Learning Journeys

The Duke-NUS Graduate Medical School offers a Doctor of Medicine (MD) programme, a PhD programme in Integrated Biology and Medicine, and a programme that combines both - the MD/PhD programme. These are designed to build careers in medicine, as well as translational clinical research.

The MD/PhD curriculum at Duke-NUS Graduate Medical School is aimed at students who are committed to intensive research-oriented careers, combining biomedical research with the practice of clinical medicine.

The distinguishing feature of the school's PhD programme is its focus on the core concepts of basic science and clinical research, building a foundation that enables students to develop expertise in the broad skills required to drive translational clinical research. The multi-disciplinary PhD programme also allows students to concentrate in one of the five Duke-NUS Signature Research programme areas: Cancer and Stem Cell Biology, Neuroscience and Behavioral Disorders, Cardiovascular and Metabolic Disorders, Emerging Infectious Diseases, and Health Services and Systems Research.

SMA News speaks to MD/PhD student Kenneth Goh and PhD student Moon Tay from Duke-NUS about their experiences.

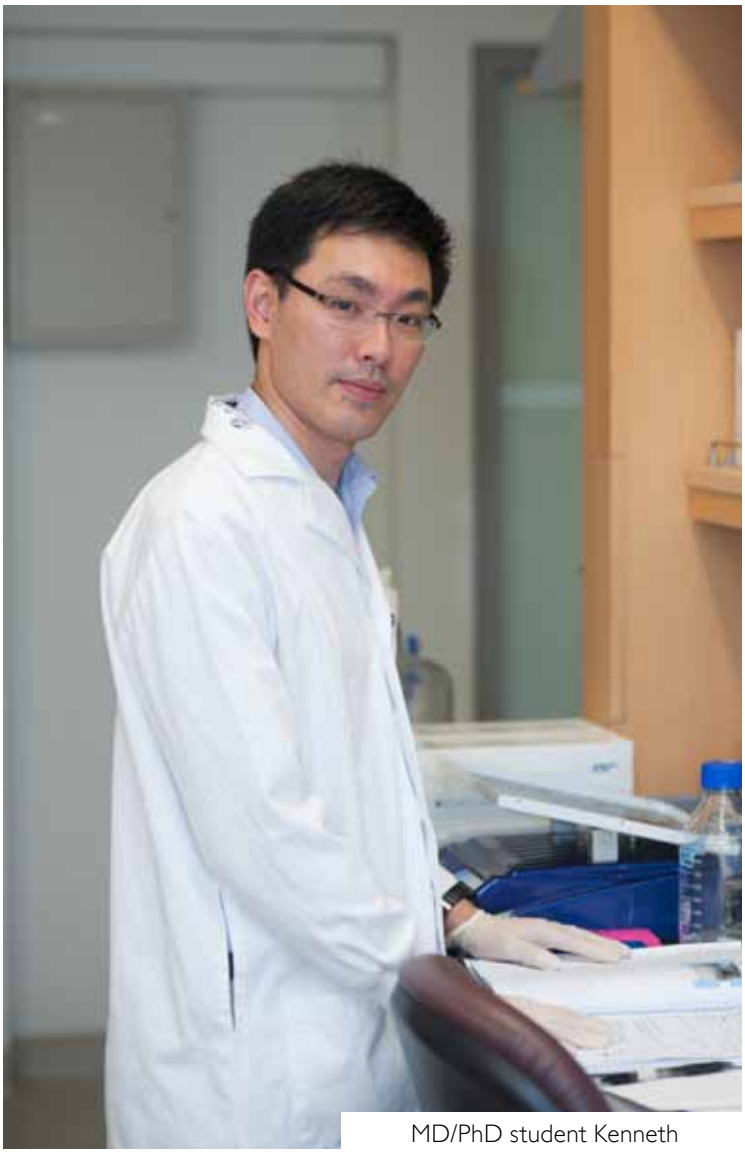
SMA: Why did you choose the MD/PhD programme instead of the MD or PhD programme?

Kenneth Goh – KG: Actually, when I was still an undergraduate, my original goal was to apply for a PhD and pursue a career studying human pathogens. I realised later that in order to have a comprehensive understanding of infectious diseases, I would need to expand beyond the laboratory and into the clinics and wards. You could say that having both degrees allows me to study viruses in their natural setting, as well as subject them to the full might of scientific investigation in a laboratory.

