Virulence profile
Dimitrios P Kontoyiannis

Tell us about your early days
I was born in Athens, Greece, 50 years ago. My parents were school teachers so I lived in a small town in mainland Greece from age 2 to 12 and then the family (my parents, my twin brother, and I) moved back to Athens where I went to high school and then to University of Athens Medical School. I graduated in my mid-20s and then I did my compulsory military service for 2 years as lieutenant in the medical corps. I then moved to the United States and spend 18 months as clinical post-doctoral research fellow in Houston, Texas (MD Anderson Cancer Center) before starting my internship and residency.

Where did you perform your internship/residency and what field of specialization did you choose?
I did my internship, residency, and subsequently chief residency at Baylor College of Medicine, in Houston, Texas (1991–1994) and then moved to Massachusetts General Hospital in Boston for specialization in infectious diseases (1994–1998). I chose infectious diseases as subspecialty as it is a purely cognitive subspecialty, not confined to one organ or system and not procedure-oriented (I am really bad with procedures by the way!). Thoroughness and knowledge are our “procedures”. It is closely aligned with all disciplines of internal medicine. It demands a good grasp of pathophysiology and a need for continuous reading in a fast-moving and complex field. So I think it is by far the most difficult yet most intellectually rewarding subspecialty.

What do you like most about your work as a physician?
When I was 17, I had to choose between medicine, law, and chemical engineering school. The choice was easy because medicine has unmatched nobility; it is a calling, and provides sustainable intellectual growth and job security.

How can one successfully combine working in the clinic with heading a research lab?
This has always been difficult for physician–scientists and it is particularly challenging these days where clinical pressures and declining funding create a “perfect storm”, especially for researchers who work in “niche” areas such as translational mycology. I guess the “secret sauce” for success these days is a combination of very hard work, laser focus for translating important bedside questions to eloquent experimentation, attracting good people to run these ideas, and nurturing quality collaborations. Seek the best collaborators you can find: most of the time, they are not in your city.

What is your function in your institution?
I am currently the Deputy Head of Research in the Division of Internal Medicine, which comprises 9 different departments and functions as a traditional department of medicine. This diversity gives me a different view from the one I had when I was solely in my department of Infectious Diseases and has changed my work mix, perspective, and priorities. In my position, I try to create a buzz about research accomplishments in the division
and beyond, to revamp our efforts in mentoring, spearhead initiatives to capture research productivity and quality, and communicate issues regarding the mechanics and logistics of research through education. As my division remains primarily a clinical entity, we strive to enhance inter- and intra-departmental team science and strategically achieve the critical mass of the quality and versatility of our research force, focusing on a careful mix of seasoned and talented investigators.

What areas or topics does your lab currently focus on?
Invasive fungal infections are leading causes of death in patients with leukemia and hematopoietic cell transplant recipients. Furthermore, in recent years, difficult-to-treat invasive infections caused by rare molds and yeasts have emerged in severely immunocompromised patients, including patients with acute leukemia. Hence, despite significant improvement in the development of new antifungal agents over the past decade, the efficacy of current antifungal therapies is at best suboptimal, and a dire need for better understanding of the pathogenesis of opportunistic fungal infections and the development of novel therapeutic strategies. Over the past 15 years we have developed an extensive expertise in using *Drosophila* as a phylogenetically reduced host for all clinically important human mycoses and simulate with robust experimental approach translational questions that are pertinent to the bed side (Fig. 1). Currently, my lab is focusing on 3 thematic areas: (1) Comparative studies of pathogenesis in mammalian (mice), invertebrates (*Drosophila*), and now in lower vertebrates (zebrafish) hosts, (2) studying the impact of host metabolism on fungal virulence, and (3) continuing our studies on pharmacology of antifungals and the relationship of fungal resistance with fitness.

What makes a good mentor?
To have an interest in people’s lives and careers. It is very difficult for junior faculty to excel and be competitive in research in the current environment. They will need a combination of talent, luck, hard work, and people who are willing to give them time and share with them what worked and did not work for them in their path to success. The ideal mentor is selfless and gets satisfaction if and when he contributes to the latter.

What is your philosophy in scientific pursuits?
There are 2 types of researchers: the “clarifiers” who spend most of their career in focusing in depth on a specific biological question and the ones who like to constantly bring new questions. I like the latter best and I enjoy research stories where there is out-of-the-box thinking. I believe that looking at conceptual approaches from different disciplines helps one’s research. My philosophy also is that a research career should not be an individualistic sport, and I advise my mentees to find people they like, make friends, and have fun along the way. Another thing that reflects my philosophy is that too much ambition is as bad as no ambition.

What advice would you give to junior people entering the field?
Be generous in giving credit. Do not spend your energy in meaningless antagonisms and politics. Focus and strive for synergy between clinical medicine and research. Attract quality people around you. Establish impactful relationship with a quality mentor who can help identifying opportunities, “growth areas” in the field of your research interest. Transition from the fellow’s mentality and be comfortable to delegate. Avoid pessimists as pessimism is “infectious”. Your career, and your life, is a marathon race, so do not burn out in the first 800 meters! Finally, people know if you care or if you are fake, so lead by example.

What is something that most people don’t know about you? What do you think you would do if you were not an MD or a scientist?
I am a “mutant” Greek: I cannot dance or break plates and I hate ouzo! I am an amateur cartoon drawer and writer of short essays. If I was not a medical faculty, I would love to be a professor of history or language evolution.
What do you do for fun?
I enjoy playing soccer or basketball with my boys, who are now 15 and 13. I also enjoy sharing a good movie with my wife or a funny story with my friends. Reading history novels or listening to music. The greatest CD I listened to lately is “Tempest” by Bob Dylan—highly recommended!

About Dr Dimitrios P. Kontoyiannis. Dr Dimitrios P. Kontoyiannis received his medical degree summa cum laude from the National and Kapodistrian University of Athens in Greece. He then did a post-doctoral clinical research fellowship at the Section of Infectious Diseases at the University of Texas MD Anderson Cancer Center in Houston, TX, followed by training in Internal Medicine at Baylor College of Medicine in Houston, TX, where he served as a Chief Medical Resident. He was subsequently trained as a clinical fellow in Infectious Disease at Massachusetts General Hospital and obtained a Master in Clinical Sciences from Harvard Medical School in Boston, Massachusetts. He spent 3 years at the Whitehead Institute for Biomedical Sciences/Massachusetts Institute of Technology as a fellow in the Harvard MIT Clinical Investigators training Program. He is currently the Frances King Black Endowed Professor and Deputy Head of Research in the Division of Internal Medicine at the University of Texas MD Anderson Cancer Center. He is also an adjunct professor at Baylor College of Medicine and the University of Houston College of Pharmacy. He serves as an associate editor for Mycoses and sits on several editorial boards, including that of Virulence. An international expert in clinical and experimental mycology, he is the recipient of several national and institutional awards. He has authored over 400 peer-reviewed manuscripts and been invited to give over 100 lectures in international conferences and prestigious institutions in the United States and abroad.