ İleri fazda biyokütlerde düşme;
 - ▶ *C.orthopsilosis*
- ▶ İleri fazda kuru ağırlıkta artma/erken ve ileri faz metabolik aktivite aynı;
 - ▶ *C.metapsilosis*



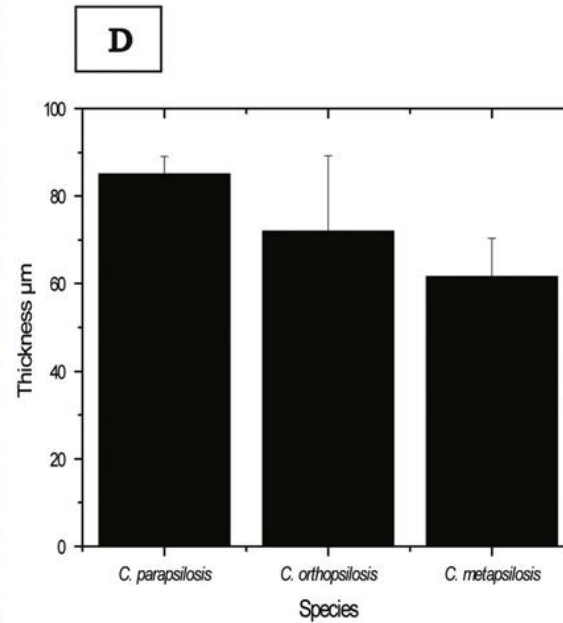
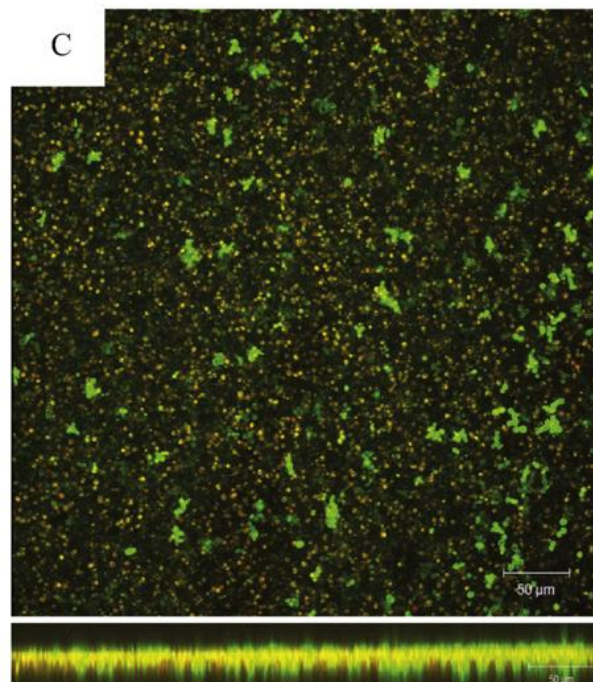
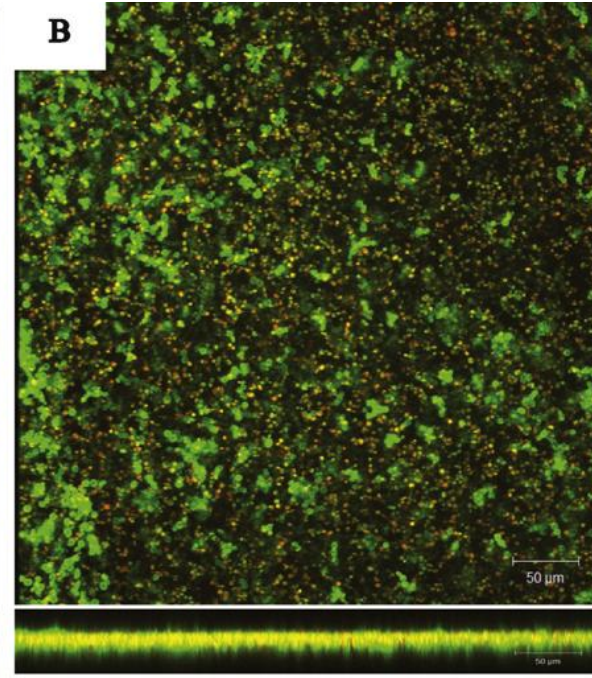
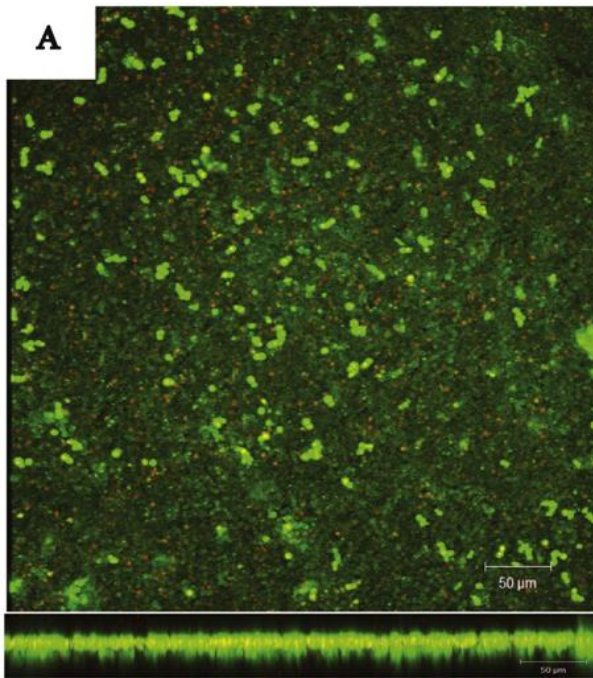
Characterization of biofilms formed by *Candida parapsilosis*, *C. metapsilosis*, and *C. orthopsilosis*

