

Curriculum Vitae
Cameron M. Douglas, PhD.

WORK	Mail Stop WP42-200 Merck & Co., Inc. 770 Sumneytown Pike PO Box 4 West Point, PA 19486 215-652-0632 (office) 215-652-0994 (fax) Email: cameron_douglas@merck.com	HOME	416 Elwood Street Piscataway, NJ 08854 (732) 563-0448
------	---	------	---

EDUCATION

1987 PhD University of California at Los Angeles Microbiology

1984-1987 Harvard Medical School, Boston MA
Department of Microbiology and Molecular Genetics
Graduate Research
Thesis advisor: Dr. R. John Collier
Degree work initiated at UCLA (1981-1984) was completed at Harvard Medical School

1981-1984 University of California at Los Angeles
Department of Microbiology
Graduate Research
Thesis title: Expression and characterization of a mutant recombinant form of *Pseudomonas aeruginosa* exotoxin A
Thesis advisor: Dr. R. John Collier

1981 BS University of Massachusetts at Amherst Microbiology & Chemistry (minor)

1980-1981 University of Massachusetts at Amherst
Department of Biochemistry
Undergraduate research
Senior honors thesis title: Development and utilization of a protoplast model for nigeran biosynthesis in *Aspergillus awamori*.
Thesis advisor: Dr. John Nordin

PROFESSIONAL EXPERIENCE

2009-Present	Merck Research Laboratories	Target ID Lead, Infectious Disease
2003-Present	Merck Research Laboratories	Senior Research Fellow
1995-2003	Merck Research Laboratories	Research Fellow
1990-1995	Merck Research Laboratories	Senior Research Microbiologist
1987-1990	Merck Research Laboratories	Postdoctoral Fellow
1981-1982	University of California Los Angeles	Teaching Assistant
1981	University of Massachusetts at Amherst	Research Assistant

PROFESSIONAL AFFILIATIONS

American Society for Microbiology
American Association for the Advancement of Science
Phi Kappa Phi Honor Society

ACADEMIC HONORS

1982 NIH/NRSA Predoctoral Traineeship
1981 B.S. awarded summa cum laude with Departmental Honors
1981 Sigma Xi award for undergraduate research

PROFESSIONAL ACTIVITIES

2005-2009 Scientific Advisory Board for Federation of European Biochemical Societies (FEBS) course on Human Fungal Pathogens
2005-2008 Merck Research Lab Ambassador to Columbia University
2002-present Editorial Board for Antimicrobial Agents and Chemotherapy
Ad hoc reviewer for: Research in Microbiology, Chemistry and Biology, Journal of Clinical Microbiology, Journal of Antimicrobial Chemotherapy, Clinical Infectious Diseases, Journal of Infectious Diseases, Current Microbiology, Biotechnology Process
2002 Co-chair of "Antifungal Combinations" session at Interscience Conference on Antimicrobial Agents and Chemotherapy (ICAAC)

Merck Committees

2008 Infectious Disease Franchise Lead, Clinical Protocol MK-0000-089
2007-2009 Chair, Fungal biomarker initiative
2000-present Member, CANCIDAS[®] Investigator Initiated Study Proposal Review Committee
2006-2007 Member, Antifungal hit prioritization committee
2006-2007 Member, Parnafungin working group
2005-2007 Member, CANCIDAS[®] Product Development, Publications, and Basic Research Subteams
2004-2005 Member, Antifungal Natural Product Isolation Team
2001-2002 Member, CANCIDAS[®] MOA 3D Video Production Team
2000 Member, Caspofungin Worldwide Product Circular Review Committee
1995-1997 Member, L-743,872 Project Team
1991-1994 Member, Lipopeptide Working Group
1992-1994 Member, Glucan Synthase Working Group