SMA: Tell us more about your experience with the programme so far, and how different is it from the MD track?

KG: MD/PhD students (MD/PhDs) are a strange and rare breed, much like the mythical wyverns of Science and Medicine. Our clinicians and basic scientists don't talk to each other quite as often as they should – pay attention and you'll realise that both groups don't even speak the same language! One of the most important things that we MD/PhDs can do is to bridge the gap between the two groups.

Recently, there has been a lot of hot air about "research from bench to bedside", a catchphrase which has been thrown about so often that it has lost its meaning. It is also dreadfully



MD/PhD student Kenneth

one-sided, because information actually flows both ways – knowledge doesn't just fall out of ivory towers like killer litter. As MD/PhDs, we carry clinical observations and insights from our patients back to the laboratories, which gives our basic research better quality targets to pursue. We also bring our laboratory discoveries back to the clinics, making better informed decisions on patient care and improving the practice of Medicine in the long term.

In preparation for that career, the Duke-NUS MD/PhD programme runs strongly on both fronts, we get the same clinical training as the MD students, as well as the same research training as the PhD students. The key difference between this programme and the MD track is the expansion of the research year (Year Three under the MD programme) into four years. I like to joke that I'm slow and therefore I need lots of extra time for my research year as compared to the MD students; if you liken the PhD training to the main course at dinner, then the MD research year is like the finger food served at the cocktail party reception before dinner, in terms of both heft and digestibility.

SMA: What research specialty are you more inclined to go into?

KG: I intend to continue with my interest since my undergraduate research days and join the Duke-NUS Emerging Infectious Diseases programme, studying human pathogens and how they interact with the host immune system to cause disease. At the intersection of microbiology, immunology, clinic and laboratory: new discoveries await us there!

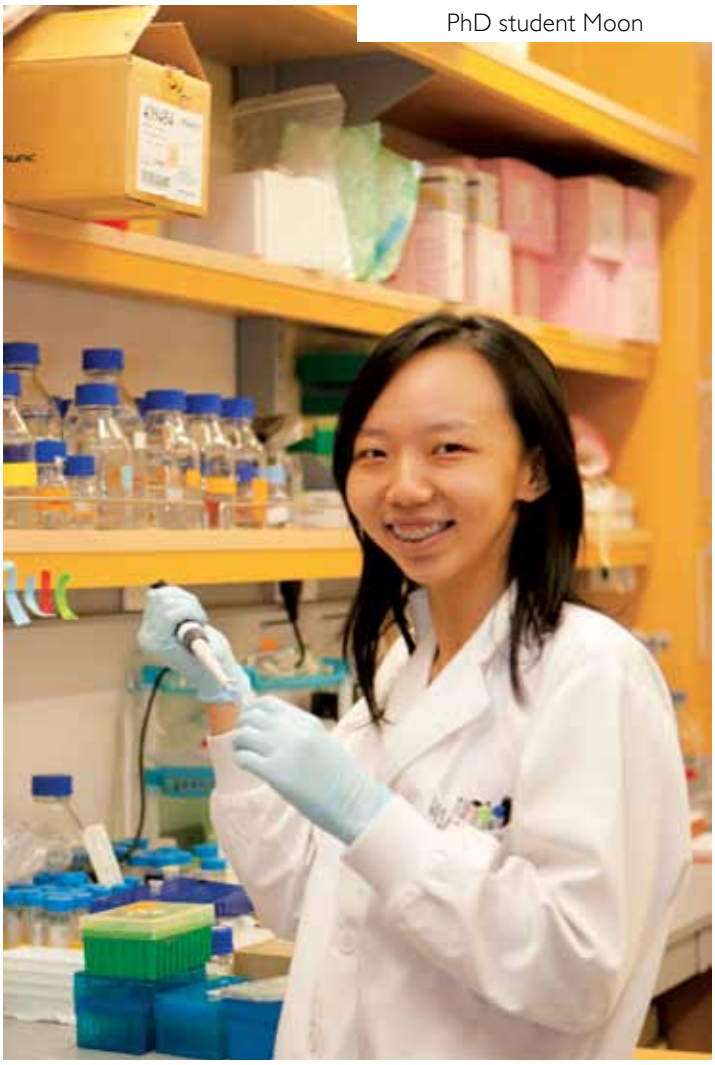
SMA: Given that the MD/PhD programme can span several years, can you share some tips with your juniors who might be keen to explore?