Ali Abdul Lattif^a, Pranab K. Mukherjee^a, Jyotsna Chandra^a, Kim Swindell^b, Shawn R. Lockhart^{c,1}, Daniel J. Diekema^c, Michael A. Pfaller^c, Mahmoud A. Ghannoum^{a,*}

^a Center for Medical Mycology, Department of Dermatology, University Hospital's Case Medical Center, and Case Western Reserve University, 11100 Euclid Ave., Cleveland, OH 44106-5002, USA

^b Pediatric Infectious Diseases, Children's Hospital, Cleveland Clinic, 9500 Euclid Ave., Cleveland, OH, 44195, USA

^c Carver College of Medicine, University of Iowa, Iowa City, IA 52242, USA



48 saat konfokal lazer mikroskopi
(D) Yazılım ile değerlendirme



ELSEVIER



Characterization of biofilms formed by *Candida parapsilosis*, *C. metapsilosis*, and *C. orthopsilosis*

Ali Abdul Lattif^a, Pranab K. Mukherjee^a, Jyotsna Chandra^a, Kim Swindell^b, Shawn R. Lockhart^{c,1}, Daniel J. Diekema^c, Michael A. Pfaller^c, Mahmoud A. Ghannoum^{a,*}

^a Center for Medical Mycology, Department of Dermatology, University Hospital's Case Medical Center, and Case Western Reserve University, 11100 Euclid Ave., Cleveland, OH 44106-5002, USA

^b Pediatric Infectious Diseases, Children's Hospital, Cleveland Clinic, 9500 Euclid Ave., Cleveland, OH, 44195, USA

^c Carver College of Medicine, University of Iowa, Iowa City, IA 52242, USA

► Sonuç;

- Her üç yeni türde biyofilm yapar. Aynı tür içinde bile önemli biyofilm yapı farklılıkları vardır.
- Sürpriz değil !
- Metabolik aktiviteler farklıdır, kütle ile orantılı değildir.
- XTT aktivitesi yeterli değildir. Biyokütle ve mikroskopik analizler ile birlikte değerlendirilmelidir.
- Biyokütlelerinde farklılıklar olsa da 3-D yapılar benzerdir.

Deney modelleme

ANTIMICROBIAL AGENTS AND CHEMOTHERAPY, May 2010, p. 1848–1854
0066-4804/10/\$12.00 doi:10.1128/AAC.01504-09
Copyright © 2010, American Society for Microbiology. All Rights Reserved.

Vol. 54, No. 5

Cutaneous Model of Invasive Aspergillosis[▽]

Ronen Ben-Ami,¹ Russell E. Lewis,² Konstantinos Leventakos,¹
Jean-Paul Latgé,³ and Dimitrios P. Kontoyiannis^{1,2*}

Department of Infectious Diseases, Infection Control and Employee Health, the University of Texas M. D. Anderson Cancer Center, Houston, Texas 77030¹; College of Pharmacy, University of Houston, Houston, Texas²; and Unité des Aspergillus, Institut Pasteur, Paris Cedex 15, France³

Received 24 October 2009/Returned for modification 29 November 2009/Accepted 29 January 2010

[Cutaneous model of invasive aspergillosis.](#)

Ben-Ami R, Lewis RE, Leventakos K, Latgé JP, Kontoyiannis DP.
Antimicrob Agents Chemother. 2010 May;54(5):1848-54. Epub 2010 Feb 9.