PUBLICATIONS

- Bobbitt, T.F. and C.M. Douglas. 1982. Microcycle conidiation by regenerating protoplasts of *Aspergillus awamori*. Expt. Mycology 6:307-311.
- Douglas, C.M., T. Synan, T.F. Bobbitt, and J.H. Nordin. 1984. Nigeran synthesis by regenerating protoplasts of *Aspergillus awamori* correlates with formation of hyphae. Expt. Mycology 8:146-161.
- Douglas, C.M., C. Guidi-Rontani, and R.J. Collier. 1987. Exotoxin A of *Pseudomonas aeruginosa*: Active, cloned toxin is secreted into the periplasmic space of *Escherichia coli*. J. Bacteriol. 169: 4962-4966.
- Douglas, C.M. and R.J. Collier. 1987. Exotoxin A of *Pseudomonas aeruginosa*: Substitution of glutamic acid-553 with aspartic acid drastically reduces toxicity and enzymic activity. J. Bacteriol. 169:4967-4971.
- Douglas, C.M., S.L. Sturley, and K.A. Bostian. 1988. Role of protein processing, intracellular trafficking and endocytosis in production of and immunity to yeast killer toxin. Eur. J. Epidemiol. 4(4):400-408.
- Douglas, C.M. and R.J. Collier. 1990. *Pseudomonas aeruginosa* exotoxin A: Alterations of biological and biochemical properties resulting from mutation of glutamic acid 553 to aspartic acid. Biochemistry 29(21):5043-5049.
- Douglas, C.M., Marrinan, J. A., Li, W., and M.B. Kurtz. 1994. A *Saccharomyces cerevisiae* mutant with echinocandin resistant 1,3- β -D glucan synthase activity. J. Bacteriol. 176:5686-5696.
- Kurtz, M.B., Heath, I.B., Marrinan, J., Dreikorn, S., Onishi, J., and C. Douglas. 1994. Morphological effects of lipopeptides against *Aspergillus fumigatus* correlate with activity against (1,3)- β -D-glucan synthase. Antimicrob. Agents Chemother. 38:1480-1489.
- Douglas, C.M., Foor, F., Marrinan, J.A., Morin, N., Nielsen, J.B., Dahl, A.M., Mazur, P., Baginsky, W., Li, W., El-Sherbeini, M., Clemas, J.A., Mandala, S.M., Frommer, B.R., and M.B. Kurtz. 1994. The *Saccharomyces cerevisiae* *FKS1* (*ETG1*) gene encodes an integral membrane protein which is a subunit of 1,3- β -D-glucan synthase. PNAS 91:12907-12911 .
- Kurtz, M.B., Douglas, C., Marrinan, J., Nollstadt, K., Onishi, J., Dreikorn, S., Milligan, J., Mandala, S., Thompson, J., Balkovec, J.M., Bouffard, F.A., Dropinski, J.F., Hammond, M.L., Zambias, R.A., Abruzzo, G., Bartizal, K., McManus, O.B., and M.L. Garcia. 1994. Increased antifungal activity of L-733,560, a water soluble, semi-synthetic pneumocandin, is due to enhanced inhibition of cell wall synthesis. Antimicrob. Agents Chemother. 38: 2750-2757.
- Kurtz, M.B., Bernard, E.M., Edwards, F.F., Marrinan, J.A., Douglas, C.M., and D. Armstrong. 1995. Aerosol and parenteral pneumocandins are effective in a rat model of pulmonary aspergillosis. Antimicrob. Agents Chemother. 39: 1784-1789.
- Zambias, R.A., James, C., Hammond, M.L., Abruzzo, G.K., Bartizal, K.F., Nollstadt, K.H., Douglas, C., Marrinan, J., and J. Balkovec. 1995. Antifungal Lipopeptides: Structure-activity relationships of 3-hydroxyglutamine-modified pneumocandin B₀ derivatives. Bioorganic & Medicinal Chemistry Letters 5: 2357-2362.
- Kurtz, M.B., G. Abruzzo, A. Flattery, K. Bartizal, J.A. Marrinan, W. Li, J. Milligan, K. Nollstadt, and C.M. Douglas. 1996. Characterization of echinocandin-resistant mutants of *Candida albicans*: Genetic, biochemical, and virulence studies. Infect. and Immun. 64 (8): 3244-3251.
- Kurtz, M.B. and C.M. Douglas. 1997. Lipopeptide inhibitors of fungal glucan synthase. Journal of Medical and Veterinary Mycology 35:79-86.

