NHS
Royal Free London
NHS Foundation Trust

Pears Community news

In association with
royal free charity
UCL

Building

Issue 15 September 2019

A topping out ceremony next month will mark the building reaching its highest point.

The concrete frame of the Pears Building, which will house the UCL Institute of Immunology and Transplantation (IIT), will soon reach the seventh floor. Visitors to a topping out ceremony will be invited to place some of the first bricks into the structure.

Inside, we talk to Maxine Tran about her research into kidney cancer. And one of her patients tells us how Miss Tran saved her life – and her brother's.

Building update and IIT news

Topping out ceremony

Invitations for a topping out ceremony in mid-October will be issued shortly as the building, on schedule to be completed by September 2020, will soon reach its full seven floors in height. Visitors will be invited to place some of the first bricks into the structure.

With the concrete frame nearing completion, attention is now on the external façade and internal fit-out. A mock-up of the façade has been produced on the building to illustrate how the windows, brickwork and other external features will look.

Mechanical and electrical plant is being installed in the basement and construction of the internal walls, which will contain the laboratories, is due to start soon. We've also started asking for the views of current patients on the finish in the new patient areas.

We continue to monitor the work to minimise the impact on our neighbours.

Change that is skin-deep but profound

A way to repair a network crucial to the immune system has been revealed by IIT researchers writing in *Science Immunology.*

Langerhans cells, present in the outer layer of the skin, the epidermis, make sure that our immune system fights off things it should, like infections, but doesn't react to everyday minor injuries, which could cause allergies like dermatitis.

Unusually, these cells, which create a protective network, are present in the skin before birth and, unlike other immune cells which are continually replenished from the bone marrow, the same cells remain for life. However when a patient is being treated for cancer with a bone marrow transplant, T-cells enter the skin and start killing off the Langerhans cells.

Dr Clare Bennett, principal investigator at the IIT, explained: "So we have a situation where this injury in the skin is man-made – caused by something we're doing to treat cancer – and the big question was how can we repair this network of cells if the original cells came from the embryo before we were born?"

Dr Bennett and her team have discovered that cells called monocytes can enter the skin naturally from the blood, to fill the empty space left behind when the Langerhans cells are killed, and change from being typical, short-lived immune cells into Langerhans cells.

"We've shown that our need to have really tight control of our immune responses in the skin is so important that even if a different cell comes in, the environment within the epidermis can make sure it functions in the same way as a Langerhans cell. Understanding how the Langerhans cell network is maintained gives us insights into how immune protection in the skin can be lost in some diseases, and how we might be able to fix it."

Focus on the IIT

As imaging techniques have improved, so has the detection rate of all cancers - and kidney cancer is no exception. But, as Maxine Tran and her research team have discovered, when you pick up an early kidney cancer, immediate treatment is not necessarily the best plan.

The number of patients diagnosed with kidney cancer has more than doubled in the past 40 years and is steadily increasing. It is now one of the 10 most common cancers – more than 14,000 people in the UK suffer from it. The increase is partly due to improved diagnostic techniques but, as with some other cancers, there is also a link with obesity and smoking. In about five per cent of patients a genetic defect is responsible. Around two thirds of kidney cancers are now diagnosed incidentally, when patients are having scans for non-related symptoms or illnesses, and about half of kidney tumours are diagnosed when they are less than 4cm in size (called small renal masses).

Most small kidney tumours pose little risk

"Not all kidney tumours are cancers; in fact up to 30 per cent can be benign. Most small tumours, whether cancerous or benign, grow slowly and pose little risk of harm – some can even shrink," said Miss Tran, who is associate professor in kidney cancer and an honorary consultant urological surgeon.

"But some kidney tumours can grow rapidly and spread. What we need are better tools such as biomarkers which can help distinguish the tumours which are destined to behave badly from the ones which cause little harm – so we know which is which. That is what my research team is focused on."

Without knowing which type of cancer they're dealing with, clinicians can't know which of the many available treatments is likely to work best – or indeed if any treatment at all is needed.

"Some of our patients have cancers that put them at high risk of rapid growth and spread and they obviously need treatment quickly. Other patients we will need to keep under what we call active surveillance – in other words, we regularly scan them to monitor the behaviour of the tumour, and treatment is triggered when the tumour reaches a certain size. Some patients' tumours never reach that point.

"Since interventions can cause further deterioration in kidney function, patients on surveillance are preserving their kidney function for as long as possible and for those whose tumours don't pose a long-term threat, they are spared unnecessary treatment."