Cutaneous Model of Invasive Aspergillosis[▽]

Ronen Ben-Ami,¹ Russell E. Lewis,² Konstantinos Leventakos,¹
Jean-Paul Latgé,³ and Dimitrios P. Kontoyiannis^{1,2*}

Department of Infectious Diseases, Infection Control and Employee Health, the University of Texas M. D. Anderson Cancer Center, Houston, Texas 77030¹; College of Pharmacy, University of Houston, Houston, Texas²; and Unité des Aspergillus, Institut Pasteur, Paris Cedex 15, France³

Received 24 October 2009/Returned for modification 29 November 2009/Accepted 29 January 2010

- ▶ Kutanöz modeller patogenez ve Gr (+) etkenlere karşı ilaç cevabı çalışmada iyi sonuç verirler
- ▶ Kutanöz aspergilloz, tutulumda 2.sıradadır
- ▶ Oluşturulan model;
 - ▶ İnvaziv aspergillus
 - ▶ Subakut, nonletal
 - ▶ Tekrarlanabilir, cilt ölçümleri ile dinamik

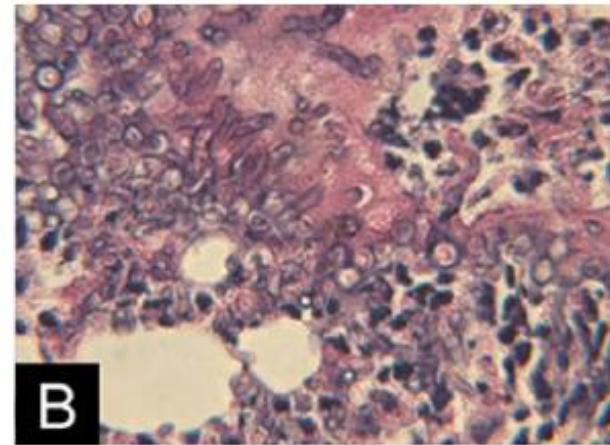
Cutaneous Model of Invasive Aspergillosis[▽]

Ronen Ben-Ami,¹ Russell E. Lewis,² Konstantinos Leventakos,¹
Jean-Paul Latgé,³ and Dimitrios P. Kontoyiannis^{1,2*}

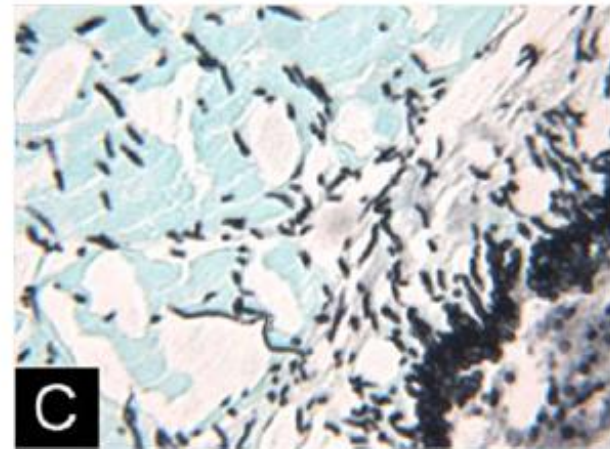
Department of Infectious Diseases, Infection Control and Employee Health, the University of Texas M. D. Anderson Cancer Center, Houston, Texas 77030¹; College of Pharmacy, University of Houston, Houston, Texas²; and Unité des Aspergillus, Institut Pasteur, Paris Cedex 15, France³

Received 24 October 2009/Returned for modification 29 November 2009/Accepted 29 January 2010