Douglas, C. M., J. A. D'Ippolito, G. J. Shei, M. Meinz, J. Onishi, J. A. Marrinan, W. Li, G.K. Abruzzo, A. Flattery, K. Bartizal, A. Mitchell, and M. B. Kurtz. 1997. Identification of the *FKS1* gene of *Candida albicans* as the essential target of 1,3- β -D glucan synthase inhibitors. Antimicrob. Agents Chemother. **41** (11): 2471-2479.

Thompson, J.R., C.M. Douglas, W. Li., C.K. Jue, B. Pramanik, X. Yuan, T.H. Rude, D.L. Toffaletti, J.R. Perfect, and M. Kurtz. 1999. A glucan synthase *FKS1* homolog in *Cryptococcus neoformans* is single copy and encodes an essential function. J. Bacteriol. **181** (2): 444-453.

Onishi, J., M. Meinz, J. Thompson, J. Curotto, S. Dreikorn, M. Rosenbach, C. Douglas, G. Abruzzo, A. Flattery, L. Kong, A. Cabello, F. Vicente, F. Pelaez, M.T. Diez, I. Martin, G. Bills, R. Giacobbe, A. Dombrowski, R. Schwartz, S. Morris, G. Harris, A. Tsipouras, K. Wilson, and M.B. Kurtz. 2000. Discovery of novel antifungal (1,3)- β -D-glucan synthase inhibitors. Antimicrob. Agents Chemother. **44** (2): 368-377.

Bowman, J.C., G.K. Abruzzo, J.W. Anderson, A.M. Flattery, C.J. Gill, V.B. Pikounis, D.M. Schmatz, P.A. Liberator, and C.M. Douglas. 2001. Development of a quantitative PCR assay to measure *Aspergillus fumigatus* burden in a murine model of disseminated aspergillosis: demonstration of the efficacy of caspofungin acetate. Antimicrob. Agents Chemother. **45**: 3474-3481.

Cabello, M.A., G. Platas, J. Collado, M. Teresa Diez, I. Martin, F. Vicente, M. Meinz, J. Onishi, C. Douglas, J. Thompson, M.B. Kurtz, R.E. Schwartz, G.F. Bills, R.A. Giacobbe, G.K. Abruzzo, A.M. Flattery, L. Kong, and F. Peláez. 2001. Arundifungin, a novel antifungal compound produced by fungi: Biological activity and taxonomy of the producing organism. Int. Microbiol. **4**: 93-102.

Douglas, C.M. 2001. Fungal 1,3- β -D-glucan synthesis. 2001 Medical Mycology **39**(1): 55-66.

Bowman, J.C., P. Scott Hicks, M.B. Kurtz, H. Rosen, D.M. Schmatz, P.A. Liberator, and C.M. Douglas. 2002. The antifungal echinocandin caspofungin acetate kills growing cells of *Aspergillus fumigatus* in vitro. Antimicrob. Agents Chemother. **46** (9): 3001-3012.

Cummings, R. T., S. P. Salowe, B. R. Cunningham, J. Wiltsie, Y-W. Park, L. M. Sonatore, D. Wisniewski, C. M. Douglas, J. D. Hermes, and E. M. Scolnick. 2002. A peptide-based fluorescence resonance energy transfer assay for *Bacillus anthracis* lethal factor protease. PNAS **99** (10): 6603-6606.