Other patients are those with rare inherited kidney cancers. These people often have multiple tumours at various stages of development and clinical management is focused on preservation of kidney function for as long as possible while delivering effective treatment.

Large number of patients

One of the key facilitators of Miss Tran's research has been the large number of patients treated by the Royal Free Hospital's Specialist Centre for Kidney Cancer, which is now the largest centre of its kind in western Europe. Set up in 2014 as part of UCL Partners' academic health science network and the NHS Cancer Alliance for north and east London, it has grown rapidly. Each year it now sees around 4,000 patients and performs more than 450 kidney cancer operations. Its multidisciplinary team reviews between 80 and 90 patients weekly.

"The high volume of patients, their generosity in donating blood and tissue samples for our work and the close links between clinicians and scientists mean that we can translate our insights in the laboratory to workable treatments for patients much faster."

She sees the move of the IIT to the Pears Building as an important step in the progress of her research. "It's really exciting. The new building will bring together leading experts in immunology and clinicians in state-of-the-art facilities. This will encourage networking, creating opportunities for collaboration, an accelerated pace of research and faster translation to clinical practice. This will significantly benefit not just our patients but cancer patients everywhere."

Professor Tran (centre) with her team.

Q&A with Jenny, a kidney cancer patient

Hereditary leiomyomatosis and renal cell cancer (HLRCC) is a rare disorder in which affected people tend to develop benign tumours in the skin and, in women, the uterus. It increases the risk of kidney cancer. It is one of the conditions treated at the Royal Free Hospital's Specialist Centre for Kidney Cancer (see page 3).

When did you first notice something was wrong?

When I was about 14 or 15 I noticed a small lump on my neck. My GP said it was a cyst and that it should just go naturally but it didn't. Some years later, when I was 30 and had my first daughter, I got some more lumps in the same area and was referred to my local hospital in Essex where they did a biopsy and told me I had HLRCC. No one in our family had ever heard of it, or had any symptoms, even though it's hereditary.

It was a shock but I wasn't really worried because the doctors played it down, saying I'd just have to have ultrasound scans of my kidneys every couple of years and that there was only a five per cent chance of developing kidney cancer. I've since found out it's actually 15%.

What happened next?

Two years later no one had got in touch about my next scan so my GP referred me to the Royal Free. There I was told I actually needed an annual MRI scan and either then or on the next one they found some lumps on my kidneys. They reassured me this was normal with this condition and that they would keep an eye on them but six months later they said they thought they might be changing and would need more monitoring.

By then, in 2017, I had two young children and was finding it difficult to travel so frequently to the Royal Free Hospital so we agreed they should operate and take biopsies. One lump was cancerous and when they checked the margins of what they'd removed they realised they'd have to take the whole kidney. They found cysts on the other side too and again one was cancerous but this time they were able to get it all without removing the kidney.

That must have been a difficult time

Yes, they were dark days but I was so grateful to Maxine Tran, my consultant at the Royal Free Hospital. She saved my life. I was obviously sad I'd had cancer but there are so many people who walk around not knowing they've got it until it's too late. Apparently the cancer is quite a vicious one too, not slow growing – I was lucky. I was told there are only around 300 families in the world with this disease.

But I was given the all-clear in April this year and moved from three-monthly scans to six-monthly. The remaining kidney is working fine – I have regular blood tests at my local hospital and touch wood everything is very good.

What about the rest of your family?

Because this is a hereditary condition, the rest of the family was tested, apart from my youngest, who's too young at the moment. I now know I inherited it from my Dad – there's a 50% chance of passing it to your child - and we've found out that my brother has it as well. When they tested my brother they found a cancerous tumour on his kidney but apparently it's not the same disorder – an amazing coincidence.

My Dad, who's never had any symptoms, has cysts too but just needs monitoring at the moment. And we've just had the results from my eldest child and she's clear, thank goodness. My five-year-old will be tested later.

And what of the future?

As I say, I'm so grateful that this was found and I do feel that Maxine saved my life and my brother's. Things could have been very different. It's been a bumpy road – I had sepsis after one of my operations – but things are as good as they could be now. I'm so grateful for the support of my family.

I've heard that the IIT is doing research into kidney cancer and I'm glad to do anything I can to help by donating blood samples to help them to understand it further.

I know that if I have passed it to my youngest, any grandchildren could be affected, but it's amazing what they're finding out now and what they can do to help patients, even with such a rare disease.