Siklofosfamid – BALB/c



H&E



GMS

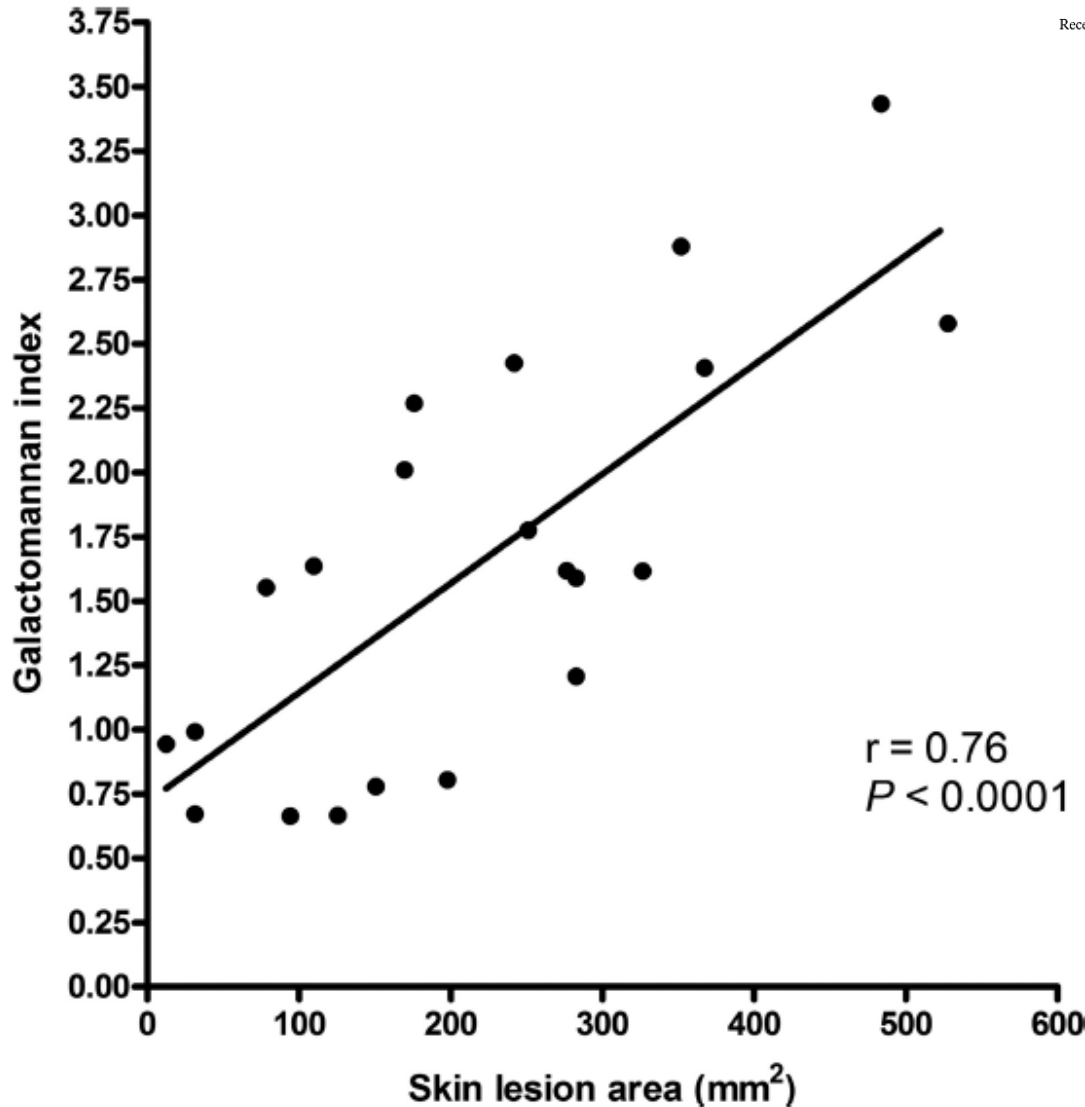
5x10⁶ konidya

Cutaneous Model of Invasive Aspergillosis⁷

Ronen Ben-Ami,¹ Russell E. Lewis,² Konstantinos Leventakos,¹
 Jean-Paul Latgé,³ and Dimitrios P. Kontoyiannis^{1,2*}

Department of Infectious Diseases, Infection Control and Employee Health, the University of Texas M. D. Anderson Cancer Center, Houston, Texas 77030¹; College of Pharmacy, University of Houston, Houston, Texas²; and Unité des Aspergillus, Institut Pasteur, Paris Cedex 15, France³

Received 24 October 2009/Returned for modification 29 November 2009/Accepted 29 January 2010



Fungal enfeksiyon;
 Galaktomannan
 Kantatif kültür
 “Real-time PCR”