Kartsonis, N.A., J. Nielsen, and C.M. Douglas. 2003. Caspofungin: the first in a new class of antifungal agents. Drug Resistance Updates **6**(4): 197-218.

Ibrahim, A. S., J. C. Bowman, V. Avanesian, K. Brown, B. Spellberg, J. E. Edwards, Jr. and C. M. Douglas. 2005. Caspofungin inhibits *Rhizopus oryzae* 1,3- β -D glucan synthase, lowers qPCR-measured brain burden, and improves survival at a low but not a high dose during murine disseminated zygomycosis. Antimicrob. Agents Chemother. **49**(2): 721-727

Shoop, W. L., Y. Xiong, J. Wiltsie, A. Woods, J. Guo, J. V. Pivnichny, T. Felcetto, B. F. Michael, A. Bansal, R. T. Cummings, B. R. Cunningham, A. M. Friedlander¹, C. M. Douglas, S. B. Patel, D. Wisniewski, G. Scapin, S. P. Salowe, D. M. Zaller, K. T. Chapman, E. M. Scolnick, D. M. Schmatz, K. Bartizal, M. MacCoss, and J. D. Hermes. 2005. Anthrax lethal factor inhibition. PNAS **102** (22): 7958-7963

Park, S., R. Kelly, J. Nielsen-Kahn, J. Robles, M.-J.Hsu, E. Register, W. Li, V. Vyas, H. Fan, G. Abruzzo, A. Flattery, C. Gill, G. Chrebet, S. A. Parent, M. Kurtz, H. Teppler, C.M. Douglas, and D.S. Perlin. 2005. Specific substitutions in the echinocandin target Fks1p account for reduced susceptibility of rare laboratory and clinical *Candida* sp. isolates. Antimicrob. Agents Chemother. **49**(8): 3264-3273.

Hickey, E., G. Abruzzo, J. Bowman, C. Douglas, C. Gill, P. Liberator, A. Misura, V.B. Pikounis, and K. Bartizal. 2005. Caspofungin versus Amphotericin B: Treatment duration and dose required to eradicate *Aspergillus fumigatus* in kidneys of chronically immunosuppressed infected mice. Therapy 2(4):615-621.

Bowman, J.C., G.K. Abruzzo, A.M Flattery, C.J. Gill, E.J. Hickey, M.J. Hsu, J.N. Kahn, P.A. Liberator, A.S. Misura, B.A. Pelak, T.C. Wang, and C.M. Douglas. 2006. Efficacy of caspofungin against *Aspergillus flavus*, *Aspergillus terreus*, and *Aspergillus nidulans*. Antimicrob. Agents Chemother. 50(12):4202-4205.

Douglas, C.M. 2006. Understanding the microbiology of the *Aspergillus* cell wall and the efficacy of caspofungin. Med. Mycol. 44(Suppl):95-99.

Rodriguez-Suarez, R., D. Xu, K. Veillette, J. Davison, S. Sillaots, S. Kauffman, W. Hu, J. Bowman, N. Martel, S. Trosok, H. Wang, L. Zhang, L.Y. Huang, Y. Li, F. Rahkhoodae, T. Ransom, D. Gauvin, C. Douglas, P. Youngman, J. Becker, B. Jiang, and T. Roemer. 2007. Mechanism-of-action determination of GMP synthase inhibitors and target validation in *Candida albicans* and *Aspergillus fumigatus*. Chem Biol 14(10): 1163-75.

Douglas, C.M. 2008. Echinocandins *In: Antimicrobial Drug Resistance Handbook*, D.L. Mayers, J.D. Sobel, M. Ouellette and S. Lerner, eds. Humana Press.