KG: This is a significant commitment of both time and money, so you must be very, very sure that this is what you want to do with the rest of your life. There's one good way to be sure – find someone senior to tell you that you don't need both the MD and PhD for your future career (there are many people of this persuasion and they can easily be found). Once you hear that, and if you hear a scream of disagreement well up inside you, then congratulations! You should apply to our programme.

On a more serious note, you need to know why you want to do both degrees. If you can't convince yourself, then you probably should save the precious years of your remaining youth and go do something else you find interesting. Of course, as a PhD student, we do receive a stipend for the time and effort spent pursuing research, so that eases the financial burden.

That said, you can still do good research work with just an MD or a PhD; the kinds of research questions that you can pursue would simply be different, but no less important in our overall effort to better understand human disease.

PhD student Moon



SMA: We understand that you are an avid photographer, tell us more about your interest in photography.

KG: I actually got started around the third year of my undergraduate studies, just before I went on a class field trip to the Wyoming desert to prospect for dinosaur fossils. I suppose that was my "National Geographic photographer wannabe" moment, getting the chance to photograph both the stark, dry landscapes of the desert, as well as the remnants of prehistoric life reemerging to the light of day after millions of years underground. Of course, almost all of my photos from that trip turned out to be terrible, since it was my first time using a DSLR camera.

Nowadays, I mainly shoot events or projects for the school, or just wander out on my own to see the interesting sights in Singapore. It's amazing how many beautiful images we ignore as we go about our busy lives. Walking around with a camera has given me a new appreciation for the vibrancy of life and why we as doctors put in so much effort to preserve and protect it.

A/Prof Subhash Vasudevan

Moon is a terrific student – she is keen, self driven and is willing to work very hard. Students contemplating the PhD track should be fully aware that experimental science involves a certain degree of risk taking, and it is by experiencing the highs and lows of hypothesis-supporting or hypothesis-destroying discoveries that one hones the skill of a researcher who can tackle important research questions.

The mentor to a certain extent plays the shepherd's role in this process by providing some insights and highlighting potential pitfalls. It should be emphasised that this is a joint journey in learning, and the process should be enjoyable so that novel discoveries can be made during the PhD programme. These discoveries should lead to the publication of at least three papers, hopefully resulting in value-adding patents.

– A/Prof Subhash Vasudevan, Emerging Infectious Diseases Programme, Duke-NUS

SMA: What's it like to be in the inaugural PhD class? How has the journey been?

Moon Tay – MT: I am very honoured to have this opportunity. Being in the inaugural batch simply means that the planned curriculum and programme structure are being tested for the very first time, and I am the experimental model. I have given Duke-NUS feedback that will help them with planning next year's course for the new intake.

My one and a half years in the programme has been a bittersweet journey. It is bitter, as planning experiments and taking charge of project direction are not easy tasks. However, knowing that you are not alone and by having mentors, colleagues and classmates to support and brainstorm with you does add a tinge of sweetness to the journey.

SMA: We understand that the mentorship process is quite a unique feature in the PhD programme – how has it added value to your learning journey?

MT: Throughout the mentorship process, I am taught to ask the right questions that help in building a storyline for scientific publication. I also learn how to stay focused and address problems systematically.

SMA: Where did you do your undergraduate training, and how have your studies prepared you to come to Duke-NUS?

MT: During my undergrad studies in the Nanyang Technological University (NTU) School of Biological Science, the curriculum equipped me with the necessary research skills and fundamental knowledge that helped to smoothen my transition into the Duke-NUS PhD programme. Throughout my four years in NTU, courses were properly structured and taught to maximise my learning. In my third year, I was given a chance to work in a structural biology laboratory and in my final year, I did my Final Year Honours Project in the laboratory of my current mentor.

SMA: How did your first year in the PhD programme spur you to look for your current mentor as the laboratory you wanted to work under?

MT: I would say that the two laboratory rotations I had were very useful in helping me to make the final decision. I had the opportunity to experience different laboratory cultures and research projects before making an informed choice.

My current mentor at Duke-NUS is A/Prof Subhash Vasudevan, and I sought him out after taking into consideration the laboratory environment and the project he offered.

SMA: How do you unwind after a day of research work and studies?

MT: I usually spend my weekends relaxing at home, listening to music and watching romantic movies. One of my favourite pastimes is rose origami. I love rose origami as each folded rose is unique and it does look like a real rose, except that it never dies. SMA

Photos: Duke-NUS