Aspergillus fumigatus

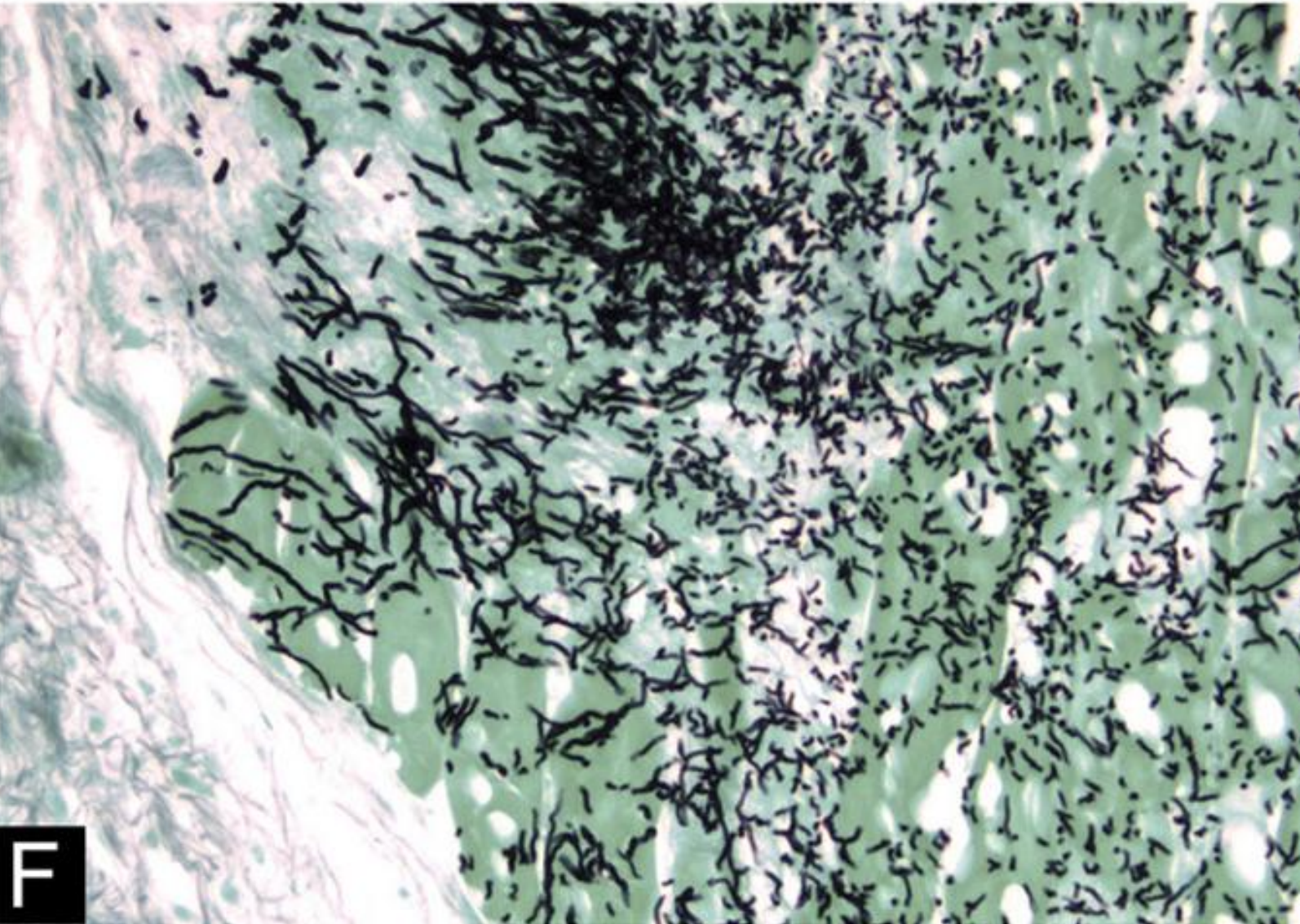
Klinik/mutant kökenler

Cutaneous Model of Invasive Aspergillosis[▽]

Ronen Ben-Ami,¹ Russell E. Lewis,² Konstantinos Leventakos,¹
Jean-Paul Latgé,³ and Dimitrios P. Kontoyiannis^{1,2*}

Department of Infectious Diseases, Infection Control and Employee Health, the University of Texas M. D. Anderson Cancer Center, Houston, Texas 77030¹; College of Pharmacy, University of Houston, Houston, Texas²; and Unité des Aspergillus, Institut Pasteur, Paris Cedex 15, France³

Received 24 October 2009/Returned for modification 29 November 2009/Accepted 29 January 2010