PATENTS

Douglas, C.M., Cemas, J.A., Chrebet, G., El-Sherbeini, M., Foor, F., Nielsen Kahn, J., Kelly, R., Marrinan, J., Morin, N., Onishi, R., Parent, S., Ramadan, N., Register, E., Shei, G.J. 1993. DNA Encoding 1,3 Beta-D Glucan Synthase Subunits. Patent No. 5,821,353

ABSTRACTS

Douglas, C.M., Frommer, B.R., and K.A. Bostian. 1989. Clathrin deficiency affects killer toxin sensitivity and maturation of toxin in yeast. In: Abstracts of the 1989 meeting on Yeast Cell Biology. Cold Spring Harbor Laboratory, Cold Spring Harbor, NY.

Douglas, C.M., Frommer, B.R., and K.A. Bostian. 1989. Quantitative analysis of expression of immunity to yeast killer toxin. In: Abstracts of the 1989 meeting on Yeast Cell Biology. Cold Spring Harbor Laboratory, Cold Spring Harbor, NY.

Douglas, C.M., Frommer, B.R., and K.A. Bostian. 1991. Hyperglycosylated forms of killer toxin are secreted by clathrin heavy chain deficient yeast. In: Abstracts of the 1991 meeting on Yeast Cell Biology. Cold Spring Harbor Laboratory, Cold Spring Harbor, NY.

Milligan, J., Onishi, J., Bartizal, K., Curotto, J., Douglas, C., Kropp, H., Kurtz, M., Marrinan, J., Rozdilsky, W., Salvatore, M., Thompson, J., and C. Trainor. 1992. The zaragasic acids: In vitro antifungal activity and mechanism of action. Abstracts of the 92nd Annual Meeting of the American Society for Microbiology, New Orleans, LA.

Douglas, C., Marrinan, J., Curotto, J., Onishi, J., and M. Kurtz. 1992. Activity of a new echinocandin, L-688,786, against filamentous fungi. Abstracts of the 92nd Annual Meeting of the American Society for Microbiology, New Orleans, LA.

Kurtz, M.B., Marrinan, J., Onishi, J., Dreikorn, S., Heath, B., and C. Douglas. 1994. A morphological susceptibility assay to rank pneumocandin analogs against *Aspergillus* sp. Abstr. 34th Intersci. Conf. Antimicrob. Agents Chemother., New Orleans, LA.

Douglas, C., Marrinan, J., Li, W., Nollstadt, K., Bartizal, K., Abruzzo, G., Flattery, A., Curotto, J., Milligan, J., and M. Kurtz. 1994. Mode of action of pneumocandin analogs: Genetic and virulence

studies with *Candida albicans*. XII Congress of the International Society for Human Health and Animal Mycology, Adelaide, Australia

Foor, F., Douglas, C.M., El-Sherbeini, M., Morin, N., Marrinan, J.A., Clemas, J.A., Mandala, S.M., Frommer, B.R. Nielsen, J.B., Dahl, A.M., Mazur, P., Baginsky, W. Williamson, J., Bonfiglio, C., and M.B. Kurtz. 1994. FKS1 and FKS2 of *S. cerevisiae* encode highly similar integral membrane proteins which are likely subunits of 1,3- β -D-glucan synthase. Yeast Genetics and Molecular Biology Meeting, Seattle, WA.

Mazur, P., Baginsky, W., Foor, F., Morin, N., Williamson, J., Nielsen, J.B., Bonfiglio, C., Douglas, C.M., El-Sherbeini, M., and M.B. Kurtz. 1995. Investigations of the function of FKS in 1,3- β -D-glucan synthase from *S. cerevisiae*. Keystone Symposia on Molecular and Cellular Biology: Host - Fungus Pathogenic Interactions, Taos, NM.

