Saving precious time
This scholar is looking for a more efficient process

In an era of fiscal restraint and overstretched health budgets, Trainee urology surgeon Dr Matthew Hong is working to develop a test that can accurately discriminate between lethal and indolent prostate cancer to allow clinicians to better select those patients needing treatment.

To do this, Dr Hong is not only investigating the biomarkers that differentiate aggressive and indolent tumours, but has also established a world-first program to examine metastatic prostate cancer tissue.

Working out of the Royal Melbourne Hospital and the Australian Prostate Cancer Research Centre at Epworth (APCRC), Dr Hong has set up a program in which men with metastatic prostate cancer undergo a day procedure to donate tissue samples.

In time, this raw data will be made publicly available to scientists around the world so that researchers with different questions can use the information to expand knowledge in the field or test new ideas.

Prostate cancer is the second most common cause of cancer death in Australian men with almost 19000 new diagnoses and almost 3000 deaths per year.

Dr Hong said, however, that a significant proportion of such cancers never metastasise resulting in a proportion of patients receiving radical treatment including surgery which is unnecessary.

He said he began his work, part of a PhD through the University of Melbourne, aiming to screen for biomarkers on individual molecules, but had since capitalised on the enormous advances made in genomic technologies which can now allow scientists to screen hundreds of thousands of molecular differences at a time.

“The unique approach we have taken is to look simultaneously at different levels of genetics,” Dr Hong said.

“We are looking at the underlying genome, its methylation or regulation and the transcriptome, that is the genes being expressed to produce proteins.

“The laboratory techniques required for this type of multi-dimensional approach have taken the best part of two years to refine and I’m only beginning to see preliminary data now.

“I have found a hint that there are subtle molecular differences in the benign parts of prostate glands between those harbouring high-grade versus low-grade prostate cancer, which could lead to a test that gets around the problem of sampling errors in biopsy.”

Dr Hong has won considerable support from the RACS for his work, receiving both the Foundation for Surgery ANZ Journal of Surgery Scholarship for 2010 and the Foundation for Surgery Catherine Marie Enright Kelly Scholarship for 2011.

He has presented his work at conferences in Melbourne, the Gold Coast, Perth, and New Zealand and last year gave a presentation on his research at the European Association of Urology Annual Congress in Austria.

Dr Hong said the establishment of a metastatic tissue bank could have a significant global impact.

“This unique program allows us to not only collect the lethal cancer tissue, but enables us to compare it to a sample of each patient’s primary tumour given previously so that we can compare the two to understand why metastases develop in a given individual,” Dr Hong said.

“This provides access to very rare tissue types and our study has sparked great interest amongst our international collaborators.

“We have just fully sequenced the whole genomes of matched primary and metastatic prostate cancer from our first patient which could well be a world first.”

Dr Hong is undertaking his research under the supervision of Associate Professor Christopher Howes, the Scientific Director at the APCRC, and Dr Niall Corcoran, Urologist, with the entire program overseen by Professor Tony Costello, Director of Urology at the Royal Melbourne Hospital and Executive Director of APCRC at Epworth.

Dr Hong said he had been honoured to receive such support from the RACS and said that the stipends attached to the scholarships meant that he could become fully involved in the ground-breaking work.

“Because of the support, I could fund my own travel to various conferences to become completely immersed in my fields of interest which I think is important to help generate ideas to overcome scientific problems,” he said.

“Instead of having to apportion some of my time to making an income, I could use that time for greater productivity.

“It has been extremely rewarding to have the opportunity to concentrate on pure research and the process I most enjoy is asking clinically important questions, understanding the technology available to researchers and then putting the two together by designing and performing experiments that answer the questions.

“We are now moving towards personalised medicine at a rate of knots and I believe that our recently acquired ability to molecularly characterise individual tumours quickly and at a reasonable cost will soon give us an edge over prostate cancer.

“This project has the potential to identify candidate biomarkers for the early discrimination of the lethal prostate cancer phenotype, which in turn could lead to more effective patient selection for radical treatment by surgeons.

“This will mean that clinicians can make confident decisions regarding the significant number of patients with biologically indolent prostate cancer to spare them exposure to the unnecessary risks of radical treatment which in turn could translate into significant health economic savings.”

The Catherine Marie Enright Kelly Memorial Research Scholarship arose from a bequest by the late Dr TD Kelly, FRACS, to support Trainees or Fellows wishing to take time away from clinical practice to undertake research.

With Karen Murphy

Successful Scholar

Awards
> 2012 Melville Hughes Scholarship (University of Melbourne)
> 2011 Foundation for Surgery Catherine Marie Enright Kelly Scholarship (Royal Australasian College of Surgeons)
> 2010 Foundation for Surgery ANZ Journal of Surgery Research Scholarship (Royal Australasian College of Surgeons)
> 2010-2011 Postgraduate Medicine Scholarship (National Health and Medicine Research Council, Australia)

Current Projects
> Integrative Genomic Profiling in Prostate Cancer: Defining the Lethal Phenotype of Origins of Lethal Metastases in Multifocal Prostate Cancer

Factory Visit Program
Occupation Medicine Bridging Course

S urgeons benefit from the opportunity to see a range of work in different industries. Benefits are anticipated to flow in terms of guidance to workers, factories and insurers and in improved surgical outcomes as measured by satisfactory return to optimal activities.

The factory visit program is Continuing Professional Development accredited.

Qantas, Sydney
On Friday, 6 July 2012, we have arranged a whole day visit to Qantas Engineering, Catering and possibly Baggage Handling. This follows a memorable site visit to the Heavy Engineering section of Qantas in Melbourne.

At the start of each half day there will be a brief introduction to the workplace, as on previous factory tours. This will be followed by workers discussing their injuries and return-to-work programs. This is followed by an approximately two hour tour of the site during which we see what the workers do, where injuries have occurred and a selection of suitable duties for return-to-work programs. We conclude with the opportunity to further discuss injuries and return-to-work with workers and management. Finally there are group discussions and you have an opportunity to individually reflect on the visit and evaluate the program.

Godfrey Hirst and Ford Motors Carpets, Geelong
On Friday, 21 September 2012, we are considering another whole day visit by combining two work sites; Godfrey Hirst Carpets in the morning and Ford Motor Company in the afternoon. Depending on demand we may organise a bus from the College. Each of these factory visits will be a similar format to Qantas.

Edward (Ted) Schutz
Comenius