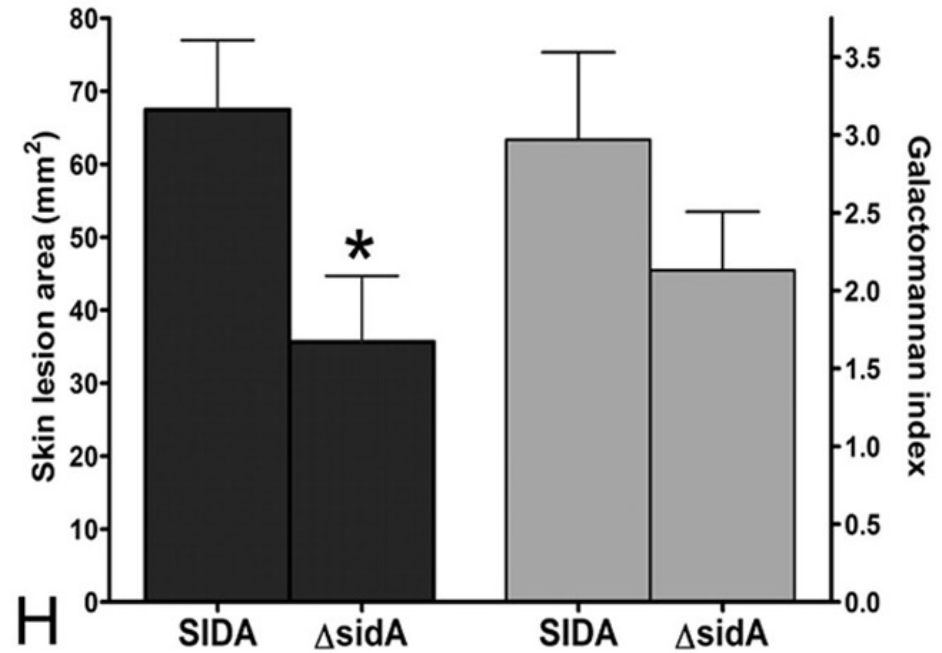
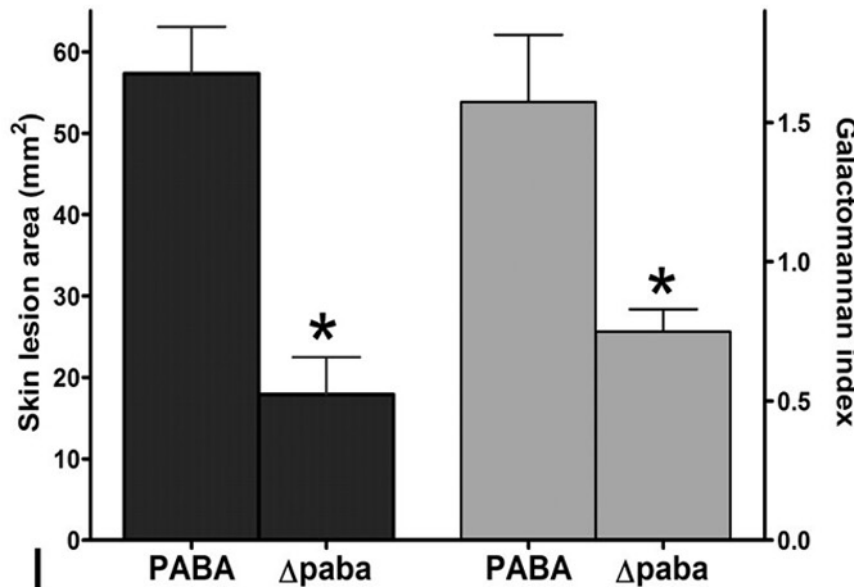
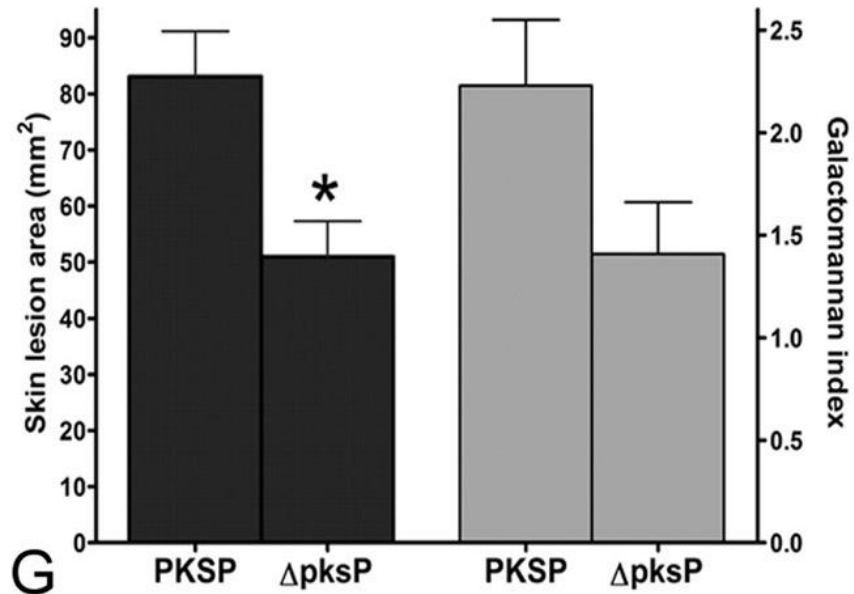