Bouffard, F.A., Dropinski, J.F., Balkovec, J.M., Hammond, M.L., Nollstadt, K.H., McFadden, D.C., Powles, M.A., Schmatz, D.M., Marrinan, J.A., Dreikorn, S., Douglas, C.M., Abruzzo, G.K., Flattery, A.M., Gill, C.J., Kong, L., Lynch, L.P., Scott, P.M., Smith, J.G., and K.F. Bartizal. 1995. Antifungal lipopeptides: Synthesis and SAR of cationic pneumocandins as potent inhibitors of cell wall synthesis. Abstracts of the 28th ACS Great Lakes Regional Meeting, LaCrosse, WI

Kurtz, M. B., G. Abruzzo, J. A. Marrinan, W. Li, J. Milligan, K. Nollstadt, and C. M. Douglas. 1995. Isolation and characterization of echinocandin resistant mutants of *Candida albicans*: Genetic, biochemical and virulence studies. XVII International Conference on Yeast Genetics and Molecular Biology, Lisboa, Portugal.

Chrebet, G., Douglas, C.M., Kurtz, M., and S.A. Parent. 1995. A pleiotropic mutation in the yeast FKS2 gene confers resistance to inhibitors of β -1,3-glucan synthase. Mid-Atlantic Yeast Meeting, Princeton, NJ.

Mitchell, A., Douglas, C.M., d'Ippolito, J., Shei, G.J., and M.B. Kurtz. 1995. Homology of genes that confer echinocandin resistance in *Saccharomyces cerevisiae* and *Candida albicans*. In: Abstracts of the 1995 meeting on Yeast Cell Biology. Cold Spring Harbor Laboratory, Cold Spring Harbor, NY.

Balkovec, J. M.; Zambias, R. A.; James, C. A.; Nollstadt, K. H.; Douglas, C. M.; Marrinan, J. A.; Abruzzo, G. K. and Bartizal, K. F. 1995. Antifungal Lipopeptides: SAR Of Novel Amino Acid Conjugates Of Pneumocandin B0 Analogs L-731,373 and L-733,560. National ACS Meeting, Chicago, IL: Abstract No. 213, August 23-28.

Chrebet, G., Douglas, C.M., Kurtz, M. and S.A. Parent. 1995. A pleiotropic mutation in the yeast FKS2 gene confers resistance to inhibitors of β -1,3-glucan synthase. In: Abstracts of the 1995 meeting on Yeast Cell Biology. Cold Spring Harbor Laboratory, Cold Spring Harbor, NY.

Onishi, J., M. Meinz, J. Thompson, J. Curotto, S. Dreikorn, M. Rosenbach, C. Douglas, G. Abruzzo, A. Flattery, L. Kong, P. Mazur, W. Baginsky, A. Cabello, F. Vicente, F. Pelaez, M. Diez, I. Martin, G. Bills, R. Giacobbe, A. Dombrowski, R. Schwartz, G. Harris, A. Tsipouras, K. Wilson and M. Kurtz. 1999. Discovery of a novel class of antifungals affecting β (1,3)-glucan synthase. Human Fungal Pathogens: Fungal Dimorphism and Disease. European Research Conferences, Granada, Spain, September 4 - 8.

Douglas, C.M., J.C. Bowman, H. Rosen, and M.B. Kurtz. 2000. The echinocandin caspofungin acetate (CAS; MK-0991; L-743,872) kills cells at the tips and branch sites of *Aspergillus fumigatus* hyphae. 10th Annual Focus on Fungal Infections Meeting. Atlanta, Georgia. March 29-31.

Douglas, C.M., J.C. Bowman, G.K. Abruzzo, A.M. Flattery, C.J. Gill, L. Kong, C. Leighton, J.G. Smith, V.B. Pikounis, K. Bartizal, M.B. Kurtz, and H. Rosen. 2000. The glucan synthesis inhibitor caspofungin acetate (CANCIDAS[®]; MK-0991; L-743,872) kills *Aspergillus fumigatus* hyphal tips in vitro and is efficacious against disseminated aspergillosis in cyclophosphamide-induced immune suppressed mice. Abstr. 40th Intersci. Conf. Antimicrob. Agents Chemother., Toronto, Canada. September 17-20.