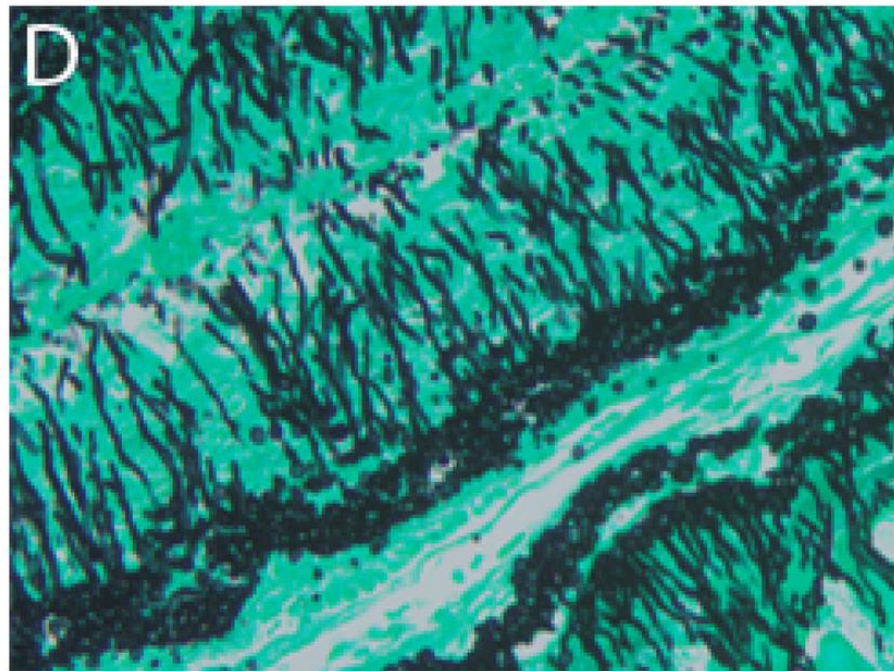
Cutaneous Model of Invasive Aspergillosis[▽]

Ronen Ben-Ami,¹ Russell E. Lewis,² Konstantinos Leventakos,¹
 Jean-Paul Latgé,³ and Dimitrios P. Kontoyiannis^{1,2*}

Department of Infectious Diseases, Infection Control and Employee Health, the University of Texas M. D. Anderson Cancer Center, Houston, Texas 77030¹; College of Pharmacy, University of Houston, Houston, Texas²; and Unité des Aspergillus, Institut Pasteur, Paris Cedex 15, France³

Received 24 October 2009/Returned for modification 29 November 2009/Accepted 29 January 2010



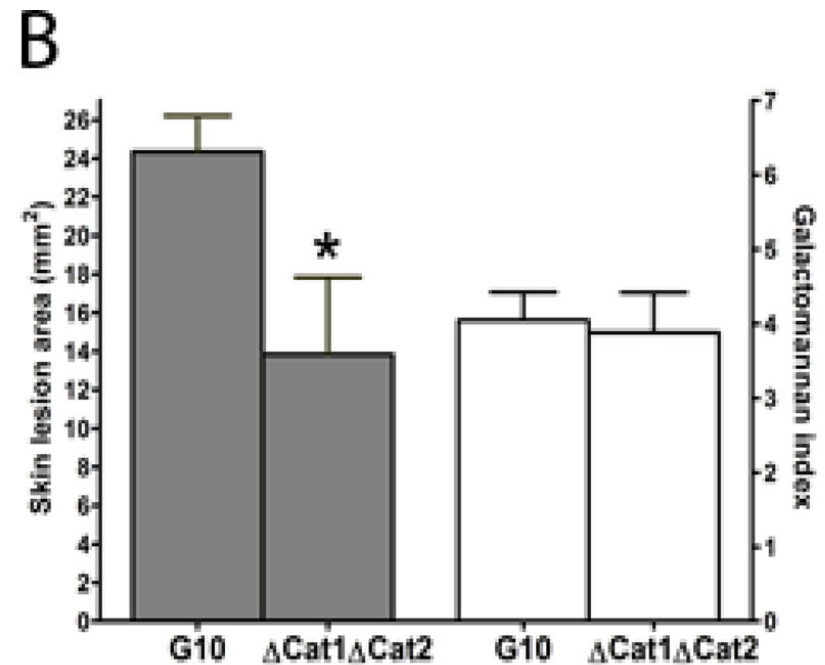


Cutaneous Model of Invasive Aspergillosis[▽]

Ronen Ben-Ami,¹ Russell E. Lewis,² Konstantinos Leventakos,¹
 Jean-Paul Latgé,³ and Dimitrios P. Kontoyiannis^{1,2*}

Department of Infectious Diseases, Infection Control and Employee Health, the University of Texas M. D. Anderson Cancer Center, Houston, Texas 77030¹; College of Pharmacy, University of Houston, Houston, Texas²; and Unité des Aspergillus, Institut Pasteur, Paris Cedex 15, France³

Received 24 October 2009/Returned for modification 29 November 2009/Accepted 29 January 2010

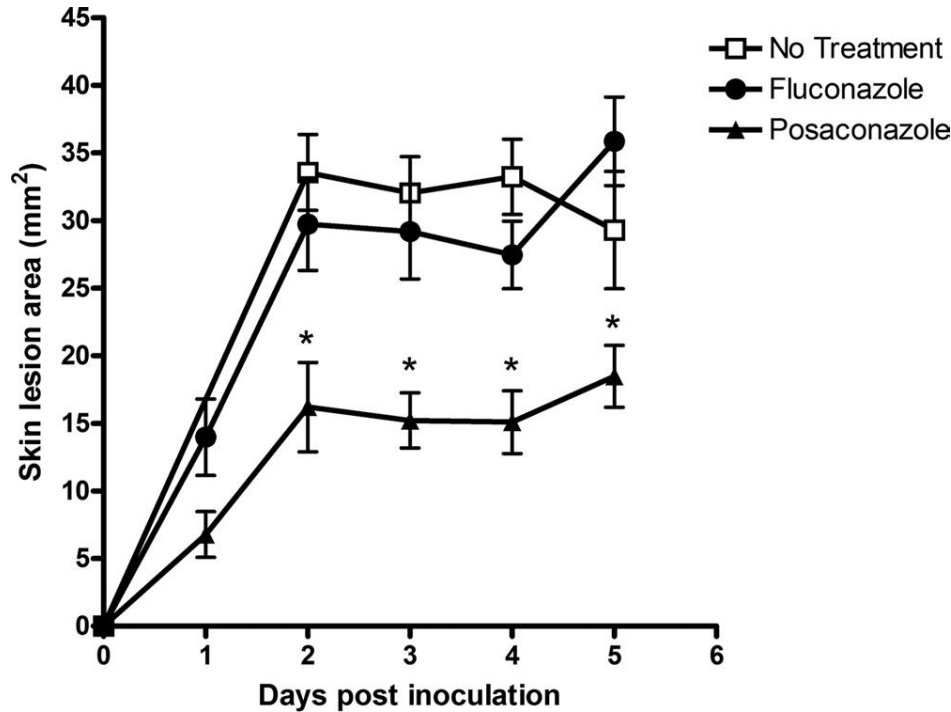


Cutaneous Model of Invasive Aspergillosis[∇]

Ronen Ben-Ami,¹ Russell E. Lewis,² Konstantinos Leventakos,¹
 Jean-Paul Latgé,³ and Dimitrios P. Kontoyiannis^{1,2*}

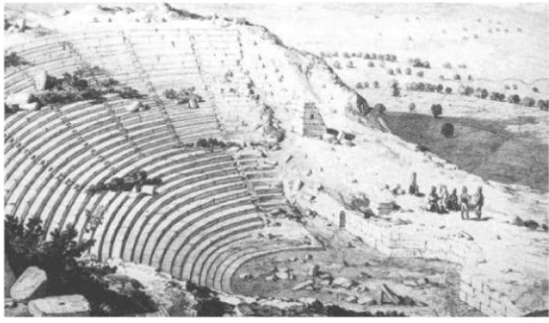
Department of Infectious Diseases, Infection Control and Employee Health, the University of Texas M. D. Anderson Cancer Center, Houston, Texas 77030¹; College of Pharmacy, University of Houston, Houston, Texas²; and Unité des Aspergillus, Institut Pasteur, Paris Cedex 15, France³

Received 24 October 2009/Returned for modification 29 November 2009/Accepted 29 January 2010



Çalışmanın sınırlanması;

- İnhalasyon modeli ile karşılaştırılmalı --- virulans
- Cilt modelinde mortalite az ancak çap sınırı bulunuyor.
- Fumigatus dışı Aspergillus kökenleri ile tekrarlanmalı
- Antifungal ilaçların farmakodinamiğini dokuda kontrol kolay ve biliniyor, cilt modeli ?
- Model invaziv pulmoner aspergilloz ile karşılaştırılmalı



- ▶ 09.11.2010
- ▶ Dr.Çağrı Ergin
- ▶ Pamukkale Üniversitesi/ Denizli