Douglas, C. M., J. C. Bowman, K. F. Bartizal, G. K. Abruzzo, J. W. Anderson, A. M. Flattery, C. J. Gill, V. B. Pikounis, P. A. Liberator, and D. M. Schmatz. 2001. Use of a novel real-time PCR assay to demonstrate efficacy of caspofungin, alone and in combination with amphotericin B, in reducing *Aspergillus fumigatus* tissue burden in chronically immunosuppressed mice with disseminated infection. Abstr. 41st Intersci. Conf. Antimicrob. Agents Chemother., Chicago, IL, December 16-19.

Bowman, J. C., G. K. Abruzzo, J. W. Anderson, A. M. Flattery, C. J. Gill, V. B. Pikounis, D. M. Schmatz, P. A. Liberator, and C. M. Douglas. 2001. Development of a quantitative PCR assay to measure *Aspergillus fumigatus* burden in a murine model of disseminated aspergillosis: demonstration of the efficacy of caspofungin. . Abstr. 41st Intersci. Conf. Antimicrob. Agents Chemother., Chicago, IL, December 16-19.

Abruzzo, G. K., W. Shoop, C.M. Douglas, P. Liberator, J. Bowman, J. Anderson, A. Flattery, C. Gill, B. Michael, T. Felcetto, G. Mickle, and K. Bartizal. 2002. Optimization of a guinea pig model to evaluate antifungal drugs against *Aspergillus* Infections. 12th Annual Focus on Fungal Infections Meeting, Phoenix, Arizona. March 20-22.

Douglas, C. M., G. K. Abruzzo, J.W. Anderson, J.C. Bowman, A. Flattery, C. Gill, E. Simmons, B. Michael, T. Felcetto, G. Mickle, W. Shoop, P. Liberator, and K. Bartizal. 2002. Caspofungin alone or in combination with itraconazole reduces fungal burden in a neutropenic guinea pig model of disseminated aspergillosis. Abstr. 42nd Intersci. Conf. Antimicrob. Agents Chemother., San Diego, CA, September 27-30.

Bowman, J.C., J.W. Anderson, P.A. Liberator, and C.M. Douglas. 2002. Quantitation of mycelial fungal pathogens by PCR. Abstr. 42nd Intersci. Conf. Antimicrob. Agents Chemother., San Diego, CA, September 27-30.

Ibrahim, A.S., J.C. Bowman, V. Avanesian, C.M. Douglas, and J.E. Edwards, Jr 2003. Efficacy of caspofungin acetate (CAS) in a diabetic murine model of induced mucormycosis. Abstr. 43rd Intersci. Conf. Antimicrob. Agents Chemother., Chicago, IL, September 14-17.

Douglas, C.M., G. K. Abruzzo, J. W. Anderson, J. C. Bowman, C. Gill, P. A. Liberator, A. Misura, E. Simmons and D. Schmatz. 2003. Delayed therapy with caspofungin acetate significantly reduced established organ burdens in immunosuppressed mice infected with *Aspergillus fumigatus*. Abstr. 43rd Intersci. Conf. Antimicrob. Agents Chemother., Chicago, IL, September 14-17.

Simmons, E., G. K. Abruzzo, J. C. Bowman, C. M. Douglas, A. Flattery, C. Gill, M-J Hsu, A. Misura, J. Kahn, and B. Pikounis. 2003. Activity of caspofungin acetate against *Aspergillus flavus*, *Aspergillus terreus*, and *Aspergillus nidulans*. Abstr. 43rd Intersci. Conf. Antimicrob. Agents Chemother., Chicago, IL, September 14-17.

Flattery, A., J.C. Bowman, L. Gerckens, C. Gill, G.K. Abruzzo, C.M. Douglas, and E. Hickey. 2005. Efficacy of caspofungin in a guinea pig model of superficial dermatomycosis. Abstr. 45th Intersci. Conf. Antimicrob. Agents Chemother., Washington, DC, December 16-19.

Abruzzo, G.K., J.W. Anderson, C.M. Douglas, L. Gerckens, R.A. Giaccobe, C.J. Gill, M-J Hsu, J. Nielsen Kahn, A. Misura, E. Hickey, and D. Suber. 2005. The paradoxical in vitro response of *Candida albicans* to caspofungin. Abstr. 45th Intersci. Conf. Antimicrob. Agents Chemother., Washington, DC, December 16-19.

INVITED LECTURES AND PRESENTATIONS

1995 Genetic studies on the mode of action of echinocandins. Gordon Research Conference on Fungal Metabolism, June 19-24, Plymouth, NH.

- 1995 Genetic studies on the mode of action of echinocandins. Strategic Research Institute Conference on Systemic Antifungals: Discovery, Development, and Applied Therapeutics, November 7-8, New York, NY.
- 2000 1,3- β -D glucan synthesis: Fungi can't live without it. Henry Ford Medical Center, June 14, Detroit, MI
- 2000 Development of quantitative PCR to measure *Aspergillus fumigatus* burden in murine models of infection. Merck Anti-Fungal Opinion Leader Summit. September 14-16, Montreal, Canada
- 2001 Basic Research issues for CANCIDAS[®] - 2001. Duke University mini-conference on caspofungin, June 7, Durham, NC
- 2002 Preclinical Evaluation of Caspofungin in Models of *Aspergillus fumigatus* Infection. Merck Anti-Fungal Opinion Leader Summit. March 19, Phoenix, AZ
- 2002 Discovery and development of CANCIDAS[®]. Wayne Ebrite Conference, November 15, West Point, PA
- 2003 Animal models of antifungal drug combinations. American Society for Microbiology General Meeting, May 18-22, Washington DC.
- 2003 Fungal 1,3- β -D glucan synthesis and echinocandins. Mycological Society of America-British Mycological Society Annual Meeting, July 27-31, Asilomar, CA.
- 2003 Further defining the preclinical activity of caspofungin against *Aspergillus* spp., rare moulds, and dermatophytes. Merck Anti-Fungal Opinion Leader Summit. September 13, Chicago IL.
- 2003 The fungal cell wall. Intersci. Conf. Antimicrob. Agents Chemother., September 14-17, Chicago, IL.
- 2004 Echinocandins and the fungal cell wall. January 28, St. Joseph's University, Philadelphia, PA
- 2005 Clinical microbiology of fungal infections. European Congress of Clinical Microbiology and Infectious Diseases, April 2-5, Copenhagen, Denmark.
- 2005 A perspective on antifungal drug discovery. FEBS Advanced Lecture Course on Human Fungal Pathogens, May 21-28, Nice, France.
- 2005 Echinocandins: Exploring fungal susceptibility and resistance. June 15, Columbia University, New York, NY.
- 2005 Echinocandins: Exploring susceptibility and resistance. October 19, Drexel University, Philadelphia, PA.
- 2005 Caspofungin and the paradoxical effect. Merck Anti-Fungal Opinion Leader Summit. November 18, Dallas TX.
- 2006 Clinical microbiology of invasive mould infections. Advances Against Aspergillosis Meeting, February 22-25, Athens Greece.
- 2006 Strategies for antifungal lead discovery. Gordon Research Conference on Cellular and Molecular Fungal Biology, June 18-23, Plymouth, NH.

- 2006 Preclinical update of CANCIDAS[®] and other licensed echinocandins. CANCIDAS[®] Expert Input Forum, September 25-26, Rahway, NJ.
- 2007 CANCIDAS: Discovery and mode of action. Woods Hole Marine Biological Laboratory Course on Molecular Mycology: Current Approaches to Fungal Pathogenesis, August 7-23, Woods Hole, MA.
- 2008 Pharmaceutical insights into antifungal lead discovery. 9th ASM Conference on Candida and Candidiasis, March 24-28, Jersey City, NJ.